

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

LAST CHG :03:10:76

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2 *
3 DECK 4
4 SEQ 6
5 COM THIS PREVENTS GENERATION OF OBJECT DECK
6 PAP START X'0'
7 *****
8 * BOOTSTRAP - FIRST CARD
9 *****
10 *****
11 * LOADER FOR MFCU
12 * THIS ONE CARD PROGRAM IS CONTAINED IN THE FIRST CARD OF THE
13 * DIAGNOSTIC CONTROL PROGRAM. IT IS READ INTO LOCATIONS 0-95 BY
14 * INITIAL PROGRAM LOAD. WHEN GIVEN CONTROL, THE BOOTSTRAP ROUTINE
15 * READS THE SECOND CARD OF THE DCP OBJECT DECK INTO X'200' AND
16 * BRANCHES TO IT.
17 *
18 * NOTE - THE SECOND TIER OF THIS CARD CONTAINS THE PART NUMBER AND
19 * EC LEVEL OF DCP.
20 *****
0000 0000 21 USING BOOT1,XR1
22 BOOT1 LA 0,XR1 LOAD BASE REGISTER
23 TIO BOOT1E(,XR1),X'F0' GO HALT IF MFCU ERROR OR NOT READY
24 LIO BOOT1I(,XR1),X'F5' LOAD READ ADDRESS REGISTER
25 SIO IPL,READ READ A CARD INTO LOCATIONS 512-607
26 BOOT1A TIO BOOT1A(,XR1),X'F1' LOOP UNTIL DONE
27 TIO BOOT1E(,XR1),X'F0' GO HALT IF ERROR
28 B BOOT2 GO TO BOOTSTRAP ROUTINE
29
30 BOOT1E HPL H5,HH *MFCU NOT READY OR ERROR
31 B BOOT1(,XR1) GO TRY AGAIN
32
001D 0200 001E 33 BOOT1I DC AL2(512)
34
001F 40D7D540F4F2F4F8 003B 35 DC CL29' PN 4248230 EC 827872 L'
0027 F2F3F04040C5C340 35
002F F8F2F7F8F7F24040 35
0037 40404040D3 35
36 *

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ACTUAL VALUES ARE IN ACTUAL CARD.

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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38 *****
39 * BOOTSTRAP - SECOND CARD
40 *****
41 *
42 * THIS ONE CARD PROGRAM IS CONTAINED IN THE SECOND CARD OF THE
43 * DIAGNOSTIC CONTROL PROGRAM. IT IS READ INTO LOCATIONS 512-565
44 * BY THE IPL CARD. THIS ROUTINE READS THREE IPL FORMAT CARDS INTO
45 * LOW CORE TO BUILD ENOUGH OF THE DIAGNOSTIC LOADER TO HANDLE TEXT
46 * CARDS. THEN THE BOOTSTRAP ROUTINE BRANCHES TO THIS PORTION OF
47 * THE DIAGNOSTIC LOADER, WHICH LOADS THE REMAINDER OF THE LOADER
48 * AND DCP.
49 *
50 *****
0200 0200 51 ORG 512
52 USING BOOT2,XR1
53 USING BOOT2,XR2
54 BOOT2 LA BOOT2,XR2 LOAD BASE REGISTERS
55 BT2 LA 96(,XR1),XR1
56 J BOOT2A
57 BOOT2E HPL H5,HH *MFCU NOT READY OR ERROR
58 BOOT2A TIO BOOT2E(,XR2),X'F0' GO HALT IF MFCU NOT READY OR ERROR
59 LIO BOOT2I(,XR2),X'F5' LOAD READ LSR FOR ADDR 0000
60 SIO IPL,READ READ A CARD
61 BOOT2B TIO BOOT2B(,XR2),X'F1' LOOP UNTIL DONE
62 TIO BOOT2E(,XR2),X'F0' GO HALT IF ERROR
63 MVC 59(60,XR1),59 MOVE DATA TO CORE
64 LA 60(,XR1),XR1 INCREMENT POINTER FOR NEXT CARD
65 SLC BOOT22(1,XR2),BOOT21(,XR2) CONTINUE UNTIL 4 CARDS HANDLED
66 BNZ BOOT2A(,XR2)
67 MVI X'8FF',C' ' CLEAR PRINT FIELD
68 MVC X'8FE'(255),X'8FF' GO TO DIAGNOSTIC LOADER
69 S NEXTR
70
0205 71 BOOT2I EQU BT2+1
0239 72 BOOT22 DC IL1'3'
0238 73 BOOT23 DC AL2(0)
0200 C2 02 0200
0204 D2 01 60
0207 F2 87 03
020A F0 38 5D
020D E1 F0 0A
0210 B1 F5 38
0213 F3 F1 40
0216 E1 F1 16
0219 E1 F0 0A
021C 4C 38 38 003B
0221 D2 01 3C
0224 AF 00 39 05
0228 E0 01 0D
022B 3C 40 08FF
022F 0C FE 08FE 08FF
0235 C0 87 008B
0239 03
023A 0000

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FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
53 ***** ROUTINE 1 *****
54 *****
55 *
0A16 01 0A16 56 RTN1 DC XL1'1' *
0A17 00 0A17 57 DC XL1'0' * POUTINE #
0A18 0DF0 0A19 58 DC AL2(RTN2) * FLAG
59 * * NEXT ROUTINE
60 *****
61 *****
0A1A C0 87 021A 62 B PRINT PRINT SSW
0A1E 43 0A1E 63 DC XL1'43'
0A1F 000000FF00 0A23 64 DC XL5'FF00'
0A24 3C A8 134C 65 MVI DSKDRV,X'A8'
0A28 C0 87 021A 66 B PRINT PRINT
0A2C 07 0A2C 67 DC XL1'07' MESSAGE
0A2D 4F 0A2D 68 DC AL1(DSKM33-DSKM32) TO
0A2E 0A87 0A2F 69 DC AL2(DSKM33) LOAD
0A30 C0 87 0222 70 B HALT DRIVE 2
0A34 FFFF 0A35 71 DC XL2'FFFF' THEN START
0A36 F2 87 4F 72 J DSKM33+1 JUMP DC'S
0A38 73 DSKM32 EQU *-1
0A55 74 DC CL29' MAKE SYSTEM PACK CONTAINING '
0A39 40D4C1D2C540E2E8 74
0A41 E2E3C5D440D7C1C3 74
0A49 D240C3D6D5E3C1C9 74
0A51 D5C9D5C740 74
0A56 C5D9D9D6D940C9D5 0A70 75 DC CL27' ERROR INFORMATION READY ON '
0A5E C6D6D9D4C1E3C9D6 75
0A66 D540D9C5C1C4E840 75
0A6E D6D540 75
0A71 C4D9C9E5C540F24B 0A87 76 DSKM33 LC CL23' DRIVE 2. DEPRESS START.'
0A79 40C4C5D7D9C5E2E2 76
0A81 40E2E3C1D9E34B 76
0A88 C2 02 0001 0A88 77 MODELG EQU *
78 LA 1,XR2 SYNC PT 1
0A8B 79 ONE EQU *-1
0A8C C0 87 1311 80 B SYNNOV
0A90 C0 87 0EF6 81 B SCAN
82 *
83 * PRINT HEADERS OF OBR TABLE
84 * SET UP COLUMN TABS
85 * READ FIRST HALF OF OBR IN DBUF
86 * TURN OFF SFLG
87 * MOVE FIRST HALF
88 * READ SECOND HALF INTO DBUF
0A94 0C FF 2622 2722 89 MVC DBUF-1(256),DBUF+255
89 *
0A9A C0 87 0EF6 90 *
0A9E 0C 5F 24F8 08DF 91 MVC PBUF+95(96),PRTBUF+95
92 * ROTATE TABLE DOWN UNTIL LAST ENTRY IS AT BOTTOM
0AA4 0C 01 2513 0D95 93 MVC TEMP,OBR1 PLACE X'01FF' IN TEMP
0AAA 0F 01 2513 2524 94 SLC TEMP,DBUF+1-256 COMPUTE SHIFT COUNT
0AB0 F2 81 24 95 JZ RTN103 TEMP CONTAIN THE # OF BYTE TO
0AB3 39 07 2513 96 *
0AB7 C0 90 0D05 97 *
0ABB 0C 07 252A 2722 98 RTN102 MVC DBUF+7-256(8),DBUF+255 SHIFT DOWN.
0AC1 0C F7 2722 271A 99 MVC DBUF+255(256-8),DBUF+255-8 SHIFT OBR TABLE DOWN 1 ENTRY
0AC7 0C FF 262A 2622 100 MVC DBUF+7(256),DBUF-1 (EIGHT BYTES- ONE ENTRY)
0ACD 0F 01 2513 239B 101 SLC TEMP,EIGHT
0AD3 C0 01 0ABB 102 *
0AD7 0C 01 251A 238F 0AD7 103 RTN103 EQU * WORK FROM BOTTOM UP TO FIND OLDEST ENTRY
104 MVC OBRNT(2),OBRND(2)
105 MVI DBUF-256,0
106 RTN104 L OBRNT,XR1
107 MVC TEMP(1),O(XR1)
108 SBF TEMP,X'0F'
109 CLI TEMP,X'00'
110 JE RTN106
111 CLI TEMP,X'A0'
112 JL LABEL

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0AFC 3D 00 2513 113 CLI TEMP,X'D0'
0B00 F2 04 14 114 JNH RTN105
0B03 3C 08 23AD 115 LABEL MVI OBRNT,8
0B07 0E 07 2522 2522 116 ALC ENTADD,ENTADD NOT DISK ENTRY
0B0D 0F 01 251A 23AD 117 RTN109 SLC OBRNT,OBRNT
0B13 C0 87 0AE1 118 B RTN104
0B17 0D 01 251A 238D 0B17 119 RTN105 EQU *
0B1D F2 81 12 120 CLC OBRNT,OBRNT CHECK FOR HALF ENTRY
0B20 3C 10 23AD 121 JE HALFNT
0B24 0E 07 2522 2522 122 MVI OBRNT,16 DISK ENTRY
0B2A 3A 01 2522 123 ALC ENTADD,ENTADD
0B2E C0 87 0B0D 124 SBN ENTADD,1
125 B RTN109
0B32 126 HALFNT EQU *
0B32 127 RTN106 EQU *
128 ALC OBRNT,OBRNT
129 *
130 * OBRNT NOW CONTAIN THE ADDRESS 0 BYTES
131 * OF OLDEST ENTRY
0B38 0D 01 251A 238F 131 CLC OBRNT,OBRNT
0B3E C0 84 0D10 132 BR EMPTY CHECK FOR EMPTY TABLE
133 * COMPUTE ADDRESS IN BRTBL
0B42 0C 01 0CD5 2397 134 MVC BYTE,ENTADD
0B48 3C 01 0CD3 135 MVI MASK,X'01'
0B4C 136 RTN108 EQU *
0B4C 0C 5F 08DF 24F8 137 MVC PRTBUF+95(96),PBUF+95
0B52 0C 01 2513 23A1 138 MVC TEMP,ZERO TO BRANCH ON
0B58 35 01 251A 139 L OBRNT,XR1
0B5C 18 02 2513 00 140 MZ TEMP,O(XR1)
0B61 0F 01 2513 2513 141 ALC TEMP,TEMP
0B67 C2 02 0D95 142 LA BRTBL-2,XR2
0B6B 36 02 2513 143 A TEMP,XR2
0B6F B5 02 00 144 L O(XR2),XR2
0B72 34 02 0BB9 145 ST BR+3,XR2
146 *
0B76 0E 01 2513 2513 147 ALC TEMP,TEMP MOVE DEVICE # INTO HISTORY TABLE
0B7C C2 02 0DB3 148 LA DVTBL-1,XR2
0B80 36 02 2513 149 A TEMP,XR2
0B84 7D 89 00 150 CLI O(XR1),X'89' CHECK FOR DA ENTRY
0B87 F2 01 04 151 JNE **7 NO
0B8A C2 02 0D04 152 LA DACON,XR2 YES
0B8E 2C 03 0885 00 153 MVC PRTBUF+5(4),O(XR2)
0B93 3C 01 23BB 154 MVI TABIDX,1
0B97 34 01 23B7 155 ST CNTOPS,XR1 COMPUTE COUNT OFFSET
0B9B 0F 01 23B7 1354 156 SLC CNTOPS,DBUF COULD BE NEGATIVE
157 *
0BA1 1C 03 24FC 03 158 MVC QRSNS+3(4),3(XR1)
0BA6 C0 87 1273 159 B HEXHEX Q BYTE
0BAA C0 87 1273 160 B HEXHEX R BYTE
0BAE C0 87 12AF 161 B CVTBIN SENSE BYTE 0
0BB2 C0 87 12AF 162 B CVTBIN SENSE BYTE 1
0BB6 C0 87 0000 163 BR*
164
164
164
0BBA 165 Q80 EQU * BSCA
0BBE C0 87 1273 166 SBN DVPLG-1,X'20'
0BC2 3C 02 23BB 167 B HEXHEX COMPLETION CODE
168 MVI TABIDX,2 BACKUP
169 * AND
0BC6 C2 02 2623 170 LA DBUF,XR2 RECONVERT
0BCA 36 02 23B7 171 A CNTOPS,XR2 BYTE 2 (PTRY COUNT)
0BCE 8C 00 00 24FA 172 MVC O(1,XR2),QRSNS+1 TO
0BD3 C0 87 11C2 173 B HEXDEC DECIMAL
0BD7 C0 87 0CA2 174 B RTN107
175 *
0BDB 176 Q10 EQU *
177 SBN DVPLG-1,X'80' 5471 - CONSOLE-KEYBOARD

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FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT | |
|----------------------|-------------|------|---------|------------------|-----------------------------|
| GBDF 35 01 238F | | 178 | L | OBRND@,XR1 | CHECK Q FOR PRINTER |
| GBE3 38 08 24P9 | | 179 | TBN | QRSNS,X'08' | |
| GBE7 C0 90 OCA2 | | 180 | BF | RTN107 | |
| GBEB C0 87 1273 | | 181 | B | HEXHEX | |
| GBEF C0 87 OCA2 | | 182 | B | RTN107 | |
| | | 183 | EQU | * | 1442 |
| GBF3 3A 40 OD90 | OBFB | 184 | SBN | DVPLG-1,X'40' | |
| GBF7 C0 87 OCA2 | | 185 | B | RTN107 | |
| | | 186 | | | |
| | | 187 | EQU | * | 5203 |
| GBFB 3A 04 OD90 | | 188 | SBN | DVPLG-1,X'04' | |
| GBFF 38 20 OA0E | | 189 | TBN | PLG14,X'20' | TEST FOR 1403 ATTACHED |
| GC03 F2 90 08 | | 190 | JF | P1403 | |
| GC06 3C F1 0892 | | 191 | NVI | PRTBUF+2,C'1' | |
| GC0A 3C F4 0883 | | 192 | NVI | PRTBUF+3,C'4' | |
| GC0E 38 04 24FB | | 193 | TBN | QRSNS+2,X'04' | CHECK FOR HAMMER ECHO CHECK |
| GC12 C0 90 OCA2 | | 194 | BF | RTN107 | |
| GC16 0E 01 23B7 | OA8B | 195 | ALC | CNTOPS,ONE | LOOK AT LOW BYTE OF LDPAR |
| GC1C C2 02 2623 | | 196 | LA | DBUF,XR2 | CONVERT LDPAR TO A DECIMAL |
| GC20 36 02 23B7 | | 197 | A | CNTOPS,XR2 | HAMMER # |
| GC24 BD 7C 00 | | 198 | CLI | 0(,XR2),X'7C' | |
| GC27 F2 82 65 | | 199 | JL | INVALID | |
| GC2A 38 20 OA0E | | 200 | TBN | PLG14,X'20' | TEST FOR 1403 ATTACHED |
| GC2E F2 10 39 | | 201 | JT | PT1403 | |
| GC31 8F 00 00 23BC | | 202 | SLC | 0(,XR2),I123 | |
| GC36 BD 16 00 | | 203 | CLI | 0(,XR2),24 | |
| GC39 F2 84 22 | | 204 | JH | S21 | |
| GC3C BD 10 00 | | 205 | CLI | 0(,XR2),16 | |
| GC3F F2 84 14 | | 206 | JH | A107 | |
| GC42 BD 0C 00 | | 207 | CLI | 0(,XR2),12 | |
| GC45 F2 84 06 | | 208 | JH | A119 | |
| GC48 BD 05 00 | | 209 | CLI | 0(,XR2),5 | |
| | OC49 | 210 | I5 | EQU | *-2 |
| | | 211 | JNL | A107 | |
| GC4E 8E 00 00 23BE | | 212 | ALC | 0(,XR2),I119 | |
| GC53 F2 87 0D | | 213 | J | DIVBY4 | |
| GC56 8E 00 00 23BD | | 214 | ALC | 0(,XR2),I107 | |
| GC5B F2 87 05 | | 215 | J | DIVBY4 | |
| GC5E 8F 00 00 23C0 | | 216 | S21 | SLC | 0(,XR2),I21 |
| GC63 C0 87 1199 | | 217 | DIVBY4 | B | RSHIF |
| GC67 F2 87 1E | | 218 | J | BOTH | |
| | OC6A | 219 | PT1403 | EQU | * |
| | | 220 | JE | ADD8 | |
| GC6A F2 81 0E | | 221 | CLI | 0(,XR2),X'7E' | |
| GC6D BD 7E 00 | | 222 | JH | SUB126 | |
| GC70 F2 84 10 | | 223 | ALC | 0(1,XR2),I5 | ADD 5 |
| GC73 8E 00 00 0C49 | | 224 | J | BOTH | |
| GC78 F2 87 0D | | 225 | ADD8 | ALC | 0(1,XR2),EIGHT |
| GC7B 8E 00 00 239B | | 226 | J | BOTH | |
| GC80 F2 87 05 | | 227 | SUB126 | SLC | 0(1,XR2),I126 |
| GC83 8F 00 00 23BF | | 228 | | | |
| | | 229 | BOTH | B | HEXDEC |
| GC88 C0 87 11C2 | | 230 | J | RTN107 | |
| GC8C F2 87 13 | | 231 | INVALID | EQU | * |
| | OC8F | 232 | B | PRTPOS | |
| GC8F C0 87 12F4 | | 233 | MVC | 0(7,XR1),INV | INVALID HAMMER # |
| GC93 4C 06 00 23C7 | | 234 | J | RTN107 | |
| GC98 F2 87 07 | | 235 | | | |
| | OC9B | 236 | QFO | EQU | * |
| | | 237 | SBN | DVPLG-1,X'08' | 5424 |
| GC9B 3A 08 OD90 | | 238 | J | RTN107 | |
| GC9F F2 87 00 | | 239 | | | |
| | OCA2 | 240 | PTN107 | EQU | * |
| | | 241 | B | PRINT | PRINT LINE |
| OCA2 C0 87 021A | | 242 | DC | XL1'21' | |
| OCA6 21 | OCA6 | 243 | CLC | OBRND@,OBRNT@ | CHECK FOR END |
| OCA7 0D 01 238F 251A | | 244 | JE | RTN1X | |
| OCA9 F2 81 6C | | 245 | ALC | OBRNT@,EIGHT | |
| OC30 0E 01 251A 239B | | | | | |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT | |
|-----------------------|-------------|------|--------|------------------------|--|
| OCB6 0D 01 238F 251A | | 246 | CLC | OBRND@,OBRNT@ | CHECK FOR END |
| OCBC F2 81 20 | | 247 | JE | RTN11X | |
| OCBF 0E 00 0CD3 0CD3 | | 248 | ALC | MASK,MASK | |
| OCC5 F2 01 0A | | 249 | JNZ | TBN | |
| OCC8 0F 01 0CD5 0A8B | | 250 | SLC | BYTE@,ONE | |
| OCCE 3C 01 0CD3 | | 251 | MVI | MASK,X'01' | |
| | 0CD3 | 252 | MASK | EQU | *+1 |
| | | 253 | TBN | TBN | *-*,*-- |
| 0CD2 38 00 0000 | | 254 | BYTE@ | DS | OAL2 |
| 0CD6 | 0CD5 | 255 | BYTE@ | DS | OAL2 |
| 0CD6 F2 90 06 | | 255 | JF | RTN11X | |
| 0CD9 0E 01 251A 239B | | 256 | ALC | OBRNT@,EIGHT | |
| 0CDF C0 87 0B4C | | 257 | RTN11X | B | RTN108 |
| 0CE3 C5D9D9D6D940C8C9 | OD00 | 258 | MSGX | DC | CL30'ERROR HISTORY TABLE IS INVALID' |
| 0CEB E2E3D6D9E840E3C1 | | 258 | | | |
| 0CF3 C2D3C540C9E240C9 | | 258 | | | |
| 0CFB D5E5C1D3C9C4 | | 258 | | | |
| 0D01 40C4C140 | | 259 | DACON | DC | CL4' DA * |
| | OD04 | 260 | Q20 | EQU | * |
| | OD05 | 261 | Q30 | EQU | * |
| | OD05 | 262 | Q40 | EQU | * |
| | OD05 | 263 | Q60 | EQU | * |
| | OD05 | 264 | Q70 | EQU | * |
| | OD05 | 265 | Q90 | EQU | * |
| | OD05 | 266 | QAO | EQU | * |
| | OD05 | 267 | QBO | EQU | * |
| | OD05 | 268 | QCO | EQU | * |
| | OD05 | 269 | QDO | EQU | * |
| | OD05 | 270 | ERMSG | B | PFINT |
| OD09 07 | | 271 | DC | XL1'07' | |
| OD0A 1E | | 272 | DC | IL1'30' | |
| OD0B 0D00 | | 273 | DC | AL2(MSGX) | |
| OD0D F2 87 1F | | 274 | J | RTN11X | |
| | | 275 | | | |
| | OD10 | 276 | EMPTY | EQU | * |
| | | 277 | LA | 3,XR2 | SYNC PT 3 |
| OD14 3A 10 0EF5 | | 278 | SBN | SCNPLG,SPLG | |
| OD18 C0 87 0EF6 | | 279 | B | SCAN | |
| OD1C C2 02 0004 | | 280 | RTN1X | LA | 4,XR2 |
| OD20 3A 10 0EF5 | | 281 | SBN | SCNPLG,SPLG | SYNC PT 4 |
| OD24 C0 87 0EF6 | | 282 | B | SCAN | |
| | | 283 | * | | END PRINT OUT OF OBR TBL |
| | | 284 | * | | CHECK SSW20 TO RE-INITIALIZE OBR TBL |
| OD28 39 80 020C | | 285 | TBF | SBYTE4,SSW20 | |
| OD2C F2 90 2E | | 286 | JP | RTN111 | |
| | OD2F | 287 | RTN11X | EQU | * |
| | | 288 | MVI | DBUF+255,X'00' | |
| OD2F 3C 00 2722 | | 289 | MVC | DBUF+254(255),DBUF+255 | |
| OD33 0C FE 2721 2722 | | 290 | B | DISKIO | |
| OD39 C0 87 1333 | | 291 | DC | XL1'02' | WRITE |
| OD3D 02 | OD3D | 292 | MVI | DSKSEC,X'1C' | |
| OD3E 3C 1C 134F | | 293 | MVC | DBUF+3(4),OBR1 | |
| OD42 0C 03 2626 0D95 | | 294 | B | DISKIO | |
| OD48 C0 87 1333 | | 295 | DC | XL1'02' | WRITE |
| OD4C 02 | OD4C | 296 | | | ***** |
| | | 297 | * | | IF 3340 ATTACHED, REMIND CE THAT OBR,SDR PRINTED LATER |
| | | 298 | | | ***** |
| | | 299 | | | |
| OD4D C0 87 021A | | 300 | RTN334 | B | PRINT |
| OD51 02 | | 301 | DC | XL1'02' | PRINT --- 3340 --- |
| OD52 14 | | 302 | DC | AL1(MSG3-MSG3B) | |
| OD53 13A2 | | 303 | DC | AL2(MSG3) | |
| | | 304 | | | |
| OD55 C0 87 021A | | 305 | B | PRINT | PRINT 3340 DONE IN LATER ROUTINE |
| OD59 06 | | 306 | DC | XL1'06' | |
| OD5A 50 | | 307 | DC | AL1(MSG4-MSG4B) | |
| OD5B 13F2 | | 308 | DC | AL2(MSG4) | |
| | OD5D | 309 | RTN1X1 | EQU | * |
| | | 310 | * | | PRINT OUT MEANINGS OF ENTRIES THAT WERE IN OBR TBL |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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OD5D OC 01 23AF 23A4      311      MVC  SYNC#,FIVE
OD63 3C 10 2514          312      MVI  CNT,16
OD67 0E 01 0D91 0D91     313 RTN111 ALC  DVFLG,DVFLG
OD6D F2 20 0C           314      JNOL RTN112
OD70 35 02 23AF         315      L    SYNC#,XR2
OD74 3A 10 0EF5         316      SBN  SCNPLG,SPLG
OD78 C0 87 0EF6         317      B    SCAN
OD7C 0E 01 23AF 0A8B    318 RTN112 ALC  SYNC#,ONE
OD82 0F 00 2514 0A8B    319      SLC  CNT,ONE
OD88 C0 01 0D67         320      BNZ  RTN111
GD8C C0 87 0216         321      B    LINK
    
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SYNC PT 5

END ROUTINE 1

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

OD90 0000          0D91 324 DVFLG      DC  XL2*0*
OD92 01FF01FF     0D95 325 OBR1       DC  XL4*01FF01FF*
                                326 *      DEVICE BIT   BYTE
                                327 *      5471   0     1
                                328 *      1442   1     1
                                329 *      BSCA   2     1
                                330 *          3     1
                                331 *      5424   4     1
                                332 *      5203/1403 5     1
                                333 *          6     1
                                334 *          7     1
                                335 *          8     2
                                336 *          9     2
                                337 *         10    2
                                338 *         11    2
                                339 BRTBL   DC  AL2(Q10)
                                340          DC  AL2(Q20)
                                341          DC  AL2(Q30)
                                342          DC  AL2(Q40)
                                343          DC  AL2(Q50)
                                344          DC  AL2(Q60)
                                345          DC  AL2(Q70)
                                346          DC  AL2(Q80)
                                347          DC  AL2(Q90)
                                348          DC  AL2(QA0)
                                349          DC  AL2(QB0)
                                350          DC  AL2(QC0)
                                351          DC  AL2(QD0)
                                352          DC  AL2(QE0)
                                353          DC  AL2(QF0)
                                354 DVTBL   EQU  *
                                355          DC  CL4*5471*
                                356          DC  CL4*   *
                                357 BLANK   EQC  *-1
                                358          DC  CL4*   *
                                359          DC  CL4*   *
                                360          DC  CL4*1442*
                                361          DC  CL4*   *
                                362          DC  CL4*   *
                                363          DC  CL4*BSCA*
                                364          DC  CL4*   *
                                365          DC  CL4*   *
                                366          DC  CL4*   *
                                367          DC  CL4*   *
                                368          DC  CL4*   *
                                369          DC  CL4*5203*
                                370          DC  CL4*5424*
    
```

SYNC PT
5
6
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16

KEYBOARD

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

```

ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
      372 ***** ROUTINE 2 *****
      373 *****
      374 *
ODF0 02      ODF0 375 RTN2   DC    XL1'2'   * ROUTINE #
ODF1 00      ODF1 376      DC    XL1'0'   * FLAG
ODF2 1770    ODF3 377      DC    AL2($RTN3) * NEXT ROUTINE
      378 *
      379 *****
      380 *****
ODF4 C0 87 021A      381      B      PRINT          PRINT SSW
ODF8 41      ODF8 382      DC    XL1'41'
ODF9 0000G0FF00     ODFD 383      DC    XL5'FP00'
ODFE 38 20 0A0E     384      TBN   FLG14,X'20'   1403 ATTACHED?
OE02 F2 90 04      385      JF     *+7           NO
OE05 3C E1 0EFO     386      MVI   E1,X'E1'     YES
OE09 39 20 0A14     387      TBF   D51-1,X'20'  51 PRESENT?
OE0D F2 10 04      388      JT     *+7           NO
OE10 3C 51 0EEF     389      MVI   DD51,X'51'   YES
JE14 38 20 0A11     390      TBN   FLGDA,X'20'  DA ATTACHED?
OE18 F2 90 04      391      JF     *+7           NO
OE1B 3C 89 0EF3     392      MVI   DA89,X'89'   YES
OE1F 3C A8 134C     393      MVI   DSKDRV,X'A8'
OE23 C2 02 0002     394      LA    2,XR2
      OE26 395 TWO      EQU   *-1
      OE27 C0 87 1311   396      B      SYNHOV          SYNC PT # 2
      OE2B 3C 07 2514   397 SDRNXT      EQU   *
      OE2B 3C 07 2514   398      MVI   CNT,SDRLEN-SDRTBL NUMBER OF DEVICES IN SDR TABLE
      OE2F 3C 03 23AF   399      MVI   SYNC#,3
      OE33 C2 02 0EEE   400      LA    SDRTBL,XR2
      OE37 34 02 2518   401      ST    SDRIDX,XR2
      JF3B 35 01 2518   402 SDR6      L     SDRIDX,XR1
      OE3F C2 02 0232   403      LA    UDT,XR2
      OE43 6D 00 00 00  404 SDR2      CLC   0(1,XR1),0(,XR2) SEARCH UDT FOR CODE
      OE47 F2 81 0D     405      JE    SDRFND
      OE4A B8 10 01     406      TBN   1(,XR2),X'10' CHECK FOR END
      OE4D F2 10 84     407      JT    SDR1
      OE50 E2 02 03     408      LA    3(,XR2),XR2
      OE53 C0 87 0E43   409      B     SDR2
      410 *
      OE57 411 SDRFND   EQU   *
      412      L     SYNC#,XR2
      413      SBN   SCNPLG,SPLG
      414      B     SCAN
      415      SBP   SCNPLG,BSPLG
      416      L     SDRIDX,XR1
      417      CLI   0(,XR1),X'80' CHECK FOR BSCA
      418      JE    SDRBSC
      419      CLI   0(,XR1),X'88'
      420      JE    SDRBSC
      421      CLI   0(,XR1),X'89' CHECK FOR DA
      422      JE    SDRBSC
      OE7D 423 SDR5     EQU   *
      424 SDR3      B     HEXDEC
      425      SLC   TABTBL(1),ONE
      426      BNZ   SDR3
      427      B     PRINT
      OE8F 428      DC    XL1'21'
      429      B     SCAN
      430      J     SDR4
      431 *
      OE97 432 SDRBSC   EQU   *
      433      MVI   CCNT,48
      434 SDRBS      B     HEXDEC
      435      MVI   CNTLNG,2
      436      ALC   CNTOPS,CCNT
      437      B     HEXDEC
      438      B     PRINT
      OEB1 21      OEB1 439      DC    XL1'21'

```

```

ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
      440      B     SCAN
      441      MVI   TABIDX,1
      442      SLC   CCNT,TWO      CHECK FOR LAST LINE
      443      CLI   CCNT,48-26
      444      BNE   SDRBS
      OEC8 445 SDR4     EQU   *
      446      TBF   SBYTE4,SSW20
      447      JP    SDR1
      448      B     DISKIO
      OED3 449      DC    XL1'02' WRITE
      450 SDR1      ALC   SYNC#,ONE
      451      ALC   SDRIDX,ONE
      452      SLC   CNT,ONE
      453      BNZ   SDR6
      454      B     LINK
      455
      455
      OEEE 456 SDRTBL  EQU   *
      OEEF 457      DC    XL1'10'   5471
      OEEF 458 DD51   DC    XL1'51'   1442
      OEF0 459 E1     DC    XL1'E0'   5203/1403
      OEF1 460      DC    XL1'F0'   5424
      OEF2 461      DC    XL1'80'   BSCA
      OEF3 462 DA89   DC    XL1'88'   BSCA 2/DA
      OEF4 463      DC    XL1'40'   3741
      464
      OEF5 465 SDRLEN  EQU   *
      466
      467 *
      THIS EQU MUST AT END OF SDRTAB
      END ROUTINE 2

```

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```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
469 *****
470 * SCAN *
471 *****
472 * CONTROL CHAR
473 * ( PRINT LINE ?-BLANKS,EXCM-ASTERISK
474 * < DISK INF.
475 * CENT COUNTER INF
476 * > TAB INF.
477 * % RETURN
478 * + LINE SPACE
479 *****
0EF5 80 0EF5 48C SCNPLG DC XL1'80'
481 *
0080 482 PFLG EQU X'80' *BIT* 0 *MEANING FIRST FLAG
483 * EQU X'40' 1
0020 484 NFLG EQU X'20' 2 NON-STANDARD PACK
0010 485 SFLG EQU X'10' 3 SYNC FLAG
0008 486 ZFLG EQU X'08' 4 ZERO FLAG
0004 487 UFLG EQU X'04' 5 USED FLAG
0002 488 BSPLG EQU X'02' 6 PRINTER FOR SDR TABLES
489 * EQU X'01' 7
0EF6 490 SCAN EQU *
491 ST SCNEXT,ARR
492 LA SYNTBL-6,XR1
493 SC1 A SIX,XR1
494 A FFFF,XR2
495 BNZ SC1
496 TBN SCNPLG,SPLG TEST SYNC FLAG ON
497 JF SC3
498 TBN SCNPLG,PFLG
499 JT SC2
500 SYN1 CLC CRDNMB,3,(XR1)
501 JE SYN2
502 JH RELOAD
0F23 503 SC2 EQU *
504 B READ
505 B SYN1
506 SYN2 MZN 5,(XR1),4,(XR1)
507 MVC H24(1),5,(XR1) BRING OFFSET TOGETHER
0F34 508 L H24,XR2
509 A CBUF0,XR2
510 ST CSTR0,XR2 SET UP COLUMN START ADDRESS
511 J NEXT
0F43 512 RELOAD EQU *
513 CLI X'232',X'C1' TEST FOR DISK DCP
514 JE SC4
515 B PRINT
0F4E 516 DC XL1'87'
0F4F 517 DC IL1'17'
0F51 518 DC AL2(RLDMSG)
519 B HALT
0F57 520 DC XL2'00EA' RELOAD DATA CARDS
0F58 521 SC4 EQU *
522 SBN SCNPLG,PFLG
523 B SC2
0F70 524 RLDMSG DC CL17'RELOAD DATA CARDS'
524
0F71 525 SC3 EQU *
0F71 526 NEXT EQU *
527 LA PBUF-1,XR1
528 L CSTR0,XR2
529 NXT1 ST PEND0,XR1
530 ST CSTR0,XR2
531 CLC CSTR0,CEND0
0F88 532 CHKSW EQU **1
533 JL NXT2
0F8A 534 B READ

```

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
0F8E 35 02 2502 535 L CSTR0,XR2
* 0F92 BD D0 00 536 NXT2 CLI 0(,XR2),X'D0'
* 0F95 F2 81 83 537 JE HSG
* 0F98 BD 4C 00 538 CLI 0(,XR2),C'<'
* 0F9B F2 81 4C 539 JE DSK
* 0FA1 F2 81 63 540 CLI 0(,XR2),C'='
* 0FA4 BD 6E 00 541 JE CNTR
* 0FA7 F2 81 28 542 CLI 0(,XR2),C'>'
* 0FAA BD 6C 00 543 JE TAB
* 0FAD F2 81 14 544 CLI 0(,XR2),C'%'
* 0FB0 BD 4E 00 545 JE RETURN
* 0FB3 F2 81 47 546 CLI 0(,XR2),C'+'
* 0FB6 D2 01 01 547 JE LINE
* 0FB9 6C 00 00 00 548 LA 1(,XR1),XR1 UP PBUF ADDR.
* 0FBD E2 02 01 549 MVC 0(,XR1),0(,XR2) MOVE CHAR
* 0FC0 C0 87 0F79 550 LA 1(,XR2),XR2 UP PTR TO DATA CARD CHAR.
551 B NXT1
0FC4 0E 01 2502 0A8B 552 RETURN EQU *
0FCA 3B 10 0EF5 553 ALC CSTR0,ONE UP PTR TO DATA CARD CHAR.
0FCE C0 87 0300 554 SBP SCNPLG,SPLG TURN OFF SYNC FLAG
555 B *-+
556 EQU *-1 SCAN EXIT
0FD1 557 SCNEXT EQU *-1
558
0FD2 559 TAB EQU *
560 B PACK
0FD6 0C 10 2438 24A9 561 MVC TABTBL+16(17),PBUF+16
0FDC 3C 01 23BB 562 MVI TABIDX,1
0FEO 0E 01 2502 0A8B 563 INC ALC CSTR0,ONE
0FE6 C0 87 0F71 564 B NEXT
565
0FEA 566 ESK EQU *
567 B PACK
0FEE 0C 00 134F 2499 568 MVC DSKSEC(1),PBUF
0FF4 C0 87 1333 569 B DISKIO
0FF8 01 570 DC XL1'01' READ
0FF9 C0 87 0FEO 571 B INC
572
0FFD 573 LINE EQU *
574 MNN SPCNT,PBUF
575 B INC
1007 576 CNTR EQU *
577 B PACK
100B 0C 00 23B7 2499 578 MVC CNTOPS(1),PBUF
1011 0C 00 23B9 249A 579 MVC CNTLNG(1),PBUF+1
1017 C0 87 0FEO 580 B INC
581
101B 582 HSG EQU *
583 LA PRTBUF,XR1
101F 7C 40 5F 584 MVI 95(,XR1),C' '
1022 5C 5E 5E 5F 585 MVC 94(95,XR1),95(,XR1)
1026 C2 02 2499 586 LA PBUF,XR2
102A 587 HSG1 EQU *
102A BD 6F 00 588 CLI 0(,XR2),C'?'
102D F2 81 68 589 JE SPACE
1030 BD 5A 00 590 CLI 0(,XR2),C'!'
1033 F2 81 4C 591 JE ASTER
1036 6C 00 00 00 592 MVC 0(,XR1),0(,XR2)
103A D2 01 01 593 LA 1(,XR1),XR1 MOVE CHAR TO PRTBUF
103D E2 02 01 594 LA 1(,XR2),XR2 INCR. PTR TO PRTEJF
1040 34 02 2500 595 HSGCK ST PSTR0,XR2 INCR. PTR TO PRUF
1044 0D 01 2500 24FE 596 CLC PSTR0,PEND0
104A C0 04 102A 597 BNH HSG1
104E 0E 01 2502 0A8B 598 ALC CSTR0,ONE
1054 0D 01 2502 2393 599 CLC CSTR0,CEND0
105B 600 CHKSW1 EQU **1
601 BL HSG2
105A C0 82 106E 602 MVC PBUF+95(96),PRTBUF+95
105E 0C 5F 24F8 08DF

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FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-----------------|----------|-------|-----------------------|
| 1064 | C0 87 10A9 | 603 | B | READ |
| 1068 | OC 5F 08DF 24F8 | 604 | MVC | PRTBUF+95(96),PBUF+95 |
| 106E | 35 02 2502 | 605 | MSG2 | L CSTR0,XR2 |
| 1072 | BD 6C 00 | 606 | CLI | 0(,XR2),C'X' |
| 1075 | C0 81 0F71 | 607 | BE | NEXT |
| 1079 | C0 87 021A | 608 | B | PRINT |
| 107D | 20 | 107D 609 | SPCNT | DC XL1'20' |
| 107E | C0 87 0F71 | 610 | B | NEXT |
| | | 1082 611 | ASTER | EQU * |
| 1082 | A8 01 02 01 | 612 | MZN | 2(,XR2),1(,XR2) |
| 1086 | 7C 5C 00 | 613 | AST1 | MVI 0(,XR1),C'X' |
| 1089 | D2 01 01 | 614 | LA | 1(,XR1),XR1 |
| 108C | 8F 00 02 0A8B | 615 | SLC | 2(1,XR2),ONE |
| 1091 | C0 01 1086 | 616 | BNZ | AST1 |
| 1095 | F2 87 0A | 617 | J | SP1 |
| | | 1098 619 | SPACE | EQU * |
| 1098 | A8 01 02 01 | 620 | MZN | 2(,XR2),1(,XR2) |
| 109C | BC 00 01 | 621 | MVI | 1(,XR2),X'00' |
| 109F | B6 01 02 | 622 | A | 2(,XR2),XR1 |
| 10A2 | E2 02 03 | 623 | SP1 | LA 3(,XR2),XR2 |
| 10A5 | C0 87 1040 | 624 | B | MSGCK |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|------------------|----------|-----------|---|
| 626 | ***** | | | ***** |
| 627 | * READ * | | | 1. READS DATA CARDS INTO PRTBUF * |
| 628 | ***** | | | 2. CHECK SEQUENCE OF DATA CARDS * |
| 629 | * | | | 4. MOVES DATA CARD FROM PRTBUF TO CBUF * |
| 630 | * | | | 5. RESETS CSTR0 * |
| 631 | * | | | 6. PROVIDE A MESSAGE AND HALT TO USEP IF DATA CARDS ARE * |
| 632 | * | | | NOT IN ORDER * |
| 633 | * | | | * |
| 634 | ***** | | | ***** |
| 10A9 | 635 | READ | EQU * | |
| | 636 | ST | REXT0,ARR | |
| 10AD | 38 80 0EF5 | 637 | RST | TBN SCNFLG,PFLG |
| 10B1 | F2 90 25 | 638 | JF | RD1 |
| | 639 | * | | READ HEADER CARD |
| 10B4 | 04 30 2498 239C | 640 | ZAZ | CRDNMB(4),DZERO SET CRDNMB TO 0 |
| 10BA | 3D C1 0232 | 641 | CLI | X'232',X'C1' TEST FOR DISK DCP |
| 10BE | F2 01 0A | 642 | JNE | RD2 |
| 10C1 | C0 87 022A | 643 | B | LOAD |
| 10C5 | 20 | 10C5 644 | DC | XL1'20' |
| 10C6 | DOCF | 10C7 645 | DC | XL2'DOCF' POSITION DISK HEAD |
| 10C8 | F2 87 05 | 646 | J | RD4 |
| 10CB | C0 87 022A | 647 | RD2 | B LOAD |
| 10CF | 10 | 10CF 648 | DC | XL1'10' |
| 10D0 | 0D 03 08DF 2498 | 649 | RD4 | CLC PRTBUF+95(4),CRDNMB TEST FOR HEADER CARD |
| 10D6 | F2 01 05 | 650 | JNE | RD3 |
| | | 10D9 651 | RD1 | EQU * |
| 10D9 | C0 87 022A | 652 | B | LOAD |
| 10DD | 10 | 10DD 653 | DC | XL1'10' |
| | | 10DE 654 | RD3 | EQU * |
| 10DE | C0 87 021E | 655 | B | UNPACK |
| 10E2 | 01 | 10E2 656 | DC | XL1'01' |
| 10E3 | 0A01 | 10E4 657 | DC | AL2(PID) |
| 10E5 | 115B | 10E6 658 | DC | AL2(LEVEL) |
| 10E7 | 0D 00 08DB 115B | 659 | CLC | PRTBUF+91(1),LEVEL CHECK LEVEL OF OCF (DATA CARDS) |
| 10ED | F2 01 58 | 660 | JNE | NSLEV |
| 10F0 | 06 30 2498 239D | 661 | AZ | CRDNMB(4),DONE |
| 10F6 | 0D 03 2498 08DF | 662 | CLC | CRDNMB(4),PRTBUF+95 |
| 10FC | F2 01 14 | 663 | JNE | UNORD |
| 10FF | 0C 5F 2498 08DF | 664 | MVC | CBUF+95(96),PRTBUF+95 |
| 1105 | 0C 01 2502 2391 | 665 | MVC | CSTR0,CBUF0 |
| 110B | 3B 80 0EF5 | 666 | SBF | SCNFLG,PFLG |
| 110F | C0 87 0000 | 667 | B | *-* |
| | | 1112 668 | REXT0 | EQU *-1 |
| 1113 | C0 87 021A | 669 | UNORD | B PRINT |
| 1117 | 87 | 1117 670 | DC | XL1'87' |
| 1118 | 23 | 1118 671 | DC | IL1'35' |
| 1119 | 1147 | 111A 672 | DC | AL2(RMSG) |
| 111B | C0 87 0222 | 673 | B | HALT |
| 111F | 00EC | 1120 674 | DC | XL2'00EC' DATA CARDS NOT IN ORDER |
| 1121 | C0 87 1113 | 675 | B | UNORD |
| 1125 | C4C1E3C140C3C1D9 | 1147 676 | RMSG | DC CL35'DATA CARDS NOT IN ORDER,RE-RUN ERAP' |
| 112D | C4E240D5D6E340C9 | 676 | | |
| 1135 | D540D6D9C4C5D96B | 676 | | |
| 113D | D9C560D9E4D540C5 | 676 | | |
| 1145 | D9C1D7 | 676 | | |
| 1148 | C0 87 021A | 677 | NSLEV | B PRINT |
| 114C | 87 | 114C 678 | DC | XL1'87' |
| 114D | 12 | 114D 679 | DC | IL1'18' |
| 114E | 116C | 114F 680 | DC | AL2(LVLMSG) |
| 1150 | C0 87 0222 | 681 | B | HALT |
| 1154 | 00EE | 1155 682 | DC | XL2'00EE' |
| 1156 | C0 87 10AD | 683 | B | RST |
| 115A | 0000 | 115B 684 | LEVEL | DC XL2'00' |
| 115C | 60D7D9D6D7C5D940 | 116C 685 | LVLMSG | DC CL17'-PROPER LEVEL OCF' |
| 1164 | D3C5E5C5D340F0C3 | 685 | | |
| 116C | C6 | 685 | | |

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FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

687 *****
688 * PACK * PACKS DATA IN PBUF BACK INTO PBUF FROM LEFT TO RIGHT *
689 *****
690 *
691 *****
692
116D 34 08 1198
1171 35 01 2395
1175 35 02 2395
1179 98 01 00 00
117D 98 03 00 01
1181 D2 01 02
1184 E2 02 01
1187 34 01 2513
118B OD 01 2513 24FE
1191 C0 82 1179
1195 C0 87 0000
693 PACK ST PEXT@,ARR
694 L PBUF@,XR1
695 L PBUF@,XR2
696 PCK1 MZN 0(,XR2),0(,XR1)
697 MNN 0(,XR2),1(,XR1)
698 LA 2(,XR1),XR1
699 LA 1(,XR2),XR2
700 ST TEMP,XR1
701 CLC TEMP,PEND@
702 BL PCK1
703 B *-*
1198 704 PEXT@ EQU *-1
705
705
705
705
705
705
705
705
705
705
705
706 *****
707 * RSHIFT * SHIFTS A BYTE 2 BINARY PLACES TO THE RIGHT *
708 ***** END OFF *
709 *
710 *****
1199 711 RSHIFT EQU *
712 ST RSHFX@,ARR
713 LA DBUF,XR2
714 A CNTOPS,XR2
715 LA 6,XR1
716 RSHF1 ALC 0(1,XR2),0(,XR2)
717 JNOL RSHF2
718 SBN 0(,XR2),X'01'
719 RSHF2 A FFFF,XR1
720 BNZ RSHF1
721 SBF 0(,XR2),X'CO'
722 B *-*
11C1 723 RSHFX@ EQU *-1

```

```

725 *****
726 * HEXDEC * CONVERTS A HEX # TO A PRINTABLE DECIMAL # IN PRTBUF *
727 ***** WITH LEADING ZEROS SUPPRESSED *
728 *
729 *
730 * LENGTH OF HEX # IS CONTAINED IN CNTLNG *
731 * LOCATION OF RIGHT BYTE POSITION OF THE HEX # IS *
732 * @ (DBUF)+CNTPOS+CNTLNG-1 *
733 * LOCATION OF PRINT POSITION (RIGHT MOST) IS *
734 * @ (PRTBUF-1) + TABTBL(TABIDX) *
735 * ON EXIT *
736 * HEX # WILL BE ZERO *
737 * CNTOPS IS INCREASED BY (CNTLNG) *
738 * TABIDX IS INCREASED BY 1 *
739 *****
11C2 739 HEXDEC EQU *
740 ST CVTX@,ARR SAVE RETURN @
741 LA LNGTHBL-1,XR2
742 A CNTLNG,XR2
743 MVC HVCL(1),0(,XR2) SET LNG OF DEC #
744 * SET LOOP COUNT (CNTLNG*8)
745 LA CVTCNT,XR1
746 MVC 0(2,XR1),CNTLNG
747 ALC 0(2,XR1),0(,XR1)
748 ALC 0(2,XR1),0(,XR1)
749 ALC 0(2,XR1),0(,XR1)
750 * SET LENGTH OF HEX # INSTR.
751 MVC TEMP,CNTLNG
752 SLC TEMP,ONE
753 MVC ALCL(1),TEMP
754 MVC CLCL(1),TEMP
755 * SET XP2 TO RIGHT POS OF HEX #
756 LA DBUF,XR2
757 A CNTOPS,XR2
758 A TEMP,XR2
759 ZAZ DEC,DZERO ZERO DEC #
760 *
1213 761 CLCL EQU **1
762 CLC 0(1,XR2),SZERO TEST FOR ZERO
763 JE HEXD0
764 HEXD1 AZ DEC,DEC DOUBLE DEC #
1221 765 ALCL EQU **1
766 ALC 0(1,XP2),0(,XR2) SHIFT HEX NUM
767 JNOL HEXD2 TEST FOR OVERFLOW
768 AZ DEC,DONE ADD 1 TO DEC #
769 HEXD2 SLC CVTCNT,ONE TEST FOR END
770 BNZ HEXD1
771 HEXD5 ITC DEC-14(15),BLANK
772 TBN SCNPLG,ZPLG
773 BF HEXD3
774 MVI DEC,C'0'
775 HEXD3 SBF SCNPLG,ZPLG
776 * SET XR1 TO RIGHT POS OF PRINT POS.
777 B PRTPOS
1252 778 MVCL EQU **1
779 MVC 0(1,XR1),DEC MOVE DEC # TO PRTBUF
780 ALC CNTOPS,CNTLNG
781 J CVTX
782 HEXD0 SBN SCNPLG,ZPLG
783 B HEXD5
1267 784 LNGTHBL EQU * CNTLNG
1267 785 DC IL1'2' 1
1268 786 DC IL1'4' 2
1269 787 DC IL1'7' 3
126A 788 DC IL1'9' 4
126B 789 DC IL1'12' 5
126C 790 DC IL1'14' 6
126D 000000000000 1272 791 SZERO DC IL6'00'
792

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FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

ERP LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

793 *****
794 * HEXHEX * CONVERT HEX BYTE TO A PRINTABLE HEX NUMBER *
795 *****
796 *
797 *****
1273 798 HEXHEX EQU *
799 ST CVTX0,ARR
800 LA DBUF,XR2
801 A CNTOPS,XR2
802 B PRTPOS
803 A FFFF,XR1
804 SBF SWITCH,X'01' FROM MNZ
128C 805 SWITCH EQU **1
806 HEX2 MNZ 0(,XR1),0(,XR2)
807 SBN 0(,XR1),X'F0'
808 CLI 0(,XR1),X'F9'
809 JNH HEX3
810 SLC 0(1,XR1),X39
811 HEX3 LA 1(,XR1),XR1
812 X39 TBP SWITCH,X'01'
813 JF CVTX1
814 SBN SWITCH,X'01' FROM MZZ
815 B HEX2

```

```

1273 34 08 12F3
1277 C2 02 2623
127B 36 02 23B7
127F C0 87 12F4
1283 36 01 23AA
1287 3B 01 128C
128B 68 02 00 00
128F 7A F0 00
1292 7D F9 00
1295 F2 04 05
1298 4F 00 00 12A0
129D D2 01 01
12A0 39 01 128C
12A4 F2 90 3A
12A7 3A 01 128C
12AB C0 87 128B

```

```

817 *****
818 * CVTBIN * CONVERTS A HEX BYTE TO PRINTABLE BINAPY NUMBER IN *
819 ***** PRTBUF *
820 *
821 * LOCATION OF HEX BYTE IS @ (DBUF) + CNTOPS *
822 *
823 * LOCATION OF PRINT POSITION (LEFT MOST POSITION) IS *
824 * @ (PRTBUF)-1 + TABTBL(TABIDX) - 7 *
825 *
826 * ON EXIT *
827 * HEX BYTE WILL BE ZERO *
828 * CNTOPS IS INCREASED BY 1 *
829 * TABIDX IS INCREASED BY 1 *
830 *****
12AF 831 CVTBIN EQU *
832 ST CVTX0,ARR SAVE EXIT @
833 LA DBUF,XR2 COMPUTE POSITION OF HEX BYTE
834 A CNTOPS,XR2
835 * COMPUTE POSITION OF PRINT POS.
836 B PRTPOS
837 A NEG7,XR1
838 *
839 MVI CVTCNT,8 SET LOOP CNT
840 CVTB2 MVI 0(,XR1),C'0' SET PRINT CHAR 0, BY DEFAULT
841 ALC 0(,XR2),0(,XR2)
842 JNOL CVTB1 TEST FOR BIT ON
843 MVI 0(,XR1),C'1' BIT ON, SET PRINT CHAR 1
844 CVTB1 LA 1(,XR1),XR1
845 SLC CVTCNT,ONE
846 BNZ CVTB2
847 CVTX1 EQU *
848 MVI 0(,XR2),0
849 ALC CNTOPS,ONE
850 *
12EA 851 CVTX EQU *
852 ALC TABIDX,ONE
853 B **
12F3 854 CVTX0 EQU *-1
12F4 855 PRTPOS EQU *
856 ST PRTX0,ARR
857 LA TABTBL,XR1
858 A TABIDX,XR1
859 HVC H24(1),0(,XR1)
860 LA PRTBUF-1,XR1
861 A H24,XR1
862 B **
1310 863 PRTX0 EQU *-1
864
864
864
864
1311 865 SYNHOV EQU *
866 * LOAD SYNC PTS FOR RTNX
867 ST SYNHX0,ARR
1315 868 SYN R EQU *
869 MVI CHKSX1,X'82'
870 MVI CHKSX,X'82'
871 SBN SCNPLG,SPLG
872 B SCAN
873 HVC SYNTBL+12+83(84),CBUF+84
874 B READ
875 B **
1332 876 SYNHX0 EQU *-1

```

```

12AF 34 08 12F3
12B3 C2 02 2623
12B7 36 02 23B7
12BB C0 87 12F4
12BF 36 01 23AB
12C3 3C 08 23B5
12C7 7C F0 00
12CA AE 00 00 00
12CE F2 20 03
12D1 7C F1 00
12D4 D2 01 01
12D7 0F 01 23B5 0A8B
12DD C0 01 12C7
12E1 BC 00 00
12E4 0E 01 23B7 0A8B
12EA 0E 01 23BB 0A8B
12F0 C0 87 0000
12F4 34 08 1310
12F8 C2 01 2428
12FC 36 01 23BB
1300 1C 00 23B1 00
1305 C2 01 087F
1309 36 01 23B1
130D C0 87 0000
1311 34 08 1332
1315 3C 82 105B
1319 3C 82 0F88
131D 3A 10 0EF5
1321 C0 87 0EF6
1325 0C 53 2427 248D
132B C0 87 10A9
132F C0 87 0000

```

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
      878
      879 *****
      880 * DISKIO *          CALLING SEQUENCE
      881 *                   B    DISKIO
      882 *                   DC   XL1'XX'  XX=01 - READ
      883 *                   XX=02 - WRITE
      884 * DISKIO *READ OR WRITE A SECTOR ON CYL 0  OF DRIVE THAT IS
      885 *                   CONTAINED IN DSKDRV, THE SECTOR NUMBER IS CONTAINED
      886 *                   IN DSKSEC.
      887 *                   *A FX (X=1-4) HALT WILL OCCUP IF DISK IS NOT READY OR EPROR*
      888 *                   OCCURS ON A READ OR WRITE. TEN RETRYS ARE MADE BEFORE
      889 *                   A HALT IS GIVEN. A RESET HALT WILL RETRY THE FUNCTION.
      890 *
      891 *
      892 *****
1333 893 DISKIO  EQU  *
      894 LA    DISKIO,XR1
1333 895 USING DISKIO,XR1
      896 ST    DISKX@,(XR1),ARR  STORE ARR ADDRESS INTO DISKX@ *GC*
      897 L    DISKX@,(XR1),XR2  LAOD ARR VALUE INTO XR2 *GC*
      898 MVC  DSKFCT(1,XR1),0(,XR2) MOVE (READ/WRITE) FUN N BITS *GC*
      899 B    DISK33  BRANCH TO 3340 SECTION FOR TEST *GC*
1346 900 DSKFCT  EQU  **1
      901 SIO2  SIO  0,0          READ OR WRITE DATA
1349 902 DISKX@ DC   AL2(*--*)  SAVE CALLERS ARR VALUE
      903
      904 *****
      905 * DISK FLAG IN SEEK
      906 * BIT 0 = 0 HEAD 0 UPPER SURFACE
      907 * = 1 HEAD 1 LOWER SURFACE
      908 * BIT 1 - 6 NOT USED
      909 * BIT 7 = 0 SELECT DIRECTION TOWARD DECREASING CYL #
      910 * = 1 SELECT DIRECTION TOWARD INCREASING CYL #
      911 * DISK FLAG FOR ALL OTHER OPERATIONS
      912 * BIT 0 - 5 HOLD THE BINARY REPRESENTATION OF THE SECTOR
      913 * ID NUMBER
      914 * BIT 6 , 7 NOT USED ** MUST BE 00 **
      915 *****
134A 0000 134B 916 STATUS DC XL2'0'
134C 917 DSKDRV EQU *
134C A8 134C 918 DC XL1'A8' DA E M BIT FOR DISK
134D 00 134D 919 DSKFLG DC XL1'0' FLAG *****
134E 00 134E 920 DSKCYL DC XL1'0' CYLINDER * DISK CONTROL FIELD *
134F 00 134F 921 DSKSEC DC XL1'0' SECTOR *
1350 00 1350 922 DSKNUM DC XL1'0' * TO MOVE *****
1351 134D 1352 923 DCR DC AL2(DSKPLG) DISK CONTROL ADDRESS REG FOR RD/WRT
1353 2623 1354 924 DBUF@ DC AL2(DBUF) START ADDRESS OF DATA BUFFER
1354 925 DAR EQU *-1
      926 *
1355 F2 1355 927 HLTBL EQU * HALT CODE VOLUME DEVICE ADDR.
1356 F1 1355 928 DC XL1'F2' 2 A0
1357 F4 1356 929 DC XL1'F1' 1 A8
1358 F3 1357 930 DC XL1'F4' 4 B0
1359 40C8C1D3E34060C6 1358 931 DC XL1'F3' 3 B8
1361 E76040E77EF160F4 138A 932 DC CL50' HALT -FX- X=1-4, VOL X IS NOT READY OR EPROR ON V'
1369 6B40E5D6D340E740 932
1371 C9E240D5D6E340D9 932
1379 C5C1C4E840D6D940 932
1381 C5D9D9D6D940DED5 932
1389 40E5 932
138B D6D340E7 138E 933 DSKMSG DC CL04'OL X'
138E 934 MSG3B EQU *-1
138F 404060606040F3F3 13A2 935 MSG3 DC CL20' --- 3340 ---
1397 F4F0406060604040 935
139F 40404040 935
13A3 40404040F3F3F4F0 13A2 936 MSG4B EQU *-1
13CA 937 DC CL40' 2340 ERROR HISTORY AND OTHER ERROR D'

```

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
13AB 40C5D9D9D6D940C8 937
13B3 C9E2E3D6D9E840C1 937
13BB D5C440D6E3C8C5D9 937
13C3 40C5D9D9D6D940C4 937
13CB C1E3C140E6C9D3D3 13P2 938 MSG4 DC CL40'ATA WILL BE PRINTED BY LATER ROUTINES.
13D3 40C2C540D7D9C9D5 938
13DB E3C5C440C2E840D3 938
13E3 C1E3C5D940D9D6E4 938
13EB E3C9D5C5E24E4040 938
      C001 939 DROP XR1

```


FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

Table with columns: ERR LOC, OBJECT CODE, ADDR, STMT, SOURCE STATEMENT. Contains assembly code for disk error recording, including instructions like EXIT, MOV, LIO, TIO, and comments such as 'MOVE RECORD COUN* TO IOB' and 'ATTACHMENT BUSY (WAIT)'. Includes address ranges like 150E 4C 00 02 1414 to 1519 0C 00 16FF 1416.

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
16DD 40C1C6E3C5D940D9 16P0 1167 PD48 DC CI20' AFTER READ DIAG CMD' *GC*
16E5 C5C1C440C4C9C1C7 1167
16ED 40C3D4C4 1167
1168
1168
16F1 16FB 16P2 1169 LDCF DC AL2 (DDCF) ADDRESS LEFT-MOST BYTE OF DDCF *GC*
16F3 1705 16P4 1170 LDDF DC AL2 (DDDF) ADDRESS LEFT-MOST BYTE OF DDDF *GC*
16F5 170F 16F6 1171 LDCX DC AL2 (DDCX) ADDRESS LEFT-MOST BYTE OF DDCX (DDCF) *GC*
16F7 2623 16P8 1172 LBUF DC AL2 (DBUF) ADDRESS LEFT-MOST BYTE OF LBUF *GC*
16F9 1728 16FA 1173 LSNS DC AL2 (DSNS) ADDRESS LEFT-MOST BYTE OF DSNS *GC*
1174 *****READ/WRITE KEY-DATA***** *GC*
1175 * DDCF * P * CC * HH * R * KL * DL * N * DISK DRIVE *GC*
1176 *****CONTROL FIELD***** *GC*
16FB 1177 DDCF EQU *
16FB 00 16FB 1178 DC XL1'0' FLAG R W *GC*
16FC 0000 16FD 1179 DC XL2'00' CYLINDER E R *GC*
16FE 0000 16FF 1180 DC XL2'00' HEAD ADDRESS A I *GC*
1700 00 1700 1181 DC XL1'0' RECORD D T *GC*
1701 00 1701 1182 DC XL1'0' KEY LENGTH E *GC*
1702 0000 1703 1183 DC XL2'00' DATA LENGTH CONTROL *GC*
1704 00 1704 1184 DC XL1'0' COUNT FIELD *GC*
1704 1185 DDCFE EQU *-1 *GC*
1186 *****READ HA & RO ***** *GC*
1705 0000000000000000 170E 1187 DDDF EQU * *GC*
170D 0000 170E 1188 DC XL10'0' * DISK DRIVE DATA FIELD FOR READ HA & RO *GC*
1189 ***** *GC*
170F 00 170F 1190 DDCX EQU * * DISK DRIVE *GC*
1710 0000 170F 1191 DC XL1'0' FLAG C O *GC*
1712 0000 1711 1192 DC XL2'00' CYLINDER N F *GC*
1714 00 1714 1193 DC XL2'00' HEAD ADDRESS T I *GC*
1715 00 1715 1194 DC XL1'0' RECORD R E *GC*
1716 0000 1717 1195 DC XL1'0' KEY LENGTH O L *GC*
1718 00 1717 1196 DC XL2'00' DATA LENGTH *GC*
1718 1197 DC XL1'0' COUNT L D *GC*
1718 1198 DDCZ EQU *-1 * FOR READ HA & RO *GC*
1719 0008 171A 1199 DDZL DC XL2'0008' **DATA LENGTH** FOR READ HA & RO *GC*
1200 ***** *GC*
171B C8 171B 1201 DRV32 DC XL1'C8' * DISK DRIVE ADDRESS BITS DRIVE 2 *GC*
171C 0000000000000000 1725 1202 DDCFB DC XL10'0000000000000000' * INITIAL VALUE FOR DDCF *GC*
1724 0000 1202
1726 170A 1727 1203 AREC# DC AL2(DDDF+5) * ADDRESS FOR ALTERNATE RECORD # USED *GC*
1204 ***** *GC*
1205
1205
1205
1205
1728 1206 DSNS EQU * *GC*
173F 1207 DSNSE DS XL24 *GC*
1740 176F 1208 PSNS DS XL48 *GC*
1209 ***** END OF DISK I/O FOR 3340 ***** *GC*

```

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
1211 ***** *
1212 *
1213 * ROUTINE 3 - PRINT 3340 USAGE AND ERROR SUMMARY TABLE *
1214 *
1215 ***** *
1216 *
1217 * ROUTINE PREFACE *
1218 *
1770 03 1770 1219 $RTN3 DC XL1'03' ROUTINE NUMBER
1771 00 1771 1220 DC XL1'00' ROUTINE FLAGS
1772 1B0E 1773 1221 DC AL2($RTN4) ADDRESS OF NEXT ROUTINE
1222 *
1223 -----
1224 * ROUTINE INITIALIZATION *
1225 *
1226 * MVI $IND,0 RESET ALL PROGRAM INDICATORS *
1227 *
1778 C0 87 1D2D 1228 $R5 B $BEGIN PERFORM COMMON INITIALIZATION
1229 *
177C 0C 01 218C 21A9 1230 MVC $CYL(2), $P209 INITIALIZE 3340 CYLINDER ADDRESS
1782 0C 01 218E 21A6 1231 MVC $HD(2), $P1 INITIALIZE 3340 HEAD ADDRESS
1788 3C 00 218F 1232 MVI $PTR,0 INITIALIZE LOG RECORD POINTER
1233 *
178C C0 87 1DD5 1234 B $IO READ FIRST LOG RECORD FROM 3340
1235 *
1790 C2 01 2201 1236 LA $PBUF, $XR1 PRINT BUFFER ADDRESS TO INDEX REG 1
1237 *
1238 -----
1239 * PRINT SUMMARY TABLE TITLE AND INPUT DEVICE IDENTIFIER *
1240 *
1794 4C 23 23 20C2 1241 MVC 35(36, $XR1), $H04N BUILD
1799 4C 15 39 20EE 1242 MVC 57(22, $XR1), $H06N TITLE
179E 4C 00 39 2189 1243 MVC 57(1, $XR1), $SDRVID LINE
1244 *
17A3 C0 87 021A 1245 B $SPRINT PRINT
17A7 42 17A7 1246 DC XL1'42' TITLE
17A8 3A 17A8 1247 DC IL1'58' LINE
17A9 223A 17AA 1248 DC AL2($PBUF+57)
17AB FF00 17AC 1249 DC AL2($HLT00)
1250 *
1251 -----
1252 * PRINT SUMMARY TABLE HEADING LINES *
1253 *
17AD 7C 5C 68 1254 MVI 104(, $XR1), C' * BUILD FIRST
17B0 5C 67 67 68 1255 MVC 103(104, $XR1), 104(, $XR1) LINE OF SUMMARY TABLE
1256 *
17B4 C0 87 021A 1257 B $SPRINT PRINT FIRST
17B8 01 17B8 1258 DC XL1'01' LINE OF SUMMARY TABLE
17B9 69 17B9 1259 DC IL1'105'
17BA 2269 17BB 1260 DC AL2($PBUF+104)
1261 *
17BC 7C 40 67 1262 MVI 103(, $XR1), C' CLEAR
17BF 5C 65 66 67 1263 MVC 102(102, $XR1), 103(, $XR1) PRINT BUFFER
1264 *
1265 MVI 6(, $XR1), C' * BUILD
1266 MVI 15(, $XR1), C' * SECOND
1267 MVI 24(, $XR1), C' * LINE OF
1268 MVI 50(, $XR1), C' * SUMMARY
1269 MVI 63(, $XR1), C' * TABLE
1270 MVI 82(, $XR1), C' *
1271 MVI 92(, $XR1), C' *
1272 MVC 21(5, $XR1), $H07N
1273 MVC 44(16, $XR1), $H08N
1274 MVC 58(4, $XR1), $H09+3
1275 MVC 74(4, $XR1), $H10N
1276 MVC 89(5, $XR1), $H11N
1277 MVC 100(5, $XR1), $H11N
1278 *

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FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|---------------|------|--------|---------------------------------|
| 17F6 | C0 87 021A | | 1279 | B \$PRINT |
| 17FA | 01 | 17PA | 1280 | DC XL1'01' |
| 17FB | 69 | 17FB | 1281 | DC IL1'105' |
| 17FC | 2269 | 17FD | 1282 | DC AL2(\$PBUF+104) |
| | | | 1283 * | |
| 17FE | 4C 02 04 2114 | | 1284 | MVC 4(3,\$XR1), \$M12N |
| 1803 | 4C 05 0D 211A | | 1285 | MVC 13(6,\$XR1), \$M13N |
| 1808 | 4C 05 16 2120 | | 1286 | MVC 22(6,\$XR1), \$M14N |
| 180D | 4C 16 30 2137 | | 1287 | MVC 48(23,\$XR1), \$M15N |
| 1812 | 4C 05 3B 2103 | | 1288 | MVC 59(6,\$XR1), \$M08N |
| 1817 | 4C 05 4B 2103 | | 1289 | MVC 75(6,\$XR1), \$M08N |
| 181C | 4C 04 59 2108 | | 1290 | MVC 89(5,\$XR1), \$M09N |
| 1821 | 4C 08 66 2140 | | 1291 | MVC 102(9,\$XR1), \$M16N |
| | | | 1292 * | |
| 1826 | C0 87 021A | | 1293 | B \$PRINT |
| 182A | 01 | 182A | 1294 | DC XL1'01' |
| 182B | 69 | 182B | 1295 | DC IL1'105' |
| 182C | 2269 | 182D | 1296 | DC AL2(\$PBUF+104) |
| | | | 1297 * | |
| 182E | 5C 02 04 05 | | 1298 | MVC 4(3,\$XR1), 5(,\$XR1) |
| 1832 | 5C 05 0D 0E | | 1299 | MVC 13(6,\$XR1), 14(,\$XR1) |
| 1836 | 4C 05 16 2146 | | 1300 | MVC 22(6,\$XR1), \$M17N |
| 183B | 4C 09 23 2156 | | 1301 | MVC 35(10,\$XR1), \$M18N |
| 1840 | 4C 09 30 2156 | | 1302 | MVC 48(10,\$XR1), \$M18N |
| 1845 | 4C 09 3D 2156 | | 1303 | MVC 61(10,\$XR1), \$M18N |
| 184A | 4C 0F 50 2156 | | 1304 | MVC 80(16,\$XR1), \$M18N |
| 184F | 4C 06 5A 215D | | 1305 | MVC 90(7,\$XR1), \$M19N |
| 1854 | 5C 08 66 67 | | 1306 | MVC 102(9,\$XR1), 103(,\$XR1) |
| 1858 | 4C 03 63 2161 | | 1307 | MVC 99(4,\$XR1), \$M20N |
| | | | 1308 * | |
| 185D | C0 87 021A | | 1309 | B \$PRINT |
| 1861 | 01 | 1861 | 1310 | DC XL1'01' |
| 1862 | 69 | 1862 | 1311 | DC IL1'105' |
| 1863 | 2269 | 1864 | 1312 | DC AL2(\$PBUF+104) |
| | | | 1313 * | |
| 1865 | 5C 66 67 68 | | 1314 | MVC 103(103,\$XR1), 104(,\$XR1) |
| | | | 1315 * | |
| 1869 | C0 87 021A | | 1316 | B \$PRINT |
| 186D | 01 | 186D | 1317 | DC XL1'01' |
| 186E | 69 | 186E | 1318 | DC IL1'105' |
| 186F | 2269 | 1870 | 1319 | DC AL2(\$PBUF+104) |
| | | | 1320 * | |
| 1871 | 3C F1 2193 | | 1321 | MVI \$DRV,C'1' |
| | | | 1322 * | |
| | | | 1323 * | |
| | | | 1324 * | PRINT SUMMARY TABLE SPACE LINES |
| | | | 1325 * | |
| 1875 | 7C 40 67 | | 1326 | \$R5A MVI 103(,\$XR1), C' ' |
| 1878 | 5C 65 66 67 | | 1327 | MVC 102(102,\$XR1), 103(,\$XR1) |
| | | | 1328 * | |
| 187C | 7C 5C 06 | | 1329 | MVI 6(,\$XR1), C'* |
| 187F | 7C 5C 0F | | 1330 | MVI 15(,\$XR1), C'* |
| 1882 | 7C 5C 18 | | 1331 | MVI 24(,\$XR1), C'* |
| 1885 | 7C 5C 25 | | 1332 | MVI 37(,\$XR1), C'* |
| 1888 | 7C 5C 32 | | 1333 | MVI 50(,\$XR1), C'* |
| 188D | 7C 5C 3F | | 1334 | MVI 63(,\$XR1), C'* |
| 188E | 7C 5C 52 | | 1335 | MVI 82(,\$XR1), C'* |
| 1891 | 7C 5C 5C | | 1336 | MVI 92(,\$XR1), C'* |
| | | | 1337 * | |
| 1894 | C0 87 021A | | 1338 | B \$PRINT |
| 1898 | 01 | 1898 | 1339 | DC XL1'01' |
| 1899 | 69 | 1899 | 1340 | DC IL1'105' |
| 189A | 2269 | 189B | 1341 | DC AL2(\$PBUF+104) |
| | | | 1342 * | |
| | | | 1343 * | |
| | | | 1344 * | BEGIN / END SUMMARY PRINTOUTS |
| | | | 1345 * | |
| 189C | 4C 00 03 2193 | | 1346 | MVC 3(1,\$XR1), \$DRV |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-----------------|------|--------|----------------------------------|
| | | | 1347 * | |
| 18A1 | 3D F2 2193 | | 1348 | CLI \$DRV,C'2' |
| 18A5 | F2 04 10 | | 1349 | JNH \$R5B |
| | | | 1350 * | |
| 18A8 | 5C 66 67 68 | | 1351 | MVC 103(103,\$XR1), 104(,\$XR1) |
| | | | 1352 * | |
| 18AC | C0 87 021A | | 1353 | B \$PRINT |
| 18B0 | 06 | 18B0 | 1354 | DC XL1'06' |
| 18B1 | 69 | 18B1 | 1355 | DC IL1'105' |
| 18B2 | 2269 | 18B3 | 1356 | DC AL2(\$PBUF+104) |
| | | | 1357 * | |
| 18B4 | C0 87 1778 | | 1358 | B \$R5 |
| | | | 1359 * | |
| | | | 1360 * | |
| | | | 1361 * | LOCATE AN UNUSED LOG ENTRY FIELD |
| | | | 1362 * | |
| 18B8 | 3C 00 218F | | 1363 | \$R5B MVI \$PTR,0 |
| | | | 1364 * | |
| 18BC | C0 87 1DD5 | | 1365 | \$R5B1 B \$IO |
| | | | 1366 * | |
| 18C0 | 3D 00 21C1 | | 1367 | CLI \$REC,0 |
| 18C4 | F2 81 12 | | 1368 | JE \$R5C |
| | | | 1369 * | |
| 18C7 | 0E 00 218F 21A6 | | 1370 | ALC \$PTR(1), \$P1 |
| | | | 1371 * | |
| 18CD | 3D BF 218F | | 1372 | CLI \$PTR, 191 |
| 18D1 | C0 82 18BC | | 1373 | BL \$R5B1 |
| | | | 1374 * | |
| 18D5 | 3C 00 21CF | | 1375 | MVI \$PTR,0 |
| | | | 1376 * | |
| | | | 1377 * | |
| | | | 1378 * | LOCATE OLDEST LOG ENTRY |
| | | | 1379 * | |
| 18D9 | 3C 00 2198 | | 1380 | \$R5C MVI \$CTR,0 |
| | | | 1381 * | |
| 18DD | C0 87 1DD5 | | 1382 | \$R5C1 B \$IO |
| | | | 1383 * | |
| 18E1 | 3D 00 21C1 | | 1384 | CLI \$REC,0 |
| 18E5 | F2 01 30 | | 1385 | JNE \$R5C3 |
| | | | 1386 * | |
| 18E8 | 0E 00 218F 21A6 | | 1387 | ALC \$PTR(1), \$P1 |
| 18EE | 0E 00 2198 21A6 | | 1388 | ALC \$CTR(1), \$P1 |
| | | | 1389 * | |
| 18F4 | 3D BF 218F | | 1390 | CLI \$PTR, 191 |
| 18F8 | F2 82 04 | | 1391 | JL \$R5C2 |
| | | | 1392 * | |
| 18FB | 3C 00 218F | | 1393 | MVI \$PTR,0 |
| | | | 1394 * | |
| 18FF | 3D BF 2198 | | 1395 | \$R5C2 CLI \$CTR, 191 |
| 1903 | C0 82 18DD | | 1396 | BL \$R5C1 |
| | | | 1397 * | |
| 1907 | 4C 05 0D 2167 | | 1398 | MVC 13(6,\$XR1), \$M21N |
| | | | 1399 * | |
| 190C | C0 87 021A | | 1400 | B \$PRINT |
| 1910 | 01 | 1910 | 1401 | DC XL1'01' |
| 1911 | 69 | 1911 | 1402 | DC IL1'105' |
| 1912 | 2269 | 1913 | 1403 | DC AL2(\$PBUF+104) |
| | | | 1404 * | |
| 1914 | C0 87 1AF4 | | 1405 | B \$R5N |
| | | | 1406 * | |
| 1918 | 0C 00 2194 218F | | 1407 | \$R5C3 MVI \$PTRF(1), \$PTR |
| | | | 1408 * | |
| | | | 1409 * | |
| | | | 1410 * | CHECK FOR NEW VOLUME IDENTIFIERS |
| | | | 1411 * | |
| 191E | 0C 00 2195 218F | | 1412 | \$R5D MVI \$PTRX(1), \$PTR |
| | | | 1413 * | |
| 1924 | 4C 05 0D 21C6 | | 1414 | FVC 13(6,\$XR1), \$REC+5 |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-----------------|------|--------|--------|--|
| 1A98 | 46 40 59 21AD | 1551 | AZ | | 89(5,\$XR1),SD1(1) DECIMAL AND MOV.. |
| 1ASD | CO 87 1A1B | 1552 | B | | \$R5E7 TO PRINT BUFFER |
| | | 1553 | * | | |
| 1AA1 | 0F 05 219E 21B8 | 1554 | \$R5E8 | SLC | \$RDCNT(6),\$MEG CONVERT READ |
| 1AA7 | F2 82 09 | 1555 | JM | | \$R5E9 USAGE COUNT TO |
| 1AAA | 46 40 64 21AD | 1556 | AZ | | 100(5,\$XR1),SD1(1) DECIMAL AND MOVE |
| 1AAF | CO 87 1AA1 | 1557 | B | | \$R5E8 TO PRINT BUFFER |
| | | 1558 | * | | |
| 1AB3 | CO 87 021A | 1559 | \$R5E9 | B | \$PRINT PRINT |
| 1AB7 | 01 | 1560 | DC | | XL1'01' SUMMARY LINE |
| 1AB8 | 69 | 1561 | DC | | IL1'105' |
| 1AB9 | 2269 | 1562 | DC | | AL2(\$PBUF+104) |
| | | 1563 | * | | |
| | | 1564 | * | | |
| | | 1565 | * | | SEARCH FOR NEXT VOLUME ID TO BE PROCESSED |
| | | 1566 | * | | |
| 1ABB | 0C 00 218F 2195 | 1567 | \$R5F | MVC | \$PTR(1),\$PTRX RESTORE LOG ENTRY POINTER |
| 1AC1 | 0E 00 218F 21A6 | 1568 | * | | |
| | | 1569 | \$R5F1 | ALC | \$PTR(1),\$P1 ADVANCE LOG ENTRY POINTER |
| | | 1570 | * | | |
| 1AC7 | 3D BF 218F | 1571 | CLI | | \$PTR,191 BRANCH IF NOT |
| 1ACB | F2 92 04 | 1572 | JL | | \$R5F2 YET END OF LOG AREA |
| | | 1573 | * | | |
| 1ACE | 3C 00 218F | 1574 | MVI | | \$PTR,0 WRAP BACK TO FIRST LOG ENTRY |
| | | 1575 | * | | |
| 1AD2 | 0D 00 218F 2194 | 1576 | \$R5F2 | CLC | \$PTR(1),\$PTRF BRANCH IF ALL LOG |
| 1AD8 | F2 81 19 | 1577 | JE | | \$R5N ENTRIES HAVE BEEN CHECKED |
| | | 1578 | * | | |
| 1ADB | CO 87 1DD5 | 1579 | B | | \$I0 READ NEXT LOG ENTRY |
| | | 1580 | * | | |
| 1ADF | 3D 00 21C1 | 1581 | CLI | | \$REC,0 BRANCH IF |
| 1AE3 | CO 81 1AC1 | 1582 | BE | | \$R5F1 UNUSED ENTRY |
| | | 1583 | * | | |
| 1AE7 | 4D 05 0D 21C6 | 1584 | CLC | | 13(6,\$XR1),\$REC+5 BRANCH IF ENTRY |
| 1AEC | CO 81 1AC1 | 1585 | BE | | \$R5F1 CONTAINS SAME VOLUME ID |
| | | 1586 | * | | |
| 1AFO | CO 87 191E | 1587 | B | | \$R5D GO TO CHECK IF NEW VOLUME ID |
| | | 1588 | * | | |
| | | 1589 | * | | |
| | | 1590 | * | | PREPARE TO PRINT SUMMARY FOR NEXT DRIVE ID |
| | | 1591 | * | | |
| 1AF4 | JE 00 218E 21A6 | 1592 | \$R5N | ALC | \$HD(1),\$P1 ADVANCE HEAD ADDRESS |
| 1AFA | 06 00 2193 21AD | 1593 | AZ | | \$DRV(1),SD1(1) ADVANCE DRIVE IDENTIFIER |
| | | 1594 | * | | |
| 1B00 | CO 87 1875 | 1595 | B | | \$R5A GO TO COMPLETE SUMMARY TABLE |
| | | 1596 | * | | |
| 1B04 | 0000000000 | 1B08 | 1597 | SAVSEK | DC XL5'00' |
| 1B09 | 0000000000 | 1B0D | 1598 | SAVRD | DC XL5'00' |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-----------------|------|------|--------|--|
| | | 1600 | * | | ***** |
| | | 1601 | * | | |
| | | 1602 | * | | ROUTINE 4 - PRINT 3340 ERROR HISTORY TABLE |
| | | 1603 | * | | |
| | | 1604 | * | | ***** |
| | | 1605 | * | | |
| | | 1606 | * | | ROUTINE PREFACE |
| | | 1607 | * | | |
| 1B0E | 04 | 1B0E | 1608 | \$PTN4 | DC XL1'04' ROUTINE NUMBER |
| 1B0F | 00 | 1B0F | 1609 | DC | XL1'00' ROUTINE FLAGS |
| 1B10 | FFFF | 1B11 | 1610 | DC | XL2'FFFF' LAST ROUTINE |
| | | 1611 | * | | |
| | | 1612 | * | | ----- |
| | | 1613 | * | | ROUTINE INITIALIZATION |
| | | 1614 | * | | |
| 1B12 | 3C 00 2188 | | | MVI | \$IND,0 RESET ALL PROGRAM INDICATORS |
| | | 1615 | * | | |
| 1B16 | CO 87 1D2D | | | \$R6 | B \$BEGIN PERFORM COMMON INITIALIZATION |
| | | 1617 | * | | |
| 1B1A | 0C 01 218C 21A9 | | | MVC | \$CYL(2),\$SP209 INITIALIZE 3340 CYLINDER ADDRESS |
| 1B20 | 0C 01 218E 21A6 | | | MVC | \$HD(2),\$P1 INITIALIZE 3340 HEAD ADDRESS |
| 1B26 | 3C 00 218F | | | MVI | \$PTR,0 INITIALIZE LOG RECORD POINTER |
| | | 1621 | * | | |
| 1B2A | CO 87 1DD5 | | | B | \$I0 READ FIRST LOG RECORD FROM 3340 |
| | | 1622 | * | | |
| 1B2E | C2 01 2201 | | | LA | \$PBUF,\$XR1 PRINT BUFFER ADDRESS TO INDEX REG 1 |
| | | 1623 | * | | |
| | | 1624 | * | | |
| | | 1625 | * | | |
| | | 1626 | * | | |
| | | 1627 | * | | ----- |
| | | 1628 | * | | PRINT HISTORY TABLE TITLE AND INPUT DRIVE IDENTIFIER |
| | | 1629 | * | | |
| 1B32 | 4C 15 15 20D8 | | | MVC | 2(22,\$XR1),\$M05N BUILD |
| 1B37 | 4C 15 2B 20EE | | | MVC | 43(22,\$XR1),\$M06N TITLE |
| 1B3C | 4C 00 2B 2189 | | | MVC | 43(1,\$XR1),\$DRVID LINE |
| | | 1632 | * | | |
| | | 1633 | * | | |
| 1B41 | CO 87 021A | | | B | \$PRINT PRINT |
| 1B45 | 42 | 1B45 | 1635 | DC | XL1'42' TITLE |
| 1B46 | 2C | 1B46 | 1636 | DC | IL1'44' LINE |
| 1B47 | 222C | 1B48 | 1637 | DC | AL2(\$PBUF+43) |
| 1B49 | FF00 | 1B4A | 1638 | DC | AL2(\$HLT00) |
| | | 1639 | * | | |
| | | 1640 | * | | ----- |
| | | 1641 | * | | PRINT HISTORY TABLE HEADING LINES |
| | | 1642 | * | | |
| 1B4B | 7C 5C 5D | | | MVI | 93(,\$XR1),C'*** BUILD FIRST |
| 1B4E | 5C 5C 5C 5D | | | MVC | 92(93,\$XR1),93(,\$XR1) LINE OF HISTORY TABLE |
| | | 1644 | * | | |
| 1B52 | CO 87 021A | | | B | \$PRINT PRINT FIRST |
| 1B56 | 01 | 1B56 | 1647 | DC | XL1'01' LINE OF HISTORY TABLE |
| 1B57 | 5E | 1B57 | 1648 | DC | IL1'94' |
| 1B58 | 225E | 1B59 | 1649 | DC | AL2(\$PBUF+93) |
| | | 1650 | * | | |
| 1B5A | 7C 40 5C | | | MVI | 92(,\$XR1),C' ' CLEAR |
| 1B5D | 5C 5A 5B 5C | | | MVC | 91(91,\$XR1),92(,\$XR1) PRINT BUFFER |
| | | 1652 | * | | |
| | | 1653 | * | | |
| 1B61 | 7C 5C 06 | | | MVI | 6(,\$XR1),C'*** BUILD |
| 1B64 | 7C 5C 0F | | | MVI | 15(,\$XR1),C'*** SECOND |
| 1B67 | 7C 5C 1A | | | MVI | 26(,\$XR1),C'*** LINE OF |
| 1B6A | 7C 5C 25 | | | MVI | 37(,\$XR1),C'*** HISTORY TABLE |
| | | 1657 | * | | |
| | | 1658 | * | | |
| 1B6D | CO 87 021A | | | B | \$PRINT PRINT SECOND |
| 1B71 | 01 | 1B71 | 1660 | DC | XL1'01' LINE OF HISTORY TABLE |
| 1B72 | 5E | 1B72 | 1661 | DC | IL1'94' |
| 1B73 | 225E | 1B74 | 1662 | DC | AL2(\$PBUF+93) |
| | | 1663 | * | | |
| 1B75 | 4C 02 04 2114 | | | MVC | 4(3,\$XR1),\$H12N BUILD |
| 1B7A | 4C 05 0D 211A | | | MVC | 13(5,\$XR1),\$H13N THIRD |
| 1B7F | 4C 03 16 216B | | | MVC | 22(4,\$XR1),\$H22N LINE OF |
| 1B84 | 4C 03 21 216F | | | MVC | 33(4,\$XR1),\$H23N HISTORY |
| | | 1666 | * | | |
| | | 1667 | * | | |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|---------------|-------------|------|---|
| 1B89 | 4C 1A 4E 2069 | 1668 | MVC | 78(27,\$XR1), \$M02N |
| | | 1669 * | | TABLE |
| 1B8E | C0 87 021A | 1670 | B | \$PRINT |
| 1B92 | 01 | 1671 | DC | XL1'01' |
| 1B93 | 5E | 1672 | DC | IL1'94' |
| 1B94 | 225E | 1673 | DC | AL2(\$PBUF+93) |
| | | 1674 * | | |
| 1B96 | 5C 02 04 05 | 1675 | MVC | 4(3,\$XR1), 5(\$XR1) |
| 1B9A | 5C 05 0D 0E | 1676 | MVC | 13(6,\$XR1), 14(\$XR1) |
| 1B9E | 4C 07 18 217F | 1677 | MVC | 24(8,\$XR1), \$M25N |
| 1BA3 | 4C 07 23 2187 | 1678 | MVC | 35(8,\$XR1), \$M26N |
| 1BA8 | 4C 34 5B 209E | 1679 | MVC | 91(53,\$XR1), \$M03N |
| | | 1680 * | | |
| 12AD | C0 87 021A | 1681 | B | \$PRINT |
| 1BB1 | 01 | 1682 | DC | XL1'01' |
| 1BB2 | 5E | 1683 | DC | IL1'94' |
| 1BB3 | 225E | 1684 | DC | AL2(\$PBUF+93) |
| | | 1685 * | | |
| 1BB5 | 5C 5B 5C 5D | 1686 | MVC | 92(92,\$XR1), 93(\$XR1) |
| | | 1687 * | | BUILD LAST HEADING LINE |
| 1BB9 | C0 87 021A | 1688 | B | \$PRINT |
| 1BBD | 01 | 1689 | DC | XL1'01' |
| 1BBE | 5E | 1690 | DC | IL1'94' |
| 1BBF | 225E | 1691 | DC | AL2(\$PBUF+93) |
| | | 1692 * | | |
| 1BC1 | 3C F1 2193 | 1693 | MVI | \$DRV,C'1' |
| | | 1694 * | | INITIALIZE DRIVE IDENTIFIER |
| | | 1695 * | | |
| | | 1696 * | | PRINT HISTORY TABLE SPACE LINES |
| | | 1697 * | | |
| 1BC5 | 7C 40 5C | 1698 \$R6A | MVI | 92(\$XR1), C' |
| 1BC8 | 5C 5A 5B 5C | 1699 | MVC | 91(91,\$XR1), 92(\$XR1) |
| | | 1700 * | | CLEAR PRINT BUFFER |
| 1BCC | 7C 5C 06 | 1701 | MVI | 6(\$XR1), C** |
| 1BCF | 7C 5C 0F | 1702 | MVI | 15(\$XR1), C** |
| 1BD2 | 7C 5C 1A | 1703 | MVI | 26(\$XR1), C** |
| 1BD5 | 7C 5C 25 | 1704 | MVI | 37(\$XR1), C** |
| | | 1705 * | | |
| 1BD8 | C0 87 021A | 1706 | B | \$PRINT |
| 1BDC | 01 | 1707 | DC | XL1'01' |
| 1BDD | 5E | 1708 | DC | IL1'94' |
| 1BDE | 225E | 1709 | DC | AL2(\$PBUF+93) |
| | | 1710 * | | |
| | | 1711 * | | |
| | | 1712 * | | BEGIN / END HISTORY PRINTOUTS |
| | | 1713 * | | |
| 1BE0 | 4C 00 03 2193 | 1714 | MVC | 3(1,\$XR1), \$DRV |
| | | 1715 * | | MOVE DRIVE ID TO PRINT BUFFER |
| 1BE5 | 3D F2 2193 | 1716 | CLI | \$DRV,C'2' |
| 1BE9 | F2 04 10 | 1717 | JNH | \$R6B |
| | | 1718 * | | CONTINUE PRINTOUT IF DRIVE 4 HISTORY HAS NOT YET BEEN PRINTED |
| 1BEC | 5C 5B 5C 5D | 1719 | MVC | 92(92,\$XR1), 93(\$XR1) |
| | | 1720 * | | BUILD LAST LINE OF HISTORY TABLE |
| 1BF0 | C0 87 021A | 1721 | B | \$PRINT |
| 1BF4 | 06 | 1722 | DC | XL1'06' |
| 1BF5 | 5E | 1723 | DC | IL1'94' |
| 1BF6 | 225E | 1724 | DC | AL2(\$PBUF+93) |
| | | 1725 * | | |
| 1BF8 | C0 87 1B16 | 1726 | B | \$R6 |
| | | 1727 * | | GO CHECK FOR MORE INPUT DRIVES |
| | | 1728 * | | |
| | | 1729 * | | LOCATE AN UNUSED LOG ENTRY FIELD |
| | | 1730 * | | |
| 1BFC | 3C 00 218F | 1731 \$R6B | MVI | \$PTR,0 |
| | | 1732 * | | POINT TO FIRST LOG ENTRY FIELD |
| 1C30 | C0 87 1DD5 | 1733 \$R6B1 | B | \$IO |
| | | 1734 * | | READ LOG ENTRY |
| 1C04 | 3D 00 21C1 | 1735 | CLI | \$REC,0 |
| | | | | BRANCH IF |

DATE 29AUG75 07NOV75 04MAR76 21JAN77
EC NO. 827804 827805 571871 571989

PROG ID
PAGE

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17 EC NO.

29AUG75
827804

07NOV75
827805

04MAR76
571871

21JAN77
571989

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17A

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-----------------|-------------|------|---|
| 1C08 | F2 81 12 | 1736 | JE | \$R6C |
| | | 1737 * | | ENTRY IS UNUSED |
| 1C0B | 0E 00 218F 21A6 | 1738 | ALC | \$PTR(1), \$P1 |
| | | 1739 * | | ADVANCE LOG ENTRY POINTER |
| 1C11 | 3D BF 218F | 1740 | CLI | \$PTR, 191 |
| 1C15 | C0 82 1C00 | 1741 | BL | \$R6B1 |
| | | 1742 * | | BRANCH IF NOT YET END OF LOG AREA |
| 1C19 | 3C 00 218F | 1743 | MVI | \$PTR,0 |
| | | 1744 * | | ASSUME LOG AREA IS FULL |
| | | 1745 * | | |
| | | 1746 * | | LOCATE OLDEST LOG ENTRY |
| | | 1747 * | | |
| 1C1D | 3C 00 2198 | 1748 \$R6C | MVI | \$CTR,0 |
| | | 1749 * | | INITIALIZE LOG ENTRY COUNTER |
| 1C21 | C0 87 1DD5 | 1750 \$R6C1 | B | \$IO |
| | | 1751 * | | READ LOG ENTRY |
| 1C25 | 3D 00 21C1 | 1752 | CLI | \$REC,0 |
| 1C29 | F2 01 30 | 1753 | JNE | \$R6C3 |
| | | 1754 * | | BRANCH IF ENTPY IS USED |
| 1C2C | 0E 00 218F 21A6 | 1755 | ALC | \$PTR(1), \$P1 |
| 1C32 | 0E 00 2198 21A6 | 1756 | ALC | \$CTR(1), \$P1 |
| | | 1757 * | | ADVANCE LOG ENTRY POINTER ADVANCE LOG ENTRY COUNTER |
| 1C38 | 3D BF 218F | 1758 | CLI | \$PTR, 191 |
| 1C3C | F2 82 04 | 1759 | JL | \$R6C2 |
| | | 1760 * | | BRANCH IF NOT YET END OF LOG AREA |
| 1C3F | 3C 00 218F | 1761 | MVI | \$PTR,0 |
| | | 1762 * | | WRAP BACK TO FIRST LOG ENTRY |
| 1C43 | 3D BF 2198 | 1763 \$R6C2 | CLI | \$CTR, 191 |
| 1C47 | C0 82 1C21 | 1764 | BL | \$R6C1 |
| | | 1765 * | | GO TO CHECK NEXT LOG IF ALL ENTRIES HAVE NOT YET BEEN CHECKED |
| 1C4B | 4C 05 0D 2167 | 1766 | MVC | 13(6,\$XR1), \$M21N |
| | | 1767 * | | BUILD 'NO LOG' MESSAGE |
| 1C50 | C0 87 021A | 1768 | B | \$PRINT |
| 1C54 | 01 | 1769 | DC | XL1'01' |
| 1C55 | 5E | 1770 | DC | IL1'94' |
| 1C56 | 225E | 1771 | DC | AL2(\$PBUF+93) |
| | | 1772 * | | |
| 1C58 | C0 87 1DD5 | 1773 | B | \$R6N |
| | | 1774 * | | GO TO PROCESS DATA FOR NEXT DRIVE |
| 1C5C | 0C 00 2194 218F | 1775 \$R6C3 | MVC | \$PTRF(1), \$PTR |
| | | 1776 * | | SAVE POINTER TO OLDEST LOG ENTRY |
| | | 1777 * | | |
| | | 1778 * | | FORMAT AND PRINT LOG ENTRY |
| | | 1779 * | | |
| 1C62 | 3D 60 21D8 | 1780 \$R6D | CLI | \$REC+23,X'60' |
| 1C66 | C0 81 1CE3 | 1781 | BE | \$R6E |
| | | 1782 * | | BRANCH IF ONLY USAGE DATA IN LOG ENTRY |
| 1C6A | 4C 05 0D 21C6 | 1783 | MVC | 13(6,\$XR1), \$REC+5 |
| | | 1784 * | | MOVE VOLUME ID TO PRINT BUFFER |
| 1C6F | 4C 07 18 2177 | 1785 | MVC | 24(8,\$XR1), \$M24N |
| 1C74 | 4C 07 23 2177 | 1786 | MVC | 35(8,\$XR1), \$M24N |
| | | 1787 * | | INITIALIZE DATE AND TIME FIELDS IN PRINT BUFFER |
| 1C79 | 3D 00 21EA | 1788 | CLI | \$REC+41,0 |
| 1C7D | F2 81 0F | 1789 | JE | \$R6D1 |
| | | 1790 * | | BRANCH IF NO DATE WAS RECORDED |
| 1C80 | 4C 01 12 21EB | 1791 | MVC | 18(2,\$XR1), \$REC+42 |
| 1C85 | 4C 01 15 21ED | 1792 | MVC | 21(2,\$XR1), \$REC+44 |
| 1C8A | 4C 01 18 21EF | 1793 | MVC | 24(2,\$XR1), \$REC+46 |
| | | 1794 * | | MOVE DATE TO PRINT BUFFER |
| 1C8F | 3D 00 21F0 | 1795 \$R6D1 | CLI | \$REC+47,0 |
| 1C93 | F2 81 0F | 1796 | JE | \$R6D2 |
| | | 1797 * | | BRANCH IF NO TIME WAS RECORDED |
| 1C96 | 4C 01 1D 21F1 | 1798 | MVC | 29(2,\$XR1), \$REC+48 |
| 1C9B | 4C 01 20 21F3 | 1799 | MVC | 32(2,\$XR1), \$REC+50 |
| 1CA0 | 4C 01 23 21F5 | 1800 | MVC | 35(2,\$XR1), \$REC+52 |
| | | 1801 * | | MOVE TIME TO PRINT BUFFER |
| 1CA5 | C0 87 021E | 1802 \$R6D2 | B | \$UNPK |
| 1CA9 | 04 | 1803 | DC | IL1'4' |
| | | | | UNPACK FOUR SENSE |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-----------------|--------|--------|--------|---|
| 1CAA | 21D4 | 1CAB | 1804 | DC | AL2(\$REC+19) |
| 1CAC | 222F | 1CAD | 1805 | DC | AL2(\$PBUF+46) |
| | | | 1806 * | | |
| 1CAE | C0 87 021E | | 1807 | B | \$UNPK |
| 1CB2 | 04 | 1CB2 | 1808 | DC | IL1'4' |
| 1CB3 | 21D8 | 1CB4 | 1809 | DC | AL2(\$REC+23) |
| 1CB5 | 2238 | 1CB6 | 1810 | DC | AL2(\$PBUF+55) |
| | | | 1811 * | | |
| 1CB7 | C0 87 021E | | 1812 | B | \$UNPK |
| 1CB8 | 04 | 1CB8 | 1813 | DC | IL1'4' |
| 1CB9 | 21DC | 1CB9 | 1814 | DC | AL2(\$REC+27) |
| 1CBE | 2241 | 1CBF | 1815 | DC | AL2(\$PBUF+64) |
| | | | 1816 * | | |
| 1CC0 | C0 87 021E | | 1817 | B | \$UNPK |
| 1CC4 | 04 | 1CC4 | 1818 | DC | IL1'4' |
| 1CC5 | 21E0 | 1CC6 | 1819 | DC | AL2(\$REC+31) |
| 1CC7 | 224A | 1CC8 | 1820 | DC | AL2(\$PBUF+73) |
| | | | 1821 * | | |
| 1CC9 | C0 87 021E | | 1822 | B | \$UNPK |
| 1CCD | 04 | 1CCD | 1823 | DC | IL1'4' |
| 1CCE | 21E4 | 1CCF | 1824 | DC | AL2(\$REC+35) |
| 1CD0 | 2253 | 1CD1 | 1825 | DC | AL2(\$PBUF+82) |
| | | | 1826 * | | |
| 1CD2 | C0 87 021E | | 1827 | B | \$UNPK |
| 1CD6 | 04 | 1CD6 | 1828 | DC | IL1'4' |
| 1CD7 | 21E8 | 1CD8 | 1829 | DC | AL2(\$REC+39) |
| 1CD9 | 225C | 1CDA | 1830 | DC | AL2(\$PBUF+91) |
| | | | 1831 * | | |
| 1CDB | C0 87 021A | | 1832 | B | \$PRINT |
| 1CDF | 01 | 1CDF | 1833 | DC | XL1'01' |
| 1CE0 | 5E | 1CE0 | 1834 | DC | IL1'94' |
| 1CE1 | 225E | 1CE2 | 1835 | DC | AL2(\$PBUF+93) |
| | | | 1836 * | | |
| | | | 1837 * | | |
| | | | 1838 * | | SEARCH FOR NEXT LOG ENTRY TO BE PROCESSED |
| | | | 1839 * | | |
| 1CE3 | 0E 00 218F 21A6 | 1840 | \$R6E | ALC | \$PTR(1), \$P1 |
| | | 1841 * | | | ADVANCE LOG ENTRY POINTER |
| 1CE9 | 3D BF 218F | 1842 | | CLI | \$PTR, 191 |
| 1CED | F2 82 04 | 1843 | | JL | \$R6E1 |
| | | 1844 * | | | BRANCH IF NOT YET END OF LOG AREA |
| 1CF0 | 3C 00 218F | 1845 | | MVI | \$PTR, 0 |
| | | 1846 * | | | WRAP BACK TO FIRST LOG ENTRY |
| 1CF4 | 0D 00 218F 2194 | 1847 | \$R6E1 | CLC | \$PTR(1), \$PTR |
| 1CFA | F2 81 10 | 1848 | | JE | \$R6N |
| | | 1849 * | | | BRANCH IF ALL LOG ENTRIES HAVE BEEN PROCESSED |
| 1CFD | C0 87 1DD5 | 1850 | | B | \$IO |
| | | 1851 * | | | READ NEXT LOG ENTRY |
| 1D01 | 3D 00 21C1 | 1852 | | CLI | \$REC, 0 |
| 1D05 | C0 81 1CE3 | 1853 | | BE | \$R6E |
| | | 1854 * | | | BRANCH IF UNUSED ENTRY |
| 1D09 | C0 87 1C62 | 1855 | | B | \$R6D |
| | | 1856 * | | | GO TO FORMAT AND PRINT LOG ENTRY |
| | | 1857 * | | | |
| | | 1858 * | | | CLEAR LOG AREA IF REQUIRED |
| | | 1859 * | | | |
| 1D0D | 3A 08 2188 | 1860 | \$R6N | SBN | \$IND, \$CLEAR |
| | | 1861 * | | | SET 'CLEAR LOG' INDICATOR |
| 1D11 | 38 80 020C | 1862 | | TBN | \$SBY4, \$SSW20 |
| 1D15 | C0 90 1DD5 | 1863 | | BF | \$IO |
| | | 1864 * | | | CLEAR LOG AREA IF SENSE SWITCH 20 IS OFF |
| 1D19 | 3B 08 2188 | 1865 | | SBF | \$IND, \$CLEAR |
| | | 1866 * | | | RESET 'CLEAR LOG' INDICATOR |
| | | 1867 * | | | |
| | | 1868 * | | | PREPARE TO PRINT HISTORY FOR NEXT DRIVE ID |
| | | 1869 * | | | |
| 1D1D | 0E 00 218E 21A6 | 1870 | | ALC | \$HD(1), \$P1 |
| 1D23 | 06 00 2193 21AD | 1871 | | AZ | \$DRV(1), \$D1(1) |
| | | | | | ADVANCE HEAD ADDRESS |
| | | | | | ADVANCE DRIVE IDENTIFIER |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|------|------|--------|--------------|
| | | | | | 1872 * |
| | | | | | 1873 B \$R6A |
| | | | | | 1874 * |

GO TO COMPLETE HISTORY TABLE

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

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1876 *****
1877 *
1878 *      ROUTINES 3 AND 4 - COMMON INITIALIZATION PROCEDURES
1879 *
1880 *****
1881 *
1882 $BEGIN ST   $BGNX+3,$SARR      SAVE RETURN ADDRESS
1883 *
1884 MVI $NN,0          CLEAR
1885 MVC $NN-1(9),$NN      DDCP AREA
1886 *
1887 LA $UDT-3,$XR1      POINT TO SECTION UDT
1888 *
1889 $BGN01 LA 3(,$XR1),$XR1      LOCATE
1890 CLI 0(,$XR1),X'C1'      3340 UDT ENTRY
1891 BNE $BGN01
1892 *
1893 TBN 1(,$XR1),$BIT2      FND ROUTINE IF 3340
1894 BF $LINK              NOT DEFINED IN DCP UDT
1895 *
1896 $BGN02 TBF $SBYT2,$SSW11+$SSW12+$SSW13+$SSW14  SKIP IF ANY SNS
1897 JF $BGN03              SW 11 THRU 14 ON
1898 *
1899 SBN $SBYT2,$SSW12      SET SNS SW 12 (DEFAULT TO DRV 2)
1900 *
1901 $BGN03 TBN $SBYT2,$SSW11  BRANCH IF DRIVE 1 NOT
1902 TBF $IND,$DRV1          SELECTED OR IF DATA FROM
1903 JF $BGN04              DRV 1 HAS ALREADY BEEN PRINTED
1904 *
1905 SBN $IND,$DRV1          SET 'DRV 1 USED' INDICATOR
1906 *
1907 MVI $DRVID,C'1'        SETUP DRIVE IDENTIFIER,
1908 MVI $DRVAD,X'CO'        DRIVE ADDRESS, AND ERROR
1909 MVI $CKMSK,X'81'        SENSE BYTE MASK FOR DRIVE 1
1910 *
1911 J $BGNX                RETURN TO CALLING ROUTINE
1912 *
1913 $BGN04 TBN $SBYT2,$SSW12  BRANCH IF DRIVE 2 NOT
1914 TBF $IND,$DRV2          SELECTED OR IF DATA FROM
1915 JF $BGN05              DRV 2 HAS ALREADY BEEN PRINTED
1916 *
1917 SBN $IND,$DRV2          SET 'DRV 2 USED' INDICATOR
1918 *
1919 MVI $DRVID,C'2'        SETUP DRIVE IDENTIFIER,
1920 MVI $DRVAD,X'CB'        DRIVE ADDRESS, AND ERROR
1921 MVI $CKMSK,X'41'        SENSE BYTE MASK FOR DRIVE 2
1922 *
1923 J $BGNX                RETURN TO CALLING ROUTINE
1924 *
1925 $BGN05 TBN $SBYT2,$SSW13  BRANCH IF DRIVE 3 NOT
1926 TBF $IND,$DRV3          SELECTED OR IF DATA FROM
1927 JF $BGN06              DRV 3 HAS ALREADY BEEN PRINTED
1928 *
1929 SBN $IND,$DRV3          SET 'DRV 3 USED' INDICATOR
1930 *
1931 MVI $DRVID,C'3'        SETUP DRIVE IDENTIFIER,
1932 MVI $DRVAD,X'DO'        DRIVE ADDRESS, AND ERROR
1933 MVI $CKMSK,X'21'        SENSE BYTE MASK FOR DRIVE 3
1934 *
1935 J $BGNX                RETURN TO CALLING ROUTINE
1936 *
1937 $BGN06 TBN $SBYT2,$SSW14  END ROUTINE IF DRV 4 NOT
1938 TBF $IND,$DRV4          SELECTED OR IF DATA FROM
1939 BF $LINK              DRV 4 HAS ALREADY BEEN PRINTED
1940 *
1941 SBN $IND,$DRV4          SET 'DRV 4 USED' INDICATOR
1942 *
1943 MVI $DRVID,C'4'        SETUP DRIVE IDENTIFIER,

```

```

1DC9 3C D8 218A      1944 MVI $DRVAD,X'D8'
1DCD 3C 11 2192      1945 MVI $CKMSK,X'11'
1DD1 C0 87 0000      1946 *
1947 $BGNX B **
1948 *

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```

DRIVE ADDRESS, AND ERROR
SENSE BYTE MASK FOR DRIVE 4
RETURN TO CALLING ROUTINE

```

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-------------|------|----------------------|--|
| 1950 | * | | | ***** |
| 1951 | * | | | |
| 1952 | * | | | ROUTINES 5 AND 6 - COMMON 3340 I/O SUBROUTINES |
| 1953 | * | | | |
| 1954 | * | | | ***** |
| 1955 | * | | | |
| 1956 | * | | | READ OR CLEAR 3340 LOG ENTRIES |
| 1957 | * | | | |
| 1958 | \$IO | ST | \$IOX+3,\$ARR | SAVE RETURN ADDRESS |
| 1959 | ST | | \$IOX1+3,\$XR1 | SAVE INDEX REG 1 |
| 1960 | * | | | |
| 1961 | MVI | | \$RRETRY,10 | INITIALIZE ERROR RETRY COUNT |
| 1962 | * | | | |
| 1963 | CLC | | \$CYL(2),\$CC | BRANCH IF ACCESS |
| 1964 | JNE | | \$RECAL | NOT YET AT REQUIRED CYLINDER |
| 1965 | * | | | |
| 1966 | CLC | | \$HD(2),\$SH | BRANCH IF ACCESS |
| 1967 | JE | | \$RDWR | ALREADY AT REQUIRED LOCATION |
| 1968 | * | | | |
| 1969 | MVI | | \$RR,0 | RESET RECORD NUMBER |
| 1970 | * | | | |
| 1971 | \$RECAL | MVI | \$Q,0 | SETUP Q AND R BYTES |
| 1972 | MVI | | \$R,1 | FOR RECALIBRA1' COMMAND |
| 1973 | * | | | |
| 1974 | B | | \$XEQ | GO TO EXECUTE RECALIBRATE COMMAND |
| 1975 | * | | | |
| 1976 | MVC | | \$CC(2),\$CYL | MOVE CYLINDER AND |
| 1977 | MVC | | \$HH(2),\$HD | HEAD VALUES TO DDCP |
| 1978 | * | | | |
| 1979 | \$SEEK | MVI | \$Q,0 | SETUP Q AND R |
| 1980 | MVI | | \$R,0 | BYTES FOR SEEK COMMAND |
| 1981 | * | | | |
| 1982 | B | | \$XEQ | GO TO EXECUTE SEEK COMMAND |
| 1983 | * | | | |
| 1984 | \$RDHA | MVI | \$Q,1 | SETUP Q AND R BYTES FOR |
| 1985 | MVI | | \$R,1 | READ HA (EVEN) COMMAND |
| 1986 | * | | | |
| 1987 | B | | \$XEQ | GO TO EXECUTE READ HA COMMAND |
| 1988 | * | | | |
| 1989 | MVC | | \$HH(4),\$DDDF+4 | MOVE RECORD 0 CCHH TO DDCP |
| 1990 | * | | | |
| 1991 | TBN | | \$PF,\$BIT6 | GO TO SEEK TO ASSIGNED |
| 1992 | BT | | \$SEEK | ALTERNATE IF DEFECTIVE TRACK |
| 1993 | * | | | |
| 1994 | \$RDWR | MVC | \$CC(2),\$CYL | MOVE CYLINDER AND |
| 1995 | MVC | | \$HH(2),\$HD | HEAD VALUES TO DDCP |
| 1996 | * | | | |
| 1997 | MVC | | \$DL(3),\$P256 | MOVE KL AND DL TO DDCP |
| 1998 | * | | | |
| 1999 | TBN | | \$IND,\$CLEAR | GO TO CLEAR LOG AREA |
| 2000 | JT | | \$RREP | IF 'CLEAR' INDICATOR IS ON |
| 2001 | * | | | |
| 2002 | \$RDKD | MVI | \$RDWK,4 | DEVELOPE |
| 2003 | MVC | | \$RDWK+1(1),\$PTR | RECORD NUMBER |
| 2004 | ALC | | \$RDWK+1(1),\$P5 | FROM LOG AREA POINTER |
| 2005 | \$RDKD1 | ALC | \$RDWK+1(2),\$RDWK+1 | |
| 2006 | BNOL | | \$RDKD1 | |
| 2007 | * | | | |
| 2008 | CLC | | \$RDWK(1),\$RR | BRANCH IF REQUIRED |
| 2009 | JE | | \$RDKD2 | RECORD IS ALREADY IN MAIN STORE |
| 2010 | * | | | |
| 2011 | MVC | | \$RR(1),\$RDWK | MOVE RECORD NUMBER TO DDCP |
| 2012 | MVI | | \$NN,0 | SETUP NN VALUE TO READ ONE RECORD |
| 2013 | * | | | |
| 2014 | MVI | | \$Q,X'01' | SETUP Q AND R BYTES |
| 2015 | MVI | | \$R,X'00' | FOR READ KEY-DATA COMMAND |
| 2016 | * | | | |
| 2017 | B | | \$XEQ | GO TO EXECUTE READ KEY-DATA COMMAND |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-------------|------|----------------------------|--|
| 2018 | * | | | |
| 2019 | \$RDKD2 | LA | \$DDDF,\$XR1 | LOCATE REQUIRED |
| 2020 | MVI | | \$RDWK,0 | LOG ENTRY VIA OFFSET |
| 2021 | A | | \$RDWK+1,\$XR1 | DEVELOPED FROM LOG ENTRY POINTER |
| 2022 | * | | | |
| 2023 | MVC | | \$RECN(64),63(,\$XR1) | GET REQUIRED LOG ENTRY |
| 2024 | * | | | |
| 2025 | J | | \$IOX1 | RETURN TO CALLING ROUTINE |
| 2026 | * | | | |
| 2027 | \$RREP | MVI | \$RR,1 | SETUP RR AND NN VALUES |
| 2028 | MVI | | \$NN,47 | IN DDCP TO WRITE RECORDS 1 THRU 48 |
| 2029 | * | | | |
| 2030 | MVI | | \$DDDF+255,0 | CLEAR |
| 2031 | MVC | | \$DDDF+254(255),\$DDDF+255 | DDDF AREA |
| 2032 | * | | | |
| 2033 | MVI | | \$Q,X'02' | SETUP Q AND R BYTES |
| 2034 | MVI | | \$R,X'03' | FOR WRITE REPEAT COMMAND |
| 2035 | * | | | |
| 2036 | B | | \$XEQ | GO TO EXECUTE WRITE REPEAT COMMAND |
| 2037 | * | | | |
| 2038 | SBP | | \$IND,\$CLEAR | RESET 'CLEAR LOG' INDICATOR |
| 2039 | * | | | |
| 2040 | \$IOX1 | LA | *-,\$XR1 | RESTORE INDEX REG 1 |
| 2041 | \$IOX | B | *-* | RETURN TO CALLING ROUTINE |
| 2042 | * | | | |
| 2043 | * | | | ----- |
| 2044 | * | | | COMMON 3340 I/O COMMAND EXECUTION SUBROUTINE |
| 2045 | * | | | |
| 2046 | \$XEQ | ST | \$XEQX+3,\$ARR | SAVE RETURN ADDRESS |
| 2047 | * | | | |
| 2048 | B | | \$TEST | CHECK FOR USER INTERVENTION |
| 2049 | * | | | |
| 2050 | MVC | | \$SIO+1(1),\$DRVAD | SETUP |
| 2051 | ALC | | \$SIO+1(1),\$Q | Q AND R BYTES |
| 2052 | MVC | | \$SIO+2(1),\$R | IN SIO INSTRUCTION |
| 2053 | * | | | |
| 2054 | SNS | | \$SNS+1,X'C5' | SENSE ATTACHMENT STATUS |
| 2055 | * | | | |
| 2056 | MVC | | *+7(1),\$CKNSK | GO TO ERROR |
| 2057 | TBF | | \$SNS,*-* | HANDLING SUBROUTINE IF |
| 2058 | BF | | \$ERR | ADAPTER OR UNIT CHECK |
| 2059 | * | | | |
| 2060 | LIO | | \$DDCR,X'C6' | LOAD DDCR |
| 2061 | LIO | | \$DDDR,X'C4' | AND DDDR |
| 2062 | * | | | |
| 2063 | \$SIO | SIO | *-*,*-* | EXECUTE 3340 I/O COMMAND |
| 2064 | * | | | |
| 2065 | MVC | | \$TIO+1(1),\$DRVAD | BUILD 'SEEK BUSY' |
| 2066 | SBN | | \$TIO+1,\$BIT7 | TIO INSTRUCTION |
| 2067 | * | | | |
| 2068 | TIO | | *,X'C2' | LOOP ON 'ATTACHMENT BUSY' |
| 2069 | * | | | |
| 2070 | \$TIO | TIO | *,*-* | LOOP ON 'SEEK BUSY' |
| 2071 | * | | | |
| 2072 | SNS | | \$SNS+1,X'C5' | SENSE ATTACHMENT STATUS |
| 2073 | * | | | |
| 2074 | MVC | | *+7(1),\$CKNSK | GO TO ERROR |
| 2075 | TBF | | \$SNS,*-* | HANDLING SUBROUTINE IF |
| 2076 | BF | | \$ERR | ADAPTER OR UNIT CHECK |
| 2077 | * | | | |
| 2078 | \$XEQX | B | *-* | RETURN TO CALLING ROUTINE |
| 2079 | * | | | |
| 2080 | * | | | ----- |
| 2081 | * | | | 3340 ERROR HANDLING SUBROUTINE |
| 2082 | * | | | |
| 2083 | \$ERP | ST | \$ERRX+3,\$ARR | SAVE RETURN ADDRESS |
| 2084 | * | | | |
| 2085 | TBN | | \$SNS+1,\$BIT7 | BRANCH IF NOT |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC OBJECT CODE | ADDR STMT SOURCE STATEMENT | ADDR STMT SOURCE STATEMENT |
|----------------------|--|----------------------------|
| 1F2C F2 90 1A | 2086 JF \$UCK ADAPTER CHECK CONDITION | |
| 2087 * | | |
| 1F2F 3C 00 228B | 2088 \$ACK MVI \$\$SNS+23,0 BUILD | |
| 1F33 0C 14 228A 228B | 2089 HVC \$\$SNS+22(21),\$\$SNS+23 FORMAT 3 | |
| 1F39 31 C7 218A | 2090 LIO \$\$SNS23,X'C7' READ DIAG | |
| 1F3D 30 C7 2277 | 2091 SNS \$\$SNS+3,X'C7' SENSE BYTES | |
| 1F41 3C 30 227B | 2092 MVI \$\$SNS+7,X'30' | |
| 1F45 C0 87 1PC4 | 2093 * B \$ERRP | |
| 2094 | | |
| 2095 * | | |
| 1F49 0C 00 1F58 218A | 2096 \$UCK HVC \$\$SNSIO+1(1),\$DRVAD GO TO PRINT ERROR MESSAGE AND HALT | |
| 1F4F 3A 01 1F58 | 2097 SBN \$\$SNSIO+1,\$BIT7 BUILD 'READ DIAG | |
| 2098 * | | |
| 1F53 31 C4 21C0 | 2099 LIO \$\$SNSDR,X'C4' LOAD DDDR | |
| 2100 * | | |
| 1F57 F3 00 07 | 2101 \$\$SNSIO SIO X'07',*-* READ DIAGNOSTIC SENSE DATA | |
| 2102 * | | |
| 1F5A C1 C2 1F5A | 2103 TIO *,X'C2' LOOP ON ATTACHMENT BUSY | |
| 2104 * | | |
| 1F5E 0F 00 2196 21A6 | 2105 SLC \$RETRY(1),\$P1 DECREMENT RETRY COUNTER AND GO TO | |
| 1F64 C0 81 1PC4 | 2106 BZ \$ERRP ERR PRINT AND HALT IF LAST RETRY | |
| 2107 * | | |
| 1F68 3B 0F 227B | 2108 \$ERP SBF \$\$SNS+7,X'0F' RESET MSG B' TS IN SENSE BYTE 7 | |
| 2109 * | | |
| 1F6C 3D 50 227B | 2110 CLI \$\$SNS+7,X'50' BRANCH IF | |
| 1F70 C0 81 1F8A | 2111 BE \$ECC CORRECTABLE DATA CHECK | |
| 2112 * | | |
| 1F74 3C 00 2273 | 2113 MVI \$NN,0 CLEAR | |
| 1F78 0C 08 2272 2273 | 2114 HVC \$NN-1(9),\$NN DDCP AREA | |
| 2115 * | | |
| 1F7E 3D 40 227B | 2116 CLI \$\$SNS+7,X'40' BRANCH IF | |
| 1F82 C0 81 1E35 | 2117 BE \$RDWR DATA CHECK | |
| 2118 * | | |
| 1F86 C0 87 1DF7 | 2119 B \$RECAL GO TO RECALIBRATE AGAIN | |
| 2120 * | | |
| 1F8A 0E 01 2285 21BE | 2121 \$ECC ALC \$\$SNS+17(2),\$DDDR DEVELOPE | |
| 1F90 0F 01 2285 2287 | 2122 SLC \$\$SNS+17(2),\$SNS+19 ADDRESS OF | |
| 1F96 35 01 2285 | 2123 L \$\$SNS+17,\$XR1 FIRST ERROR BYTE | |
| 2124 * | | |
| 1F9A 3C 18 2197 | 2125 MVI \$BITCT,24 INITIALIZE ERROR BIT COUNTER | |
| 2126 * | | |
| 1F9E 0E 02 228A 228A | 2127 \$ECC01 ALC \$\$SNS+22(3),\$SNS+22 EXCLUSIVE OR | |
| 1FA4 F2 20 05 | 2128 JNOL \$ECC02 ERROR PATTERN | |
| 1FA7 4E 00 00 21A8 | 2129 ALC 0(1,\$XR1),\$X80 WITH ERROR BYTES | |
| 1FAC 5E 02 02 02 | 2130 \$ECC02 ALC 2(3,\$XR1),2(,\$XR1) | |
| 1FB0 F2 20 03 | 2131 JNOL \$ECC03 | |
| 1FB3 7A 01 02 | 2132 SBN 2(,\$XR1),\$BIT7 | |
| 1FB6 0F 00 2197 21A6 | 2133 \$ECC03 SLC \$BITCT(1),\$P1 | |
| 1FBC C0 01 1F9E | 2134 BNZ \$ECC01 | |
| 2135 * | | |
| 1FC0 C0 87 0000 | 2136 \$ERRX B *-* RETURN TO CALLING ROUTINE | |
| 2137 * | | |
| 2138 * | | |
| 2139 * | | |
| 2140 * | | |
| 1FC4 C0 87 021A | 2141 \$ERRP B \$SPRINT UNRECOVERABLE 3340 ERROR - PRINT ERR MESSAGE AND HALT | |
| 1FC8 92 | 1FC8 2142 DC XL1'92' SPACE PRINTER 2 LINES | |
| 2143 * | | |
| 1FC9 0C 00 203F 2189 | 2144 HVC \$M01+4(1),\$DRVAD MOVE DRIVE ID TO ERROR MESSAGE | |
| 2145 * | | |
| 1FCF C0 87 021A | 2146 B \$SPRINT PRINT ERROR MESSAGE | |
| 1FD3 C2 | 1FD3 2147 DC XL1'C2' | |
| 1FD4 14 | 1FD4 2148 DC AL1(\$M01N-\$M01+1) | |
| 1FD5 204E | 1FD6 2149 DC AL2(\$M01N) | |
| 1FD7 FFF6 | 1FD8 2150 DC AL2(\$HLTP6) | |
| 2151 * | | |
| 1FD9 C0 87 021A | 2152 B \$SPRINT PRINT | |
| 1FDD 81 | 1FDD 2153 DC XL1'81' 'READ DIAG SNS DATA' | |

| ERR LOC OBJECT CODE | ADDR STMT SOURCE STATEMENT | ADDR STMT SOURCE STATEMENT |
|----------------------|--|----------------------------|
| 1FDE 1B | 1FDE 2154 DC AL1(\$M02N-\$M02+1) | |
| 1PDF 2069 | 1FEO 2155 DC AL2(\$M02N) | |
| 2156 * | | |
| 1FE1 C0 87 021A | 2157 B \$SPRINT PPINT | |
| 1FE5 81 | 1FE5 2158 DC XL1'81' | |
| 1FE6 35 | 1FE6 2159 DC AL1(\$M03N-\$M03+1) | |
| 1FE7 209E | 1FE8 2160 DC AL2(\$M03N) | |
| 2161 * | | |
| 1FE9 3C 40 2237 | 2162 MVI \$PBUF+54,C' ' CLEAR | |
| 1FED 0C 35 2236 2237 | 2163 MVC \$PBUF+53(54),\$PBUF+54 PRINT \$UFFEP | |
| 2164 * | | |
| 1FF3 C0 87 021E | 2165 B \$UNPK UNPACK | |
| 1FF7 04 | DC IL1'4' FOUR SENSE | |
| 1FF8 2277 | 1FF9 2167 DC AL2(\$SNS+3) BYTES TO | |
| 1FFA 2208 | 1FFB 2168 DC AL2(\$PBUF+7) PRINT BUFFER | |
| 2169 * | | |
| 1FPC C0 87 021E | 2170 B \$UNPK UNPACK | |
| 2000 04 | DC IL1'4' FOUR SENSE | |
| 2001 227B | DC AL2(\$SNS+7) BYTES TO | |
| 2003 2211 | DC AL2(\$PBUF+16) PRINT BUFFER | |
| 2174 * | | |
| 2005 C0 87 021E | 2175 B \$UNPK UNPACK | |
| 2009 04 | DC IL1'4' FOUR SENSE | |
| 200A 227F | DC AL2(\$SNS+11) BYTES TO | |
| 200C 221A | DC AL2(\$PBUF+25) PRINT BUFFER | |
| 2179 * | | |
| 200E C0 87 021E | 2180 B \$UNPK UNPACK | |
| 2012 04 | DC IL1'4' FOUR SENSE | |
| 2013 2283 | DC AL2(\$SNS+15) BYTES TO | |
| 2015 2223 | DC AL2(\$PBUF+34) PRINT BUFFER | |
| 2184 * | | |
| 2017 C0 87 021E | 2185 B \$UNPK UNPACK | |
| 201B 04 | DC IL1'4' FOUR SENSE | |
| 201C 2287 | DC AL2(\$SNS+19) BYTES TO | |
| 201E 222C | DC AL2(\$PBUF+43) PRINT BUFFER | |
| 2189 * | | |
| 2020 C0 87 021E | 2190 B \$UNPK UNPACK | |
| 2024 04 | DC IL1'4' FOUR SENSE | |
| 2025 228B | DC AL2(\$SNS+23) BYTES TO | |
| 2027 2235 | DC AL2(\$PBUF+52) PRINT BUFFER | |
| 2194 * | | |
| 2029 C0 87 021A | 2195 B \$SPRINT PRINT SENSE BYTES | |
| 202D 86 | DC XL1'86' | |
| 202E 35 | DC XL1'53' | |
| 202F 2235 | DC AL2(\$PBUF+52) | |
| 2199 * | | |
| 2031 C0 87 0222 | 2200 B \$HALT ERROR HALT P6 | |
| 2035 FFF6 | 2036 DC AL2(\$HLTP6) | |
| 2202 * | | |
| 2037 C0 87 1DD1 | 2203 B \$BGX GO TO RESTART ROUTINE | |
| 2204 * | | |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|------------------|------|------|--------|---|
| | | 2206 | * | | ***** |
| | | 2207 | * | | |
| | | 2208 | * | | ROUTINES 5 AND 6 - PRINT MESSAGES |
| | | 2209 | * | | |
| | | 2210 | * | | ***** |
| | | 2211 | * | | |
| 203B | C4D9E54CE740D5D6 | 203B | 2212 | \$M01 | EQU * |
| 2043 | E340D9C4E840D6D9 | 204E | 2213 | \$M01N | DC CL20'DRV X NOT RDY OR ERR' |
| 204B | 40C5D9D9 | | 2213 | | |
| | | | 2214 | * | |
| 204F | D9C5C1C440C4C9C1 | 204F | 2215 | \$M02 | ZQN * |
| 2057 | C7D5D6E2E3C9C340 | 2069 | 2216 | \$M02N | DC CL27'READ DIAGNOSTIC SENSE DATA' |
| 205F | E2C5D5E2C540C4C1 | | 2216 | | |
| 2067 | E3C140 | | 2216 | | |
| | | | 2217 | * | |
| 206A | F0F060606060F0F3 | 206A | 2218 | \$M03 | EQU * |
| 2072 | 40F0F460606060F0 | 2084 | 2219 | DC | CL27'00----03 04----07 08----11 ' |
| 207A | F740F0F860606060 | | 2219 | | |
| 2082 | F1F140 | | 2219 | | |
| 2085 | F1F260606060F1F5 | 209E | 2220 | \$M03N | DC CL26'12----15 16----19 20----23' |
| 208D | 40F1F660606060F1 | | 2220 | | |
| 2095 | F940F2F060606060 | | 2220 | | |
| 209D | F2F3 | | 2220 | | |
| | | | 2221 | * | |
| 209F | 60606040F3F3F4F0 | 209F | 2222 | \$M04 | EQU * |
| 20A7 | 40E4E2C1C7C540C1 | 20C2 | 2223 | \$M04N | DC CL36'--- 3340 USAGE AND ERROR LOG SUMMARY' |
| 20AF | D5C440C5D9D9D6D9 | | 2223 | | |
| 20B7 | 40D3D6C740E2E4D4 | | 2223 | | |
| 20BF | D3C1D9E8 | | 2223 | | |
| | | | 2224 | * | |
| 20C3 | 60606040F3F3F4F0 | 20C3 | 2225 | \$M05 | EQU * |
| 20CB | 40C5D9D9D6D940C8 | 20D8 | 2226 | \$M05N | DC CL22'--- 3340 ERROR HISTORY' |
| 20D3 | C9E2E3D6D9E8 | | 2226 | | |
| | | | 2227 | * | |
| 20D9 | 4060606040C4C1E3 | 20D9 | 2228 | \$M06 | EQU * |
| 20E1 | C140C6D9D6D440C4 | 20EE | 2229 | \$M06N | DC CL22' --- DATA FROM DRIVE X' |
| 20F9 | D9C9E5C540E7 | | 2229 | | |
| | | | 2230 | * | |
| 20EF | C6D4E340F0 | 20EF | 2231 | \$M07 | EQU * |
| | | 20F3 | 2232 | \$M07N | DC CL5'GMT 0' |
| | | | 2233 | * | |
| 20F4 | C5D8E4C9D7D4C5D5 | 20F4 | 2234 | \$M08 | EQU * |
| 20FC | E340C3C8C5C3D2E2 | 2103 | 2235 | \$M08N | DC CL16'EQUIPMENT CHECKS' |
| | | | 2235 | | |
| | | | 2236 | * | |
| 2104 | E2C5C5D2E2 | 2104 | 2237 | \$M09 | EQU * |
| | | 2108 | 2238 | \$M09N | DC CL5'SEEKS' |
| | | | 2239 | * | |
| 2109 | C4C1E3C1 | 2109 | 2240 | \$M10 | EQU * |
| | | 210C | 2241 | \$M10N | DC CL4'DATA' |
| | | | 2242 | * | |
| 210D | E3D6E3C1D3 | 210D | 2243 | \$M11 | EQU * |
| | | 2111 | 2244 | \$M11N | DC CL5'TOTAL' |
| | | | 2245 | * | |
| 2112 | C4D9E5 | 2112 | 2246 | \$M12 | EQU * |
| | | 2114 | 2247 | \$M12N | DC CL3'DRV' |
| | | | 2248 | * | |
| 2115 | E5D6D3E4D4C5 | 2115 | 2249 | \$M13 | EQU * |
| | | 211A | 2250 | \$M13N | DC CL6'VOLUME' |
| | | | 2251 | * | |
| 211B | 60E4E2C5D960 | 211B | 2252 | \$M14 | EQU * |
| | | 2120 | 2253 | \$M14N | DC CL6'-USER-' |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|------------------|------|------|--------|----------------------------------|
| | | 2254 | * | | |
| 2121 | C1E3E3C1C3C8D4C5 | 2121 | 2255 | \$M15 | EQU * |
| 2129 | D5E3405C40E2E4C2 | 2137 | 2256 | \$M15N | DC CL23'ATTACHMENT * SUB-SYSTEM' |
| 2131 | 60E2E8E2E3C5D4 | | 2256 | | |
| | | | 2256 | | |
| | | | 2257 | * | |
| 2138 | D4C5C7C1C2E8E3C5 | 2138 | 2258 | \$M16 | EQU * |
| 2140 | E2 | 2140 | 2259 | \$M16N | DC CL9'MEGABYTES' |
| | | | 2259 | | |
| | | | 2260 | * | |
| 2141 | C5D9D9D6D9E2 | 2141 | 2261 | \$M17 | EQU * |
| | | 2146 | 2262 | \$M17N | DC CL6'ERRORS' |
| | | | 2263 | * | |
| 2147 | C3D6D9D94040E3C5 | 2147 | 2264 | \$M18 | EQU * |
| 214P | D4D74040D7C5D9D4 | 2156 | 2265 | \$M18N | DC CL16'CORR TEMP PERH' |
| | | | 2265 | | |
| | | | 2266 | * | |
| 2157 | 60E7F1F0F0F060 | 2157 | 2267 | \$M19 | EQU * |
| | | 215D | 2268 | \$M19N | DC CL7'-X1000- |
| | | | 2269 | * | |
| 215E | D9C5C1C4 | 215E | 2270 | \$M20 | EQU * |
| | | 2161 | 2271 | \$M20N | DC CL4'READ' |
| | | | 2272 | * | |
| 2162 | D5D640D3D6C7 | 2162 | 2273 | \$M21 | EQU * |
| | | 2167 | 2274 | \$M21N | DC CL6'NO LOG' |
| | | | 2275 | * | |
| 2168 | C4C1E3C5 | 2168 | 2276 | \$M22 | EQU * |
| | | 216B | 2277 | \$M22N | DC CL4'DATE' |
| | | | 2278 | * | |
| 216C | E3C9D4C5 | 216C | 2279 | \$M23 | EQU * |
| | | 216F | 2280 | \$M23N | DC CL4'TIME' |
| | | | 2281 | * | |
| 2170 | F0F04BF0F04BF0F0 | 2170 | 2282 | \$M24 | EQU * |
| | | 2177 | 2283 | \$M24N | DC CL8'00.00.00' |
| | | | 2284 | * | |
| 2178 | D4D44BC4C44BE8E8 | 2178 | 2285 | \$M25 | EQU * |
| | | 217F | 2286 | \$M25N | DC CL8'HH.DD.YY' |
| | | | 2287 | * | |
| 2180 | C8C84BD4D44BE2E2 | 2180 | 2288 | \$M26 | EQU * |
| | | 2187 | 2289 | \$M26N | DC CL8'HH.HH.SS' |
| | | | 2290 | * | |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|------------------|-------------|------|------|---|
| | | 2292 | | ***** |
| | | 2293 | * | * |
| | | 2294 | * | ROUTINES 5 AND 6 - CONSTANTS AND RESERVED STORAGE AREAS |
| | | 2295 | * | * |
| | | 2296 | | ***** |
| | | 2297 | * | * |
| 2188 | | 2188 | 2298 | \$IND DS XL1 PROGRAM INDICATORS |
| | | | 2299 | * |
| 2189 | | 2189 | 2300 | \$DRVID DS CL1 INPUT DRIVE IDENTIFIER |
| 218A | | 218A | 2301 | \$DRVAD DS XL1 INPUT DRIVE ADDRESS |
| | | | 2302 | * |
| 218B | | 218C | 2303 | \$CYL DS XL2 CURRENT CYLINDER ADDRESS |
| 218D | | 218E | 2304 | \$HD DS XL2 CURRENT HEAD ADDRESS |
| 218F | | 218F | 2305 | \$PTR DS XL1 CURRENT LOG ENTRY POINTER |
| | | | 2306 | * |
| 2190 | | 2190 | 2307 | \$Q DS XL1 SIO 'Q' BYTE |
| 2191 | | 2191 | 2308 | \$R DS XL1 SIO 'R' BYTE |
| | | | 2309 | * |
| 2192 | | 2192 | 2310 | \$CKMSK DS XL1 ATTACHMENT SENSE BYTE ERROR MASK |
| | | | 2311 | * |
| 2193 | | 2193 | 2312 | \$DRV DS XL1 DRIVE IDENTIFIER (TABLE PRINTOUT) |
| | | | 2313 | * |
| 2194 | | 2194 | 2314 | \$PTRP DS XL1 POINTER TO FIRST (OLDEST) LOG ENTRY |
| 2195 | | 2195 | 2315 | \$PTRX DS XL1 CURRENT POINTER TEMP STORAGE |
| | | | 2316 | * |
| 2196 | | 2196 | 2317 | \$RETRY DS XL1 EPROR RETRY COUNTER |
| 2197 | | 2197 | 2318 | \$BITCT DS XL1 ECC BIT COUNTER |
| 2198 | | 2198 | 2319 | \$CTR DS XL1 GENERAL PURPOSE COUNTER |
| | | | 2320 | * |
| 2199 | | 219E | 2321 | \$RDCNT DS XL6 READ USAGE COUNTER |
| 219F | | 21A2 | 2322 | \$SKCNT DS XL4 SEEK USAGE COUNTER |
| | | | 2323 | * |
| 21A3 | | 21A3 | 2324 | \$RDWK EQU * READ SUBROUTINE |
| | | 21A4 | 2325 | DS XL2 WORK AREA |
| | | | 2326 | * |
| 21A5 0001 | | 21A6 | 2327 | \$P1 DC IL2'1' |
| 21A7 05 | | 21A7 | 2328 | \$P5 DC IL1'5' |
| 21A8 00D1 | | 21A9 | 2329 | \$P209 DC IL2'209' |
| 21AA 000100 | | 21AC | 2330 | \$P256 DC IL3'256' |
| 21AD F1 | | 21AD | 2331 | \$D1 DC CL1'1' |
| 21AE 80 | | 21AE | 2332 | \$X80 DC XL1'80' |
| 21AF 000003E8 | | 21B2 | 2333 | \$KILO DC IL4'1000' |
| 21B3 000000F4240 | | 21B8 | 2334 | \$MEG DC XL6'000000F4240' |
| 21B9 0002 | | 21BA | 2335 | \$SNS23 DC XL2'0002' |
| | | | 2336 | * |
| 21BB 226A | | 21BC | 2337 | \$DDCF DC AL2(\$DDCF) DDCF ADDRESS (INITIAL DDCR) |
| 21BD 228C | | 21BE | 2338 | \$DDDR DC AL2(\$DDDF) DDDF ADDRESS (INITIAL DDDR) |
| 21BF 2274 | | 21C0 | 2339 | \$SNSDR DC AL2(\$SNS) DDDF ADDRESS FOR READ DIAG SNS |
| | | | 2340 | * |
| 21C1 | | 21C1 | 2341 | \$REC EQU * LOG ENTRY |
| | | 2200 | 2342 | \$RECN DS XL64 FROM SYSTEM ERROR LOG |
| | | | 2343 | * |
| 2201 | | 2201 | 2344 | \$PBUF EQU * PRINT BUFFER |
| | | 2269 | 2345 | DS XL105 |
| | | | 2346 | * |
| 226A | | 226A | 2347 | \$DDCF EQU * DISK DRIVE CONTROL FIELD |
| 226B | | 226A | 2348 | \$PF DS XL1 FLAG BYTE |
| 226D | | 226C | 2349 | \$CC DS XL2 CYLINDER ADDRESS |
| 226F | | 226E | 2350 | \$HH DS XL2 HEAD ADDRESS |
| 2270 | | 226F | 2351 | \$RR DS XL1 RECORD NUMBER |
| 2271 | | 2270 | 2352 | \$KL DS XL1 KEY LENGTH |
| 2273 | | 2272 | 2353 | \$DL DS XL2 DATA LENGTH |
| | | 2273 | 2354 | \$NN DS XL1 RECORD COUNT |
| | | | 2355 | * |
| 2274 | | 2274 | 2356 | \$SNS EQU * SENSE DATA FIELD |
| | | 228B | 2357 | DS XL24 |
| | | | 2358 | * |
| | | 228C | 2359 | \$DDDF EQU * READ / WRITE DATA FIELD |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-------------|------|------|------------------|
| | | 228C | | |
| | | 238B | 2360 | DS XL256 |
| | | | 2361 | * |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|----------------|------|------|---|
| 2396 | 2522 | 2397 | 2431 | ENTAD@ DC AL2(ENTADD) |
| 2398 | 0010 | 2399 | 2432 | SIXTEN DC IL2'16' |
| 239A | 0008 | 239B | 2433 | EIGHT DC IL2'8' |
| 239C | F0 | 239C | 2434 | DZERO DC DL1'0' |
| 239D | F1 | 239D | 2435 | DONE DC DL1'1' |
| 239E | 00000000 | 23A1 | 2436 | ZERO DC XL4'0' |
| 23A2 | 00 | 23A2 | 2437 | CCNT DC XL1'0' |
| 23A3 | 0005 | 23A4 | 2438 | FIVE DC IL2'5' |
| 23A5 | 0006 | 23A6 | 2439 | SIX DC IL2'6' |
| 23A7 | 000E | 23A8 | 2440 | XOE DC XL2'000E' |
| 23A9 | FF | 23A9 | 2441 | DC XL1'FF' |
| 23AA | FFF9 | 23AA | 2442 | FFFF EQU * |
| 23AC | 0008 | 23AB | 2443 | NEG7 DC IL2'-7' |
| 23AE | 0000 | 23AD | 2444 | OBRTYP DC XL2'8' |
| | | 23AF | 2445 | SYNC# DC XL2'0' |
| | | | 2446 | * H24 IS ALWAYS X'00XX' |
| 23B0 | 0000 | 23B1 | 2447 | H24 DC XL2'0' |
| 23B2 | 0000 | 23B3 | 2448 | DSKOPF DC XL2'0' |
| 23B4 | 0000 | 23B5 | 2449 | CVTCNT DC XL2'0' |
| 23B6 | 0000 | 23B7 | 2450 | CNTOPF DC XL2'0' |
| 23B8 | 0000 | 23B9 | 2451 | CNTLNG DC XL2'0' |
| 23BA | 0000 | 23BB | 2452 | TABIDX DC XL2'0' |
| 23BC | 7B | 23BC | 2453 | I123 DC IL1'123' |
| 23BD | 6B | 23BD | 2454 | I107 DC IL1'107' |
| 23BE | 77 | 23BE | 2455 | I119 DC IL1'119' |
| 23BF | 7E | 23BF | 2456 | I126 DC IL1'126' |
| 23C0 | 15 | 23C0 | 2457 | I21 DC IL1'21' |
| 23C1 | C9D5E5C1D3C9C4 | 23C7 | 2458 | INV DC CL7'INVALID' |
| | | 23C8 | 2459 | SYNTBL EQU * |
| 23C8 | F0F0F0F1F0F0 | 23CD | 2460 | DC DL6'000100' RTN1 SYNC PT CARD 1 COL 0 |
| 23CE | F0F0F5F7F0F0 | 23D3 | 2461 | DC DL6'005700' RTN2 SYN PT |
| 23D4 | | 2427 | 2462 | DS 14XL6 CARD #, COL # |
| | | 2428 | 2463 | TABTBL EQU * |
| 2428 | | 2438 | 2464 | DS 17XL1 CNT,TAB1,TAB2,...,TAB16 |
| | | 2439 | 2465 | CBUF EQU * |
| 2439 | | 2498 | 2466 | DS 96XL1 CONTROL CARD BUFFER |
| | | 2498 | 2467 | CRDNMB EQU CBUF+95 |
| | | 2499 | 2468 | PBUF EQU * |
| 2499 | | 24F8 | 2469 | DS 96XL1 CONTROL RECORD BUFFER |
| | | 24F9 | 2470 | QRSNS EQU * |
| 24F9 | | 24FC | 2471 | DS XL4 |
| 24FD | | 24FE | 2472 | PEND@ DS AL2 |
| 24FF | | 2500 | 2473 | PSTR@ DS AL2 |
| 2501 | | 2502 | 2474 | CSTR@ DS AL2 |
| 2503 | | 2508 | 2475 | DS XL6 * NOTE THAT THIS DS MUST CHANGE |
| 2509 | | 250A | 2476 | PROG# DS XL2 * IF THE LENGTH OF DEC CHANGES |
| 250B | | 250B | 2477 | PROGC DS XL1 * BECAUSE LENGTH OF DEC EQUALS |
| 250C | | 2511 | 2478 | PROGI DS XL6 * PROG*-PROGC+PROGI+THIS DS |
| 2512 | | 2511 | 2479 | DEC DS ODL15 |
| 2512 | | 2513 | 2480 | TEMP DS XL2 |
| 2514 | | 2514 | 2481 | CNT DS XL1 |
| 2515 | | 2514 | 2482 | CNTN DS OXL1 |
| 2515 | | 2516 | 2483 | SVCSTR DS AL2 |
| 2517 | | 2518 | 2484 | SDRIDX DS AL2 |
| 2519 | | 251A | 2485 | OBRNT@ DS AL2 |
| 251B | | 2522 | 2486 | ENTADD DS XL8 |
| | | 2523 | 2487 | END EQU * |
| 2523 | | 2622 | 2488 | DS XL256 |
| | | 2623 | 2489 | DBUF EQU * |
| 2623 | | 2722 | 2490 | DS XL256 |
| | | 2523 | 2491 | PTBUF EQU DBUF-256 |
| | | 2523 | 2492 | PCHBUF EQU DBUF-256 |
| | | 25A3 | 2493 | RDBUF EQU DBUF-256+X'80' |
| 2714 | | | 2494 | ORG DBUF+241 |
| 2714 | | 2713 | 2495 | HACH# DS OCL5 |
| 271A | | | 2496 | ORG DBUF+247 |
| 271A | | 2719 | 2497 | STRDAT DS OCL6 |
| 2720 | | | 2498 | ORG DBUF+253 |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-------------|---------|--------|--|
| | | 2363 | | ***** |
| | | 2364 | * | * |
| | | 2365 | * | ROUTINES 5 AND 6 - SYMBOL DEFINITIONS |
| | | 2366 | * | * |
| | | 2367 | * | ***** |
| | | 2368 | * | * |
| | | 2369 | * | LOCAL STORE REGISTERS |
| | | 2370 | * | * |
| 0001 | 2371 | \$XR1 | EQU | X'01' INDEX REGISTER 1 |
| 0002 | 2372 | \$XR2 | EQU | X'02' INDEX REGISTER 2 |
| 0008 | 2373 | \$ARR | EQU | X'08' ADDRESS RECALL REGISTER |
| | | 2374 | * | * |
| | | 2375 | * | ----- |
| | | 2376 | * | SECTION SENSE SWITCHES |
| | | 2377 | * | * |
| 0040 | 2378 | \$SSW11 | EQU | X'40' LOG DATA ON DRIVE 1 |
| 0020 | 2379 | \$SSW12 | EQU | X'20' LOG DATA ON DRIVE 2 |
| 0010 | 2380 | \$SSW13 | EQU | X'10' LOG DATA ON DRIVE 3 |
| 0008 | 2381 | \$SSW14 | EQU | X'08' LOG DATA ON DRIVE 4 |
| 0080 | 2382 | \$SSW20 | EQU | X'80' CLEAR LOG AFTER PRINT (IF OFF) |
| | | 2383 | * | * |
| | | 2384 | * | ----- |
| | | 2385 | * | MESSAGE / HALT IDENTIFIERS |
| | | 2386 | * | * |
| FF00 | 2387 | \$HLT00 | EQU | X'FF00' NO HALT |
| FFF6 | 2388 | \$HLTF6 | EQU | X'FFF6' 3340 NOT READY OR ERROR |
| | | 2389 | * | * |
| | | 2390 | * | ----- |
| | | 2391 | * | PROGRAM INDICATORS (\$IND) |
| | | 2392 | * | * |
| 0080 | 2393 | \$DRV1 | EQU | X'80' DRIVE 1 INPUT USED |
| 0040 | 2394 | \$DRV2 | EQU | X'40' DRIVE 2 INPUT USED |
| 0020 | 2395 | \$DRV3 | EQU | X'20' DRIVE 3 INPUT USED |
| 0010 | 2396 | \$DRV4 | EQU | X'10' DRIVE 4 INPUT USED |
| 0008 | 2397 | \$CLEAR | EQU | X'08' CLEAR ERROR LOG |
| | | 2398 | * | * |
| | | 2399 | * | ----- |
| | | 2400 | * | BIT POSITION SYMBOLS |
| | | 2401 | * | * |
| 0080 | 2402 | \$BIT0 | EQU | X'80' |
| 0020 | 2403 | \$BIT2 | EQU | X'20' |
| 0002 | 2404 | \$BIT6 | EQU | X'02' |
| 0001 | 2405 | \$BIT7 | EQU | X'01' |
| | | 2406 | * | * |
| | | 2407 | * | ----- |
| | | 2408 | * | DCP SECTION REFERENCE TABLE |
| | | 2409 | * | * |
| 020A | 2410 | \$SBYT2 | EQU | X'020A' SECTION SENSE SWITCHES 10-17 |
| 020C | 2411 | \$SBYT4 | EQU | X'020C' SECTION SENSE SWITCHES 20-27 |
| | | 2412 | * | * |
| 0212 | 2413 | \$TEST | EQU | X'0212' CHECK CE CONSOLE SWITCHES |
| 0216 | 2414 | \$LINK | EQU | X'0216' LINK TO NEXT ROUTINE OR SECTION |
| 021A | 2415 | \$PRINT | EQU | X'021A' PRINT A MESSAGE |
| 021E | 2416 | \$UNPK | EQU | X'021E' UNPACK DATA - HEX TO EBCDIC |
| 0222 | 2417 | \$HALT | EQU | X'0222' HALT AND DISPLAY HALT IDENTIFIER |
| | | 2418 | * | * |
| 0A0A | 2419 | \$UDT | EQU | X'0A0A' SECTION UDT ADDRESS |
| | | 2420 | * | * |
| | | 2421 | ** | ** |
| | | 2422 | * | CONSTANTS |
| | | 2423 | * | * |
| | | 2424 | * | * |
| | | 2425 | * | * |
| | | 2426 | OBRST@ | DC AL2 (DBUF-256+8) |
| | | 2427 | OBRND@ | DC AL2 (DBUF+256-8) |
| | | 2428 | CBUF@ | DC AL2 (CBUF) |
| | | 2429 | CEND@ | DC AL2 (CBUF+88) |
| | | 2430 | PBUF@ | DC AL2 (PBUF) |
| 238C | 252B | | | |
| 238E | 271B | | | |
| 2390 | 2439 | | | |
| 2392 | 2491 | | | |
| 2394 | 2499 | | | |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|------|------|--------|-----------|
| 2720 | | 271F | 2499 | NEWDAT | DS OCL6 |
| 2720 | | 2725 | 2500 | | DS CL6 |
| | | | 2501 | * | |
| | | FFFF | 2502 | | END |

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|---------|---|-----|-------|------|---|
| \$ACK | A | 004 | 1F2F | 2088 | |
| \$ARR | C | 001 | 0008 | 2373 | 1882 1958 2046 2083 |
| \$BGIN | A | 004 | 1D2D | 1882 | 1228 1617 |
| \$BGNX | A | 004 | 1DD1 | 1947 | 1882* 1911 1923 1935 2203 |
| \$BGN01 | A | 003 | 1D3F | 1889 | 1891 |
| \$BGN02 | A | 004 | 1D50 | 1896 | |
| \$BGN03 | A | 004 | 1D5B | 1901 | 1897 |
| \$BGN04 | A | 004 | 1D79 | 1913 | 1903 |
| \$BGN05 | A | 004 | 1D97 | 1925 | 1915 |
| \$BGN06 | A | 004 | 1DB5 | 1937 | 1927 |
| \$BITCT | A | 001 | 2197 | 2318 | 2125* 2133* |
| \$BIT0 | C | 001 | 0080 | 2402 | 1484 |
| \$BIT2 | C | 001 | 0020 | 2403 | 1893 |
| \$BIT6 | C | 001 | 0002 | 2404 | 1991 |
| \$BIT7 | C | 001 | 0001 | 2405 | 1465 2066 2085 2097 2132 |
| \$CC | A | 002 | 226C | 2349 | 1963 1976* 1994* |
| \$CKMSK | A | 001 | 2192 | 2310 | 1909* 1921* 1933* 1945* 2056 2074 |
| \$CLEAR | C | 001 | 0008 | 2397 | 1860 1865 1999 2038 |
| \$CTR | A | 001 | 2198 | 2319 | 1380* 1388* 1395 1748* 1756* 1763 |
| \$CYL | A | 002 | 218C | 2303 | 1230* 1619* 1963 1976 1994 |
| \$DDCF | A | 001 | 226A | 2347 | 2337 |
| \$DDCR | A | 002 | 21BC | 2337 | 2060 |
| \$DDDF | A | 001 | 228C | 2359 | 1989 2019 2030* 2031 2031* 2338 |
| \$DDDR | A | 002 | 21BE | 2338 | 2061 2121 |
| \$DL | A | 002 | 2272 | 2353 | 1997* |
| \$DRV | A | 001 | 2193 | 2312 | 1321* 1346 1348 1593* 1693* 1714 1716 1871* |
| \$DRVAD | A | 001 | 218A | 2301 | 1908* 1920* 1932* 1944* 2050 2065 2096 |
| \$DRVID | A | 001 | 2189 | 2300 | 1243 1632 1907* 1919* 1931* 1943* 2144 |
| \$DRV1 | C | 001 | 0080 | 2393 | 1902 1905 |
| \$DRV2 | C | 001 | 0040 | 2394 | 1914 1917 |
| \$DRV3 | C | 001 | 0020 | 2395 | 1926 1929 |
| \$DRV4 | C | 001 | 0010 | 2396 | 1938 1941 |
| \$D1 | A | 001 | 21AD | 2331 | 1489 1551 1556 1593 1871 |
| \$ECC | A | 006 | 1F8A | 2121 | 2111 |
| \$ECC01 | A | 006 | 1F9E | 2127 | 2134 |
| \$ECC02 | A | 004 | 1FAC | 2130 | 2128 |
| \$ECC03 | A | 006 | 1FB6 | 2133 | 2131 |
| \$ERP | A | 004 | 1F68 | 2108 | |
| \$ERR | A | 004 | 1F24 | 2083 | 2058 2076 |
| \$ERRP | A | 004 | 1FC4 | 2141 | 2094 2106 |
| \$ERRX | A | 004 | 1FC0 | 2136 | 2083* |
| \$FF | A | 001 | 226A | 2348 | 1991 |
| \$HALT | C | 001 | 0222 | 2417 | 2200 |
| \$HD | A | 002 | 218E | 2304 | 1231* 1592* 1620* 1870* 1966 1977 1995 |
| \$HH | A | 002 | 226E | 2350 | 1966 1977* 1989* 1995* |
| \$HLTF6 | C | 001 | FFF6 | 2388 | 2150 2201 |
| \$HLT00 | C | 001 | FF00 | 2387 | 1249 1638 |
| \$IND | A | 001 | 2188 | 2298 | 1226* 1615* 1860* 1865* 1902 1905* 1914 1917* 1926 1928* 1938 1941* |
| \$IO | A | 004 | 1DD5 | 1958 | 1234 1365 1382 1421 1447 1501 1579 1623 1733 1750 1850 1863 |
| \$IOX | A | 004 | 1EC1 | 2041 | 1958* |
| \$ICX1 | A | 004 | 1EBD | 2040 | 1959* 2025 |
| \$KILO | A | 004 | 21B2 | 2333 | 1549 |
| \$KL | A | 001 | 2270 | 2352 | |
| \$LINK | C | 001 | 0216 | 2414 | 1894 1939 |
| \$MEG | A | 006 | 21BB | 2334 | 1554 |
| \$M01 | A | 001 | 203B | 2212 | 2144* 2148 |
| \$M01N | A | 020 | 204E | 2213 | 2148 2149 |
| \$M02 | A | 001 | 204F | 2215 | 2154 |
| \$M02N | A | 027 | 2069 | 2216 | 1668 2154 2155 |
| \$M03 | A | 001 | 206A | 2218 | 2159 |
| \$M03N | A | 026 | 209E | 2220 | 1679 2159 2160 |
| \$M04 | A | 001 | 209F | 2222 | |
| \$M04N | A | 036 | 20C2 | 2223 | 1241 |
| \$M05 | A | 001 | 20C3 | 2225 | |
| \$M05N | A | 022 | 20E7 | 2226 | 1630 |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

CROSS-REFERENCE

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| \$M06 | A | 001 | 20D9 | 2228 | |
| \$M06N | A | 022 | 20EE | 2229 | 1242 1631 |
| \$M07 | A | 001 | 20EF | 2231 | |
| \$M07N | A | 005 | 20F3 | 2232 | 1272 |
| \$M08 | A | 001 | 20F4 | 2234 | |
| \$M08N | A | 016 | 2103 | 2235 | 1273 1288 1289 |
| \$M09 | A | 001 | 2104 | 2237 | 1274 |
| \$M09N | A | 005 | 2108 | 2238 | 1290 |
| \$M10 | A | 001 | 2109 | 2240 | |
| \$M10N | A | 004 | 210C | 2241 | 1275 |
| \$M11 | A | 001 | 210D | 2243 | |
| \$M11N | A | 005 | 2111 | 2244 | 1276 1277 |
| \$M12 | A | 001 | 2112 | 2246 | |
| \$M12N | A | 003 | 2114 | 2247 | 1284 1664 |
| \$M13 | A | 001 | 2115 | 2249 | |
| \$M13N | A | 006 | 211A | 2250 | 1285 1665 |
| \$M14 | A | 001 | 211B | 2252 | |
| \$M14N | A | 006 | 2120 | 2253 | 1286 |
| \$M15 | A | 001 | 2121 | 2255 | |
| \$M15N | A | 023 | 2137 | 2256 | 1287 |
| \$M16 | A | 001 | 2138 | 2258 | |
| \$M16N | A | 009 | 2140 | 2259 | 1291 |
| \$M17 | A | 001 | 2141 | 2261 | |
| \$M17N | A | 006 | 2146 | 2262 | 1300 |
| \$M18 | A | 001 | 2147 | 2264 | |
| \$M18N | A | 016 | 2156 | 2265 | 1301 1302 1303 1304 |
| \$M19 | A | 001 | 2157 | 2267 | |
| \$M19N | A | 007 | 215D | 2268 | 1305 |
| \$M20 | A | 001 | 215E | 2270 | |
| \$M20N | A | 004 | 2161 | 2271 | 1307 |
| \$M21 | A | 001 | 2162 | 2273 | |
| \$M21N | A | 006 | 2167 | 2274 | 1398 1766 |
| \$M22 | A | 001 | 2168 | 2276 | |
| \$M22N | A | 004 | 216B | 2277 | 1666 |
| \$M23 | A | 001 | 216C | 2279 | |
| \$M23N | A | 004 | 216F | 2280 | 1667 |
| \$M24 | A | 001 | 2170 | 2282 | |
| \$M24N | A | 008 | 2177 | 2283 | 1785 1786 |
| \$M25 | A | 001 | 2178 | 2285 | |
| \$M25N | A | 008 | 217F | 2286 | 1677 |
| \$M26 | A | 001 | 2180 | 2288 | |
| \$M26N | A | 008 | 2187 | 2289 | 1678 |
| \$NN | A | 001 | 2273 | 2354 | 1884* 1885 1885* 2012* 2028* 2113* 2114 2114* |
| \$PBUP | A | 001 | 2201 | 2344 | 1236 1248 1260 1282 1296 1312 1319 1341 1356 1403 1562 1625 1637 1649 1662 1673 1684 1691 1709 1724 1771 1805 1810 1815 1820 1825 1830 1835 2162* 2163 2163* 2168 2173 2176 2183 2188 2193 2198 1245 1257 1279 1293 1309 1316 1338 1353 1400 1559 1634 1646 1659 1670 1681 1688 1706 1721 1768 1832 2141 2146 2152 2157 2195 1232* 1363* 1370* 1372 1375* 1387* 1390 1393* 1407 1412 1416* 1418 1426* 1428 1431* 1491* 1493 1496* 1498 1567* 1569* 1571 1574* 1576 1621* 1731* 1738* 1740 1743* 1755* 1758 1761* 1775 1840* 1842 1845* 1847 2003 1407* 1416 1498 1576 1775* 1847 1412* 1418 1567 1231 1370 1387 1388 1426 1491 1569 1592 1620 1738 1755 1756 1840 1870 2105 2133 1230 1619 1997 2004 1971* 1979* 1984* 2014* 2033* 2051 1972* 1980* 1985* 2015* 2034* 2052 1448* 1449 1449* 1450 1452* 1525 1554* |

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|---------|---|-----|-------|------|---|
| \$PDKD1 | A | 006 | 1E5E | 2005 | 2006 |
| \$PDKD2 | A | 004 | 1E87 | 2019 | 2009 |
| \$PDWK | A | 001 | 21A3 | 2324 | 2002* 2003* 2004* 2005 2005* 2008 2011 2020* 2021 |
| \$PDWP | A | 006 | 1E35 | 1994 | 1967 2117 |
| \$REC | A | 001 | 21C1 | 2341 | 1367 1384 1414 1423 1452 1453 1455* 1459 1465 1473 1479 1484 1503 1506 1581 1584 1735 1752 1780 1783 1788 1791 1792 1793 1795 1798 1799 1800 1804 1809 1814 1819 1824 1829 1852 |
| \$RECAL | A | 004 | 1DP7 | 1971 | 1964 2119 |
| \$RECN | A | 064 | 2200 | 2342 | 2023* |
| \$PETRY | A | 001 | 2196 | 2317 | 1961* 2105* |
| \$RR | A | 001 | 226F | 2351 | 1969* 2008 2011* 2027* |
| \$RTN3 | A | 001 | 1770 | 1219 | 0377 |
| \$RTN4 | A | 001 | 1B0E | 1608 | 1221 |
| \$R5 | A | 004 | 1778 | 1228 | 1358 |
| \$R5A | A | 003 | 1875 | 1326 | 1595 |
| \$R5B | A | 004 | 18B8 | 1363 | 1349 |
| \$R5B1 | A | 004 | 18BC | 1365 | 1373 |
| \$R5C | A | 004 | 18D9 | 1380 | 1368 |
| \$R5C1 | A | 004 | 18DD | 1382 | 1396 |
| \$R5C2 | A | 004 | 18FP | 1395 | 1391 |
| \$R5C3 | A | 006 | 1918 | 1407 | 1385 |
| \$R5D | A | 006 | 191E | 1412 | 1587 |
| \$R5D1 | A | 006 | 192F | 1418 | 1429 1432 |
| \$R5E | A | 003 | 195B | 1437 | 1419 |
| \$R5E1 | A | 006 | 1992 | 1452 | 1509 |
| \$R5E2 | A | 003 | 19BF | 1471 | 1461 |
| \$R5E3 | A | 004 | 19D9 | 1484 | 1466 1469 1480 |
| \$R5E4 | A | 005 | 19E3 | 1489 | 1460 1474 1485 |
| \$R5E5 | A | 006 | 19E8 | 1491 | 1475 1504 1507 |
| \$R5E6 | A | 006 | 19F9 | 1498 | 1494 |
| \$R5E7 | A | 001 | 1A1B | 1511 | 1499 1552 |
| \$R5E8 | A | 006 | 1AA1 | 1554 | 1550 1557 |
| \$R5E9 | A | 004 | 1AB3 | 1559 | 1548 1555 |
| \$R5F | A | 006 | 1ABB | 1567 | 1424 |
| \$R5F1 | A | 006 | 1AC1 | 1569 | 1582 1585 |
| \$R5F2 | A | 006 | 1AD2 | 1576 | 1572 |
| \$R5N | A | 006 | 1AF4 | 1592 | 1405 1577 |
| \$R6 | A | 004 | 1B16 | 1617 | 1726 |
| \$R6A | A | 003 | 1BC5 | 1698 | 1873 |
| \$R6B | A | 004 | 1BFC | 1731 | 1717 |
| \$R6B1 | A | 004 | 1C00 | 1733 | 1741 |
| \$R6C | A | 004 | 1C1D | 1748 | 1736 |
| \$R6C1 | A | 004 | 1C21 | 1750 | 1764 |
| \$R6C2 | A | 004 | 1C43 | 1763 | 1759 |
| \$R6C3 | A | 006 | 1C5C | 1775 | 1753 |
| \$R6D | A | 004 | 1C62 | 1780 | 1855 |
| \$R6D1 | A | 004 | 1C8F | 1795 | 1789 |
| \$R6D2 | A | 004 | 1CA5 | 1802 | 1796 |
| \$R6E | A | 006 | 1CE3 | 1840 | 1781 1853 |
| \$R6E1 | A | 006 | 1CF4 | 1847 | 1843 |
| \$R6N | A | 004 | 1D0D | 1860 | 1773 1848 |
| \$SAVR1 | A | 004 | 1A67 | 1529 | 1516* |
| \$SAVR2 | A | 004 | 1A6B | 1530 | 1517* |
| \$SBYT2 | C | 001 | 020A | 2410 | 1896 1899* 1901 1913 1925 1937 |
| \$SBYT4 | C | 001 | 020C | 2411 | 1862 |
| \$SEEK | A | 004 | 1E0F | 1979 | 1992 |
| \$SIO | A | 003 | 1EF9 | 2063 | 2050* 2051* 2052* |
| \$SKCNT | A | 004 | 21A2 | 2322 | 1450* 1453* 1518 1549* |
| \$SNS | A | 001 | 2274 | 2356 | 2054* 2057 2072* 2075 2085 2088* 2089 2089* 2091* 2092* 2108* 2110 2116 2121* 2122 2122* 2123 2127 2127* 2167 2172 2177 2182 2187 2192 2339 |
| \$SNSDR | A | 002 | 21C0 | 2339 | 2059 |
| \$SNSIO | A | 003 | 1F57 | 2101 | 2096* 2097* |
| \$SNS23 | A | 002 | 21BA | 2335 | 2090 |
| \$SSW11 | C | 001 | 0040 | 2378 | 1896 1901 |
| \$SSW12 | C | 001 | 0020 | 2379 | 1896 1899 1913 |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

CROSS-REFERENCE

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|---------|---|-----|-------|------|---|
| FLG14 | A | 001 | 0A0E | 0046 | 0189 0200 0384 |
| FORTEN | A | 001 | 140A | 0968 | 1031 1043 |
| FOUR | A | 001 | 1409 | 0967 | 1056 |
| GPCS | A | 001 | 145F | 0990 | 0965 |
| HALFNT | A | 001 | 0B32 | 0126 | 0121 |
| HALT | C | 001 | 0222 | 0031 | 0070 0519 0673 0681 0985 1152 |
| HEADWA | A | 001 | 1414 | 0975 | 1046* 1055* 1059 |
| HEXDEC | A | 001 | 11C2 | 0739 | 0173 0229 0424 0434 0437 1519 1526 |
| HEXD0 | A | 004 | 125F | 0782 | 0763 |
| HEXD1 | A | 006 | 121A | 0764 | 0770 |
| HEXD2 | A | 006 | 122D | 0769 | 0767 |
| HEXD3 | A | 004 | 1249 | 0775 | 0773 |
| HEXD5 | A | 006 | 1237 | 0771 | 0783 |
| HEXHEX | A | 001 | 1273 | 0798 | 0159 0160 0167 0181 |
| HEX2 | A | 004 | 128B | 0806 | 0815 |
| HEX20 | A | 001 | 1408 | 0966 | 1051 |
| HEX3 | A | 003 | 129D | 0811 | 0809 |
| HLTTBL | A | 001 | 1355 | 0927 | |
| H24 | A | 002 | 23B1 | 2447 | 0507* 0508 0859* 0861 |
| INC | A | 006 | 0FE0 | 0563 | 0571 0575 0580 |
| INV | A | 007 | 23C7 | 2458 | 0233 |
| INVALID | A | 001 | 0C9F | 0231 | 0199 |
| IOBCHN | A | 004 | 1418 | 0977 | 0993* 0995* 0998 1001 1017* 1019 1021 1023* 1027 1030* 1031* 1036 1040* 1043* 1047 1049 1051* 1053 1056* 1059* 1060 1061 1062 |
| IOBQB | A | 001 | 1419 | 0978 | 0994* 0995 1012* 1014* 1016* |
| I107 | A | 001 | 23BD | 2454 | 0214 |
| I119 | A | 001 | 23BE | 2455 | 0212 |
| I123 | A | 001 | 23BC | 2453 | 0202 |
| I126 | A | 001 | 23BF | 2456 | 0227 |
| I21 | A | 001 | 23C0 | 2457 | 0216 |
| I5 | A | 001 | 0C49 | 0210 | 0223 |
| LABEL | A | 004 | 0B03 | 0115 | 0112 |
| LBUF | A | 002 | 16F8 | 1172 | 1089 |
| LDCF | A | 002 | 16F2 | 1169 | 1070 1088 |
| LDCX | A | 002 | 16F6 | 1171 | 1078 |
| LDDF | A | 002 | 16F4 | 1170 | 1071 1079 1100 |
| LEVEL | A | 002 | 115B | 0684 | 0658 0659 |
| LINE | A | 001 | 0FFD | 0573 | 0547 |
| LINK | C | 001 | 0216 | 0028 | 0321 0454 0987 1154 |
| LIC33 | A | 001 | 1572 | 1087 | |
| LNGTBL | A | 001 | 1267 | 0784 | 0741 |
| LOAD | C | 001 | 022A | 0032 | 0643 0647 0652 |
| LSNS | A | 002 | 16FA | 1173 | 1136 |
| LVLMSG | A | 017 | 116C | 0685 | 0680 |
| MACH# | A | 005 | 2713 | 2495 | |
| MASK | A | 001 | 0CD3 | 0252 | 0135* 0248 0248* 0251* |
| MODEL | C | 001 | 0200 | 0026 | |
| MODELG | A | 001 | 0A88 | 0077 | |
| MSG | A | 001 | 101B | 0582 | 0537 |
| MSGCK | A | 004 | 1040 | 0595 | 0624 |
| MSGX | A | 030 | 0D00 | 0258 | 0273 |
| MSG1 | A | 001 | 102A | 0587 | 0597 |
| MSG2 | A | 004 | 106E | 0505 | 0601 |
| MSG3 | A | 020 | 13A2 | 0935 | 0302 0303 |
| MSG3B | A | 001 | 138E | 0934 | 0302 |
| MSG4 | A | 040 | 13F2 | 0938 | 0307 0308 |
| MSG4B | A | 001 | 13A2 | 0936 | 0307 |
| MVCL | A | 001 | 1252 | 0778 | 0743* |
| NEG7 | A | 002 | 23AB | 2443 | 0837 |
| NEWDAT | A | 006 | 271F | 2499 | |
| NEWDRV | A | 005 | 1488 | 1010 | 1002 |
| NEXT | A | 001 | 0F71 | 0526 | 0511 0564 0607 0610 |
| NFLG | C | 001 | 0020 | 0484 | |
| NSLEV | A | 004 | 1148 | 0677 | 0660 |
| NXT1 | A | 004 | 0F79 | 0529 | 0551 |
| NXT2 | A | 003 | 0F92 | 0536 | 0533 |

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| OBRND@ | A | 002 | 238F | 2427 | 010* 0131 0178 0243 0246 |
| OBRNT@ | A | 002 | 251A | 2485 | 0104* 0106 0117* 0120 0128* 0131 0139 0243 0245* 0246 0256* |
| OBRST@ | A | 002 | 238D | 2426 | 0120 |
| GBRTYP | A | 002 | 23AD | 2444 | 0115* 0117 0122* 0128 |
| OBR1 | A | 004 | 0D95 | 0325 | 0091 0293 |
| ONE | A | 001 | 0A9B | 0079 | 0195 0250 0318 0319 0425 0450 0451 0452 0554 0563 0598 0615 |
| PACK | A | 004 | 116D | 0693 | 0752 0769 0845 0849 0852 1030 1040 1055 |
| PBUF | A | 001 | 2499 | 2468 | 0560 0567 0577 |
| PBUF@ | A | 002 | 2395 | 2430 | 0089* 0137 0527 0561 0568 0574 0578 0579 0586 0602* 0604 2430 |
| PCHBUF | A | 001 | 2523 | 2492 | 0694 0695 |
| PCK1 | A | 004 | 1179 | 0696 | 0702 |
| PD30 | A | 001 | 1666 | 1160 | 1122 |
| PD31 | A | 020 | 16A0 | 1163 | 1109* 1112* 1115* 1118* 1122 1123 1124* 1125 1125* |
| PD35 | A | 020 | 16B4 | 1164 | 1109 |
| PD43 | A | 020 | 16C8 | 1165 | 1112 |
| PD46 | A | 020 | 16DC | 1166 | 1115 |
| PD48 | A | 020 | 16F0 | 1167 | 1118 |
| PEND@ | A | 002 | 24FE | 2472 | 0529* 0596 0701 |
| PEXT@ | A | 001 | 1198 | 0704 | 0693* |
| PID | A | 002 | 0A01 | 0038 | 0657 |
| PRIDEF | A | 001 | 158C | 1396 | 1085 |
| PRINT | C | 001 | 021A | 0029 | 0062 0066 0241 0270 0300 0305 0381 0427 0438 0515 0608 0669 |
| PROG# | A | 002 | 250A | 2476 | 0577 0981 1120 1131 1144 1148 |
| PROGC | A | 001 | 250B | 2477 | |
| PROGI | A | 006 | 2511 | 2478 | |
| PRTBUF | C | 001 | 0880 | 0034 | 0089 0137* 0155* 0191* 0192* 0583 0602 0604* 0649 0659 0662 0664 |
| PRTN# | A | 004 | 15D3 | 1120 | 0860 1520 1527 |
| PRTPOS | A | 001 | 12F4 | 0855 | 1107 1110 1113 1116 |
| PRTX@ | A | 001 | 1310 | 0863 | 0232 0777 0802 0836 |
| PSNS | A | 048 | 176F | 1208 | 0856* |
| ESTR@ | A | 002 | 2500 | 2473 | 1143 1151 |
| PTBUF | A | 001 | 2523 | 2491 | 0595* 0596 |
| PT1403 | A | 001 | 0C6A | 0219 | 0201 |
| P1403 | A | 004 | 0C0E | 0193 | 0190 |
| QA0 | A | 001 | 0D05 | 0266 | 0348 |
| QB0 | A | 001 | 0D05 | 0267 | 0319 |
| QC0 | A | 001 | 0D05 | 0268 | 0350 |
| QD0 | A | 001 | 0D05 | 0269 | 0351 |
| QE0 | A | 001 | 0BFB | 0187 | 0352 |
| QF0 | A | 001 | 0C9B | 0236 | 0353 |
| QRSNS | A | 001 | 24F9 | 2470 | 0158* 0172 0179 0193 |
| Q10 | A | 001 | 0BDB | 0176 | 0339 |
| Q20 | A | 001 | 0D05 | 0260 | 0340 |
| Q30 | A | 001 | 0D05 | 0261 | 0341 |
| Q40 | A | 001 | 0D05 | 0262 | 0342 |
| Q50 | A | 001 | 0BFB | 0183 | 0343 |
| Q60 | A | 001 | 0D05 | 0263 | 0344 |
| Q70 | A | 001 | 0D05 | 0264 | 0345 |
| Q80 | A | 001 | 0BBA | 0165 | 0346 |
| Q90 | A | 001 | 0D05 | 0265 | 0347 |
| RDBUF | A | 001 | 25A3 | 2493 | |
| RDDGE | A | 029 | 1666 | 1159 | 1146 1147 |
| RDDGS | A | 001 | 1649 | 1158 | 1146 |
| RDWRT | A | 003 | 157A | 1090 | 1067* 1068* |
| RD1 | A | 001 | 10D9 | 0651 | 0638 |
| RD2 | A | 004 | 10CB | 0647 | 0642 |
| RD3 | A | 001 | 10DE | 0654 | 0650 |
| RD4 | A | 006 | 10D0 | 0649 | 0646 |
| READ | A | 001 | 10A9 | 0635 | 0504 0534 0603 0874 |
| RELOAD | A | 001 | 0F43 | 0512 | 0502 |
| RETURN | A | 001 | 0FC4 | 0553 | 0545 |
| REXT@ | A | 001 | 1112 | 0668 | 0636* |
| RLDMSG | A | 017 | 0F70 | 0524 | 0518 |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

CROSS-REFERENCE

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| RMSG | A | 035 | 1147 | 0676 | 0672 |
| RSHFX@ | A | 001 | 11C1 | 0723 | 0712* |
| ESHF1 | A | 004 | 11A9 | 0716 | 0720 |
| LSHF2 | A | 004 | 11B3 | 0719 | 0717 |
| RSHIFT | A | 001 | 1199 | 0711 | 0217 |
| RST | A | 004 | 10AD | 0637 | 0683 |
| RTN1 | A | 001 | 0A16 | 0056 | 0042 |
| RTN1X | A | 004 | 0D1C | 0280 | 0244 |
| RTN1XX | A | 001 | 0D2F | 0287 | 0274 |
| RTN1X1 | A | 001 | 0D5D | 0309 | 0286 |
| RTN102 | A | 006 | 0ABB | 0097 | 0101 |
| RTN103 | A | 001 | 0AD7 | 0103 | 0093 |
| RTN104 | A | 004 | 0AE1 | 0106 | 0118 |
| RTN105 | A | 001 | 0B17 | 0119 | 0114 |
| RTN106 | A | 001 | 0B32 | 0127 | 0110 |
| RTN107 | A | 001 | 0CA2 | 0240 | 0174 0180 0182 0185 0194 0230 0234 0238 |
| RTN108 | A | 001 | 0B4C | 0136 | 0257 |
| RTN109 | A | 006 | 0B0D | 0117 | 0125 |
| RTN11X | A | 004 | 0CDF | 0257 | 0247 0255 |
| RTN111 | A | 006 | 0D67 | 0313 | 0320 |
| RTN112 | A | 006 | 0D7C | 0318 | 0314 |
| RTN2 | A | 001 | 0DF0 | 0375 | 0058 |
| RTN334 | A | 004 | 0D4D | 0300 | |
| SAVRD | A | 005 | 1B0D | 1598 | 1527* 1532 |
| SAVSEK | A | 005 | 1B08 | 1597 | 1520* 1531 |
| SBYTE4 | C | 001 | 020C | 0027 | 0285 0446 |
| SCAN | A | 001 | 0EF6 | 0490 | 0081 0088 0279 0282 0317 0414 0429 0440 0872 |
| SCNEXT | A | 001 | 0FD1 | 0557 | 0491* |
| SCNFLG | A | 001 | 0EF5 | 0480 | 0278* 0281* 0316* 0413* 0415* 0496 0498 0522* 0555* 0637 0666* 0772 |
| SC1 | A | 004 | 0EFE | 0493 | 0495 |
| SC2 | A | 001 | 0F23 | 0503 | 0499 0523 |
| SC3 | A | 001 | 0F71 | 0525 | 0497 |
| SC4 | A | 001 | 0F58 | 0521 | 0514 |
| SDRBS | A | 004 | 0E9B | 0434 | 0444 |
| SDRBSC | A | 001 | 0E97 | 0432 | 0418 0420 0422 |
| SDRFND | A | 001 | 0E57 | 0411 | 0405 |
| SDRIDX | A | 002 | 2518 | 2484 | 0401* 0402 0416 0451* |
| SDRLEN | A | 001 | 0EF5 | 0465 | 0398 |
| SDRNXT | A | 001 | 0E2B | 0397 | |
| SDRTBL | A | 001 | 0EEE | 0456 | 0398 0400 |
| SDR1 | A | 006 | 0ED4 | 0450 | 0407 0447 |
| SDR2 | A | 004 | 0E43 | 0404 | 0409 |
| SDR3 | A | 004 | 0E7D | 0424 | 0426 |
| SDR4 | A | 001 | 0EC8 | 0445 | 0430 |
| SDR5 | A | 001 | 0E7D | 0423 | |
| SDR6 | A | 004 | 0E3B | 0402 | 0453 |
| SFLG | C | 001 | 0010 | 0485 | 0278 0281 0316 0413 0496 0555 0871 |
| SIO2 | A | 003 | 1345 | 0901 | |
| SIO33 | A | 003 | 1560 | 1080 | 1105 |
| SIX | A | 002 | 23A6 | 2439 | 0493 |
| SIXTEN | A | 002 | 2399 | 2432 | |
| SFACE | A | 001 | 1098 | 0619 | 0589 |
| SPCNT | A | 001 | 107D | 0609 | 0574* |
| SP1 | A | 003 | 10A2 | 0623 | 0617 |
| SSW20 | C | 001 | 0080 | 0023 | 0285 0446 |
| SSW23 | C | 001 | 0010 | 0024 | |
| SSW24 | C | 001 | 0008 | 0025 | |
| STARTN | A | 001 | 1415 | 0976 | 0991 0992 |
| STATOT | A | 026 | 1649 | 1157 | 1130 1133 1134 |
| STATST | A | 001 | 162F | 1156 | 1133 |
| STATUS | A | 002 | 134B | 0915 | 0946* 1126* 1129 |
| STRDAT | A | 006 | 2719 | 2497 | |
| SUB126 | A | 005 | 0C83 | 0227 | 0222 |
| SVCSTR | A | 002 | 2516 | 2483 | |
| SVNTEN | A | 001 | 140B | 0969 | 1023 |

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| SWITCH | A | 001 | 128C | 0805 | 0804* 0812 0814* |
| SYNC# | A | 002 | 23AF | 2445 | 0311* 0315 0318* 0399* 0412 0450* |
| SYNMOV | A | 001 | 1311 | 0865 | 0080 0396 |
| SYNMX@ | A | 001 | 1332 | 0876 | 0867* |
| SYNR | A | 001 | 1315 | 0868 | |
| SYNIBL | A | 001 | 23C8 | 2459 | 0492 0873* |
| SYN1 | A | 005 | 0F18 | 0500 | 0505 |
| SYN2 | A | 004 | 0F2B | 0506 | 0501 |
| S21 | A | 005 | 0C5E | 0216 | 0204 |
| TAB | A | 001 | 0FD2 | 0559 | 0543 |
| TABIDX | A | 002 | 23BB | 2452 | 0154* 0168* 0441* 0562* 0852* 0858 1513* 1523* |
| TABLES | A | 001 | 140C | 0970 | 0996 0997 |
| TABTBL | A | 001 | 2428 | 2463 | 0425* 0561* 0857 1512* |
| TBN | A | 004 | 0CD2 | 0253 | 0249 |
| TEMP | A | 002 | 2513 | 2480 | 0091* 0092* 0094 0100* 0107* 0108* 0109 0111 0113 0138* 0140* 0141 0141* 0143 0147 0147* 0149 0700* 0701 0751* 0752* 0753 0754 0758 |
| TWO | A | 001 | 0E26 | 0395 | 0442 |
| UDT | C | 001 | 0232 | 0033 | 0403 |
| UFLG | C | 001 | 0004 | 0487 | |
| UNORD | A | 004 | 1113 | 0669 | 0663 0675 |
| UNPACK | C | 001 | 021E | 0030 | 0655 1127 1140 |
| UPCYLN | A | 005 | 14D6 | 1040 | 1028 |
| XR1 | C | 001 | 0001 | 0020 | 0106* 0107 0139* 0140 0150 0155 0158 0178* 0233 0402* 0404 0416* 0417 0419 0421 0492* 0493* 0500 0506 0506 0507 0527* 0529 0548 0548* 0549 0583* 0584 0585 0585 0592 0593 0593* 0613 0614 0614* 0622* 0624* 0696 0697 0698 0698* 0700 0715* 0719* 0745* 0746 0747 0748 0748 0749 0749 0779 0803* 0806 0807 0808 0810 0811 0811* 0837* 0840 0843 0844 0844* 0857* 0858* 0859 0860* 0861* 0894* 0895 0896 0897 0898 0939 0991 0992* 0994 0995 0995 0998 1001 1012 1011* 1016 1017 1019 1021 1023 1027 1030 1031 1036 1040 1043 1047 1049 1051 1053 1056 1059 1516 1529* 1531 1532 1533 1535 1537 1539 |
| XR2 | C | 001 | 0002 | 0021 | 0078* 0142* 0143* 0144 0144* 0145 0148* 0149* 0152* 0153 0170* 0171* 0172 0196* 0197* 0198 0202 0203 0205 0207 0209 0212 0214 0216 0221 0223 0225 0227 0277* 0280* 0315* 0394* 0400* 0401 0403* 0404 0406 0408 0408* 0412* 0494* 0508* 0509* 0510 0528* 0530 0535* 0536 0538 0540 0542 0544 0546 0549 0550 0550* 0586* 0588 0590 0592 0594 0594* 0595 0605* 0606 0612 0612 0615 0620 0620 0621 0622 0623 0623* 0695* 0696 0697 0699 0699* 0713* 0714* 0716 0716 0718 0721 0741* 0742* 0743 0756* 0757* 0758* 0762 0766 0766 0800* 0801* 0806 0833* 0834* 0841 0841 0848 0897* 0898 0996 0997* 1000 1000* 1003 1003* 1010 1012 1013 1093* 1094 1517 1530* |
| XOE | A | 002 | 23A8 | 2440 | |
| X39 | A | 004 | 12A0 | 0812 | 0810 |
| ZERO | A | 004 | 23A1 | 2436 | 0138 1513 1515 1523 1524 |
| ZFLG | C | 001 | 0008 | 0486 | 0772 0775 0782 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

OBJECT CARD LISTING

OBJECT CARD LISTING

THE CHARACTER INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SH.FT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

CL 1 THROUJGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THPOUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

GBK GBD PN 42 48240 EC 571989 DISK ERROR RECOR DING ANALYSIS 84@84@

T+-Y:"7< & B/\$ ""@D :D HU ED & D C-C /OHEEO |@ |H-LL<BG /Y GLDGOH*BH?"@Y) |E (E RRUFPF730001 T+-@T+@BG /QEM;C 0-H/ -C&HC'GP KI B (-DTZTQBH:, &# =+A +'-HSQCS C?P 2D %) 2KQ "HAB" H DH< LLYPF730023

T+-Z50).E&+.Y8>| E5DCPO*|K&<|O5;| A2)PI5*) 1)XR5_V 2)PF5_XM0;|I5_N 6*PA1+ / 5_N 1(X I9*F 5KHFF730002 T+-: /1BZOH*|PE- AA&E+ B+1ALHBH#D 6 S+J(HV ?HG.T7 A T.2-E# /OHE/1D |<BG SH :TD C?P /O@ 2,UPPF730024

T+-D0&|I.&<LE5'X E8>I 8>|A6; (.0-H *BGD1G /O#6C|@ WHS*S0H*+ -1-I|- H700AIJ<(V&@AIJK VI|H -O<PF730003 T+-=RH'XE4'SA1DC DQ;|A&<|A6*LSO-D UWCMBIEH4 KL=(H V -4AI&HTU"EBB<B GDHU5 SMB?) @-? C?NO @H<PF730025

T+-,-K69A2MLOI (A&OGIKYXH-37I2H XF-3"ISYWH-@AIJK TW@ AB,%< KMEH8@ @ BMT(EDVF/O IJK +0@ "LYPF730004 T+-"M |HAL.5H |H AQ#5> |H&H.5% |H AE.5+ |HAJ'HA 00 ""CS -G /O'9C-D V -D.+1 +*BG C /1D JT4PF730026

T+-KWIJ<' BML@YD +|E VD"HBA37&IJ| 2AA&@BB+_C-*VHSM SCODVFS+_OH*H8&4 AIJYTT-HADT:OH:4 +A2M ;E8PF730005 T+ / |\$E06IC-U@LO AH#%+ KMBBY? /O' 1OH*JS&0 D4@UW*B GD3<A0H*|B -CDG4 UW*BGC=C /1E_C T_2& =.QPF730027

T+-/_HSM+-DVH%B GB04+ KMEH:4 (KM EH8" / 4&C D<5K+ P| D<401-B(@U= 0 AIJ<TYLMAIJYQ SM L 8 J/HFF730006 T+ /AHW&0 H#UUW%B GC=CB &S -DA-PE9 ;P&HBIIW*\$JC2-OS 'O-C2-M1% ""4-D AB-HA (HV ""4AIE U"% JZ*FF730028

T+->* KMLIJ|B -6 N(-HVD*ME C&BB*U + KMLIJ|B -63(-H VD76I |HAA<HBC&E % OSE COAH*"4 K+ 7COD ED%PF730007 T+ /BEAA DC-DV -D .CEDV S+L0HK&S-1 -I|-H7@BGDHU<POT -I|-5 SMB?00 OHD 1**BG /Y-OH*|*E- A -D M DFF730029

T+-?PH*LNACI|O C0H*K*@BGDX| /|H ?OH*K,@BG :H 6 EOH*K*30BH*?B SQ T(-HT_80 BL:OH* JO%) RMPF730008 T+ /C -E0 4-DATO BBY? JEF&Y*HD D B \$0 \$QA >HB @B GDD 4BADK+H +'-H 6IE&OII-TXC7A T. 2 6Y 3HMPF730030

T+-OK/02S+Y (UCM AH8@8BBL90I <Y%B GDX| /02S+U (U<B GC&H:A 6E+B HC?H 8PC31BHHA' SC+ & U=@ PJ&FF730009 T+ /C#0H*BHSC&3"H GA*BG SY&C&H72K Q@-DEOH*BH/C /OH ; &YADN*(TSDN? 2 N-P<BKCH94 (2K Q& @ 7*QPF730031

T+-1(U 2SC-DT_0D .0-HWH3QBH#; '- C 2-WM8H Y+@/ 9T0 H#2'F C2/BH'D C 2/AK'C C2/ E'A&C 2 -- N*QPF730010 T+ /D6@-DHCE@UW T -C DV S+J+@ +*B G C /OHE/2<JJ@B G SH #<BGDJ|DO;| A&<|A6*LS&(P084C I5M 92MFF730032

T+-2HT- H**2/06 + T?-HGAQ@ B| OH*JW-HGG?HAC,5 = |HDDH8 1I@Y* (T- H9?2/00| T?@ M1-PF730011 T+ /E15_XD1)V,6*M -6;LNE<PRO) - /OH E/1HJ\$<BG SH %*B GDH4 FCP6)SP1)V 4@PV1) (@|P(- JWCM ;Q&PF730033

T+-3C/1GB@Y*LOH* K'DOP B|G@Y*G+-- (U|HG <BG /Y/C&D TT2ME@YE%<DVFS+ \$CEDTT2MF@YD-C- <400 2HDPF730012 T+ /P% K+N(6HTVR- A BQ 0 A4-DEB-H A (DVD04AIJ<U"XB BDPX /O (-JO*H BIS<6 S+7C-D AD8 ""LBHFF730034

TD&3N4"HAB-@AC(M HS30AC (<B 2&UPPF730013 T+ /GX&S C>-D (-D TD% ADEW#0 C /O (-K@&HBDWQ6 S+ 9. KM-CB K+5L D H#V; & P-D EB A "" 2 8PF730035

T+-4&@Z PC-DVFS+ \$OH*.L<PR6) \$RE<T IB>|O6; / 8@GB4@N 2;I 2)PV0) |I1DC DOMC /OHEA18(|H GG@H 18MFF730014 T+ /HSC DVD2+9COD VDO@.C "KHKKLC KD2HLO-HWH3QBH#* 6 SHLA+ VDK+*T& DX.2-HMPCSMJ1JF > "" 18&PF730036

T+-5. - C+ / +*B GC?SB - D+ / +*B GC?Q9- H<@Z >| XH-3=I2DXH%BGD3< B|A0LL0OCISQ(V*B GD3< 70MFF730015 T+ /I) |H-A-\$-IJD TX&@AH#HHS@ AD/Y .CSHCC\$%8B #50I KKL30IJD#B #50H* K'DO BHJC-DT_2+ 9@Y* ;TQPF730037

T+-6F %BG /YBEA+ SOH*BF-R&D"H< K+ ?H:6@DBMHC-D(U66 J@S <(6HT, 3Y&C?P /O#6C-DT,0D.CO VE Y #B PF730016 T+ /HQS3YHC?P /1H 7 -&GBE0+ (-K@&HBIS<6 S+ 70H*K'QAH:Y# JH <E H G,0 G79 |H DAM@ -HQP730038

T+-7AS@ ACO- /OH O "" A"OG"B'|(A&4 EC&M.@04EC&M.>-4 EC&M(A&4EC&M.=02 \$'-L7@MA &DA &DA &D 1I*PF730017 T+ /L KY(HA LU ADY32UCY: JH<OH* KS3&HD?|B SQT(-H T_@BGD?&6 K+,| - T_P30 H8 C2H (@&E 5 HFF730039

T+-7@&DC1'|L2&DA &DA &DCB8%|A&DA &DA &DA &DA &DA &DA &DC5&?C3'-L 2' H E7C /OHE&E |@ #SUPF730018 T+ /<+4-DACODT_ED .0 DK1#0 8AH#* HS08AH#%HS&BG 4BA<E0-DUHC0AH#% + B+1 <HABG&E K+ 10H* HS0PF730040

T+-87 C--B-*2U & @8�+K HE|HEAC1 JC>@8H YJ@Z D|HU +@32YD43B - BOH* LDLOGIJ&@ 2+?0-H +*TE #SYPF730019 T+ /I "" 4BA<2|HH &O32BC8--D #50H* +'-1LIB*UT*BGDHX /O 0-DL<7&HEXM BEWO DOC /1|3&0 "" OHUPF730041

T+-92 SHQ(EDVFKH B TI_ @YD(>A A@/BD8-HCOH*+&3M BH:@:D #50H*+*T% BC?M5 KMQ-Q @YD 7-Q- NQMPF730020 T+ /+D BY "" A ((IS|2@-L3&<TA4=('Q<\$IQDCY-?E-'F_ 9) \$L&+) 2;I 5) \$ T&(XE0*LY&(\$P&<P R6) Q OQHFF730042

CL 1 THROUJGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THPOUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

T+-: _|H&HG6I |H AF%BGD*H| B&YBY? "E9'OH*BPSG /O# 6@Y*1|C TY%BGD*H @ S+9C-DT_2+S0H* JO% "R\$YPF730021

T+-@Y/OHEH*BGC?Q @ K+@CO TY-8W|JQ TY% ACZ%9- H<@Z EOH*L<OH+ K+?BY% + KMQBY%| BMMBY? ""E8 NA PF730022

T+-@T+@BG /QEM;C 0-H/ -C&HC'GP KI B (-DTZTQBH:, &# =+A +'-HSQCS C?P 2D %) 2KQ "HAB" H DH< LLYPF730023

T+-: /1BZOH*|PE- AA&E+ B+1ALHBH#D 6 S+J(HV ?HG.T7 A T.2-E# /OHE/1D |<BG SH :TD C?P /O@ 2,UPPF730024

T+-=RH'XE4'SA1DC DQ;|A&<|A6*LSO-D UWCMBIEH4 KL=(H V -4AI&HTU"EBB<B GDHU5 SMB?) @-? C?NO @H<PF730025

T+-"M |HAL.5H |H AQ#5> |H&H.5% |H AE.5+ |HAJ'HA 00 ""CS -G /O'9C-D V -D.+1 +*BG C /1D JT4PF730026

T+ / |\$E06IC-U@LO AH#%+ KMBBY? /O' 1OH*JS&0 D4@UW*B GD3<A0H*|B -CDG4 UW*BGC=C /1E_C T_2& =.QPF730027

T+ /AHW&0 H#UUW%B GC=CB &S -DA-PE9 ;P&HBIIW*\$JC2-OS 'O-C2-M1% ""4-D AB-HA (HV ""4AIE U"% JZ*FF730028

T+ /BEAA DC-DV -D .CEDV S+L0HK&S-1 -I|-H7@BGDHU<POT -I|-5 SMB?00 OHD 1**BG /Y-OH*|*E- A -D M DFF730029

T+ /C -E0 4-DATO BBY? JEF&Y*HD D B \$0 \$QA >HB @B GDD 4BADK+H +'-H 6IE&OII-TXC7A T. 2 6Y 3HMPF730030

T+ /C#0H*BHSC&3"H GA*BG SY&C&H72K Q@-DEOH*BH/C /OH ; &YADN*(TSDN? 2 N-P<BKCH94 (2K Q& @ 7*QPF730031

T+ /D6@-DHCE@UW T -C DV S+J+@ +*B G C /OHE/2<JJ@B G SH #<BGDJ|DO;| A&<|A6*LS&(P084C I5M 92MFF730032

T+ /E15_XD1)V,6*M -6;LNE<PRO) - /OH E/1HJ\$<BG SH %*B GDH4 FCP6)SP1)V 4@PV1) (@|P(- JWCM ;Q&PF730033

T+ /P% K+N(6HTVR- A BQ 0 A4-DEB-H A (DVD04AIJ<U"XB BDPX /O (-JO*H BIS<6 S+7C-D AD8 ""LBHFF730034

T+ /GX&S C>-D (-D TD% ADEW#0 C /O (-K@&HBDWQ6 S+ 9. KM-CB K+5L D H#V; & P-D EB A "" 2 8PF730035

T+ /HSC DVD2+9COD VDO@.C "KHKKLC KD2HLO-HWH3QBH#* 6 SHLA+ VDK+*T& DX.2-HMPCSMJ1JF > "" 18&PF730036

T+ /I) |H-A-\$-IJD TX&@AH#HHS@ AD/Y .CSHCC\$%8B #50I KKL30IJD#B #50H* K'DO BHJC-DT_2+ 9@Y* ;TQPF730037

T+ /HQS3YHC?P /1H 7 -&GBE0+ (-K@&HBIS<6 S+ 70H*K'QAH:Y# JH <E H G,0 G79 |H DAM@ -HQP730038

T+ /L KY(HA LU ADY32UCY: JH<OH* KS3&HD?|B SQT(-H T_@BGD?&6 K+,| - T_P30 H8 C2H (@&E 5 HFF730039

T+ /<+4-DACODT_ED .0 DK1#0 8AH#* HS08AH#%HS&BG 4BA<E0-DUHC0AH#% + B+1 <HABG&E K+ 10H* HS0PF730040

T+ /I "" 4BA<2|HH &O32BC8--D #50H* +'-1LIB*UT*BGDHX /O 0-DL<7&HEXM BEWO DOC /1|3&0 "" OHUPF730041

T+ /+D BY "" A ((IS|2@-L3&<TA4=('Q<\$IQDCY-?E-'F_ 9) \$L&+) 2;I 5) \$ T&(XE0*LY&(\$P&<P R6) Q OQHFF730042

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

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OBJECT CARD LISTING

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| CL 1 THROUGH 16 | CL 17 THROUGH 32 | CL 33 THROUGH 48 | CL 49 THROUGH 64 | CL 65 THROUGH 80 | CL 81 THROUGH 96 | CL 1 THROUGH 16 | CL 17 THROUGH 32 | CL 33 THROUGH 48 | CL 49 THROUGH 64 | CL 65 THROUGH 80 | CL 81 THROUGH 96 |
|--------------------|-------------------|-------------------|------------------|--------------------|-------------------|------------------|-------------------|-------------------|-------------------|------------------|------------------|
| T+/+6MCO5MVCV5_ | 94A QFA-E1131A | QFA-EDA EDA EDA | E1131A 1)XR5_V | 2<XS8'SR:DCA5+J | 5><*, FF730043 | T+/U<-S@I /T30 | HRT /17N1E /O-H | A< 8 HQ@/Z-8 HR- | /ZT6"HQ"2--G@ BF | 11S@/W<BBF(5<A@4 | /R@ 6DDPF730065 |
| T+/1:2<PRE<PR6)S | R@<LA8@E 9%XL44C | B1MCP6*YN8@PDE< | YE(1A8@PRE(XO9+1 | I5*PSK4A C UPAA* | V<<4 R#4PF730044 | T+/VG/OHE OUSE*B | GP?E< BFMHQ@< BF | NHQ'<A@4/1-0 HQ@ | /V 4 HQ@/V-HAH@B | GG)N(A@4/1%BAF,* | + BD KS FF730066 |
| T+/E5D4?A2A0?1 | O="HGN2 DEA- D*B | 32HXH%< | G /DG<1J;OH*BH?@ | 1OH*BE>LNO*.L1MC | T5U 6H@PF730045 | T+/WBT2FW1S@/T@B | BPK@@ BF1OH*R.73 | OREOCQ6J*AEVUP (| EREOCKVA* 4J@P U | 'ME00<DZ* 1N@OH* |)5L0 JL8PF730067 |
| T+/J00*\$N9*PR84C | 5'1L4E<GD1(XE8>I | 2)PT5UCAE1131A | 0*LD6*PS8U?B J@ | NC DME1(1L DD41 | *'< 5A0FF730046 | T+/W' BF;C E/XKF | ;C </YSP;C-M/XSG | <C-</YSG@+0@/6(H | BEL4@H)T2-T-2/AC | K SY8 K@J@Z -4-H | 7@Y* 91<FF730068 |
| T+/K,ACHBE 18D 1 | 2U 1S -J8B 12D 1 | S -H% AK; O- A B | 8B A:B L2D (#B J | @ A*A G2-SR'20G | '/E 0Q8PF730047 | T+/X@F_HBJC5@H)T | 2-J,2/A3K /4@BG | Q@-DC4-IH+H /4?H | E =H@YQO BF_C- | /T2FW1S@/T'HRA@O | HQ@)S#FF730069 |
| T+/LWPU@ J@.@YH | Z-E A@YD\$L- BY_ | 1 DMB?HBE%BG@.N | ' G J@E@Y*(L- | BY?2/ON+ DMBTO | A@A@ @S FF730048 | T+/Y3C@ /T2FM@YD | ROH*)5L4 H*G -JX | YLE@H(H*\$ JXYOH* | RUTO1IB-< K+*H:D | @AB+9C DT_2+/(D | EET@ NH FF730070 |
| T+/M/-@ B@YD;/H | B@Z ELO BE /' " | /A@E@C- ME D.LO | BE X JL8L BEA@ | < A\$'EAM< A\$'EAQ | < A* N*<FF730049 | T+/Z> /Z>C <WISF | SOH*JO-ODFO-HS30 | PH#U< K+*H:D< K+ | 7H:D<AKQYHR# /1G | BC @S@C@SHO-D <H | B 1Q0PF730071 |
| T+/N* A@PC N;1(| FC- N;1*\$O*YN<LG | +E?H13A\$4@@- O*U | NE<GHEMLA2APDC U | PPA*DC DPE1*E<*8 | O' TD 6/7FF730050 | T+/DZL JRF0/<AP@ | \$CP5 O-HA 7300P5 | R1HA 730R<BGF,< | 1 2FSH\$.2--VF@EU | /,*BGF/X1AKF;HST | 2--U MQUPF730072 |
| T+/OP3A\$4@UA0*Y | NQ@GHE\$H8 /*E@/ | E<*8O@TG<E?T32@C | A2/N'0*-N>3MBD4X | -/OD@ J*E1 DO=@G | HERE MR8FF730051 | T+/,UJU@UH@7 /1D | /OH*BF-EZHWU< BF | 1HRM+ BF1HEQ'22F | 1@YHD1 /T04 HQ@ | /V1HAF*BGG)H' BG | A@HD J.-FF730073 |
| T+/PK*80'11H <G | IER"A2/OTO*-N1<B | GEOC2/2D<D1E-E,L | 2/1-<D1E-E%T2/0@ | <D1E-E_32/OQ<D1E | -E? 9A*FF730052 | T+/%-P%E(A@4/1%B | AP%G /1U;C- /TSP | WA- /U2F_OH*Q)@ | D 1" | "1 /S<BGGK4< KP | <HEU KD@FF730074 |
| T+/Q(OH*BFY*ED | @EA@-CAHOX1E-<<4 | LK@BG /8BD4%OK*B | G /DBF/RI0*YN=TG | <E?,32@-A2/QE0*- | N3* 12<FF730053 | T+/_E@ D/TSPW1 | /T@BGG)PB KHALAM | NH(/<EK%-#UO H2P | 1OH*BFUH%HS3" G1 | *PN1*PE7 /OHE N@ | SPX0 N9@FF730075 |
| T+/RH/OH;FA"*E" | /OHE-14OR%BG /D | B(A) ?OH*BH?@1OH* | BEUCS8@G*9+I 0>T | T1;I @F?1@GP1MC | X9=*; 4FF730054 | T+/>N@E1*OV_*-EO | F-EO1-EOE-E@V0H* | BF-E;HV9< -@/ED0 | ECKDEL <OHO_< 2D | /S40ELSAZOH*BF-E | ;HV8 2K4FF730076 |
| T+/@C94CR1*GD@<L | IO*) 8>1A@=L@E< | Y8@P@E<GR1MA @<L | IB_I 1(XI9*N @1I | 5)S@E(XE0*LY@FE | 9(H R9YFF730055 | T+/?@P HDANO@E@9 | <A1-/40GH2FGLCJ | \$HI# /OHE N8SPV1 | \$PE7 /OHE N8SPT3 | 1HR(@@E1*OV_*-EO | F-EO 0@%FF730077 |
| T+/@E=2; (O@TEO'I | EDA EDA EDA EDA | EDA EDA EDA O*S | T1)V 6*PA1DCHOMA | @E(XOK4CA1>1E6MC | R1FD 2EQPF730056 | T+/O.C71*FX1*I*B | G /YAPSI;L CHR< | *@SFL@-@@PE_*P*B | G /YFPSI;OH*\$ETO | HQ" /17N1E /O-H | AD-8 NIHFF730078 |
| T+/\$99_XTE<LA8@E | K4CA1>1E6MCS1*P | K@<105(LA5*J.@<G | F8@PRE(XE0*J 1<X | A14CC5<@O=1*EE0@ | WH1* P@JPF730057 | T+/1F BF1HEQ'22F | 1OHH* CO HQ@@ BF | QOH*)5L4 H*G2 L | + BF1HEQ+ BFQHEQ | '?2F1@YHD1 /T36 | "HR- = %FF730079 |
| T.J*XH | ..... | ..... | ..... | ..... | P1 FF730058 | T+/2A0HH*HMOECKE | XOH*BF-E;HV# /14 | (C /VBF110 /6<B | AG+(A@4/1U@GFB@ | 7L *THP* BGDBYD | 1L D :A<FF730080 |
| T+/@D 0 \$CTO HQT | /14_C D/TB?ZC D | /TSPW1 /T@BGG)P | B KHALB<TH<I<ELU | -#UO +KPIOH*BFUH | :HTY KKUPF730059 | T+/2@DSG,L DNH;5 | < J-/#34 H-C2-E' | < J4/@MOAHBG3L D | TH-P /OH;ABGHHS* | /OH;ABGQHT /OH | :ABD */FF730081 |
| T+/@V"0A@PF/*R6) | YOH*BF-EZHWV@EF) | *RORX-EOP-EO1-EO | Q-EO2-E0"-E1K-E1 | *L @NH1(<C20/ 40 | C+SD #Q*FF730060 | T+/377BIAOH*BG-E | /8BIH0H*BG-E/9BI | LOH*BG-E/:BI*OH* | BF-E;HV8+ BF1HEQ | '?2F1@YHD1 /T04 | HQ@ \$Y#FF730082 |
| T+/@-A40CKSD<L J | RHJE<AP@/D*BG /Y | A@KIZL HDHJJ<A@4 | /FUO@ESD-LAQOHL) | <AL%/ 40EK2DCL J | RHE- @EDPF730061 | T+/42HRL2-JC /17 | N1@ /O*BAG+1 /11 | S+--/SCS -3 UA7 | N+0-/S 8 HQ@/Z-Q | HR<,*BGF@H4BA7 | H1 RTUPF730083 |
| T+/@/SL /WHMC /OH | E OUSENOBA N*A@4 | +L MOHHR<BK</NUO | I<BEOL U'HNR<C5 | /NUOPOSE)P /WR40 | CQ2D P@<FF730062 | T+/5_HX<<BBI2HX1 | B @YG4-DC-*D 0 D |)17-- *B@ /Q9; H | H@Z D+S BBT/ -Y | 9-BPH@Z L+Y /SC3 | 1HQU *HQPF730084 |
| T+/@SQ*BG /YA@KI | ZPFRX@<BG /YA@KI | Z11D/U71 R51VRW) | @P R@P '@PA/@PBN | @PCI@PC*@PEI@PE@ | /OH 3/<FF730063 | T+/6Y1< /ST2AHR. | 2/5-8H H@+H /S1H | @D3Z HQ-@@SFI\|<- | /ST1AHR.2/3Y8D H | H+K /S1H@D3Y-HQ- | @@2D :S0PF730085 |
| T+/@TJF-EZHWV< < | /U372HR12AAA*RW) | YOH*BF-RZHWX /1) | 81 /T@BGG)H' BG | A@YDKC- /T2FW1S@ | /T@ Q3YFF730064 | T+/7TSL3@HQY@HKF | K@Y*** -BBTU@HQT | U HO+ /SC34HQU | @6BFH1AD/U%BF | 4BA#D(D;OC0HHRQ | (KD 1I FF730086 |

FF73 DISK ERROR RECORDING ANALYSIS PROGRAM

OBJECT CARD LISTING

| CL 1 THROUGH 16 | CL 17 THROUGH 32 | CL 33 THROUGH 48 | CL 49 THROUGH 64 | CL 65 THROUGH 80 | CL 81 THROUGH 96 |
|------------------------------------|---------------------|-------------------|--------------------|--------------------|------------------------------|
| T+/8;TBI%@-D(CED /TSI>@YEB! S\$30 | HR @ KFJOH*;1E0 | AHW0/T OAHWE/TTC | HR @ BFJOH*;1L0 | AHR | 2HQFF730087 |
| T+/9R\| D/U*BGG%M < 2I>HZ 8 SID0A | ;C00AHW0/T OAHWE | /T-0BHXR/,C-HHQT | 2DD4@ABFTC /ZBF | (C- | @FF730088 |
| T+/:MH%E/Z08AH%E /Z< -GV9(BPTHW" | 2-JQ< BI?HE<@ BI | 3\| D/UCO HRG /1# | E0-DSTCO HE<6 KF | UGC@ | 79QFF730089 |
| T+/#\|H- "AY*S\| D S\$30?HX<@ B+.C 8 | TSS+. H/UCOCHRG | /1#E+0-/S<HA C | /0 (--H@BG /H | < A8 | 8EHFF730090 |
| T+/@H=SFHC- ;=SF EC ;=2FJ<<MS)E0 | G>Y/UTU HXL UA@ | U<*Q/?CGDHS#3 | < A@.HQY: J@.0*H | -A%D ;, | MFF730091 |
| T+/'E A@H<<MS)E0 | G1U/UTU HXL UA@ | UOH* C@HG@<8 KI | 5@Z E\| SS00MHYY | SS3GGH\$Y012I7 C | S;@ Q38FF730092 |
| T+/= /1"DC -OBP H+-D-OCGDH*C3 | A0/'ECO /VSPWOHD | -1C%\|HX%MBI#0HD | -ST0 HX<<BB12HX< | '&BH | \$80FF730093 |
| T+/#;@BAGTP /17 | 7C-DS/KP=CODS/KH | G(8DS/LOQHR** SH | HHY,2H N+ /,VB | B --.2H (: &H\| BF | PH@Q 7H0FF730094 |
| T+/"60 D-X%BG C | /OH@U-0 HC@/S*B | G /,BEBA+""\$ /OH | E-J%-E*BG /DA(KB | ; D S(005HTQS(@B | G /8 L0QFF730095 |
| T+S 1ABI7H-T /OH | ;ARI#H/G /OH;ABI | "H/, /OH;ABHCHS\| | /OH;ABHGHS3 /OH | ;ABH.HTP /OH@/TM | S(* #SHFF730096 |
| T+SA%/OHS""\$ /17 | J1(XV@+) 5) \$T@ (X | D:DC06NCE6) XR1*G | DE<LI0*-N5>.T2*(| 8*PN8*N 1<GT0MC | O@F 41UFF730097 |
| T+SBXQFA-@\| ( @\|J | -QFA-@\|) @\|/-QFA | -@-E @-I-QFA-@-N | @-R-QFA-@-V @?A | -QFA-@?(-QFA @"\| | 4@D KAHFF730098 |
| T+SCS9+.A1@N 0) P | DE<PR6) \$K@ (1014C | S9(LM0) XYQFA-@ | 3' A 1) XR5_V 2<X | S8*\$R:DA-QFA 1<G | TOM #/EPP730099 |
| T+SD) 1_X05DCD6*X | V1MCX1_LTE\|CE6+L | I5*LE5; (0@TE0. | S8%PE4>.D0;\|A8*\$ | T0) D6;PV5_1U5<N | -9+H 5HQFF730100 |
| T+SEQ1)V-0;\|TO*\| | H5<PN84A*E+.U0WC | S:+.T1) LM1*-A0>T | T1; .E6) X06;.C5_X | REDCT1) LP@DCP1) X | HQ+* N8<PP730101 |
| T.SFG@-C0@PCR1*G | D5)R 4*\$G1<GT1; | I5<P0@D?0@D?0@ (L | MK@LDK=TY2</.5(J | .8>H | R.0FF730102 |
| TF2G DE (D &C | 1- =- 1@U | SIDHYOS) | | | 9 UFF730103 |
| T+S\|PIK%XP2@9IID | UNKMS A B\|C1 | A&F #""@ | B | ;6_7~/PI5;P | A4@U)/QFF730104 |
| TCB\|L1\|C0@\|G0@\|C | 0*~0@ | | | | 49MFF730105 |
| E""*E7*=-DC"PH\$ | = "7M6F | C | F% ASC R A | SO Q | 13510608730 41377"Y@FF730106 |

----- LAST PAGE -----

FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2 *
3 DECK 1
4 SEQ 0
5 FE1 START 0
6 TREP
7 ORG X'0A00'
8
9 *****
10 * SYSTEM/3 CPU MODULE FOR SYSTEM TEST
11 *****
12 * SECTION PREFACE
13 *
14 DC XL2'FE12' PPROGRAM ID
15 DC XL1'80' SECTION FLAGS
16 DC XL1'01' ROUTINE NO.
17 DC XL2'00' RESERVED
18 DC AL2(TST01) ADDRESS OF FIRST ROUTINE PREFIX
19 DC XL2'FFFF' FILLER
20 *
21 *****
22 * ROUTINE PREFACE
23 *
24 TST01 DC XL1'01' ROUTINE NUMBER
25 DC XL1'00' ROUTINE FLAGS
26 DC XL2'FFFF'
27 *
28 *****

```

```

30 TST01A B TEST
31 TBN CPU,X'80'
32 JF TST01B
33 L ERRINT,IARO
34 MVI BRANCH+1,X'80'
35 SIO 0,0
36 L ADRY,P1IAR
37 L ADRZ,P2IAR
38 DPY L ADRX,P2IAR
39 DPZ APL 0
40 J DP2
41
42 DPX B HALT
43 DC XL2'FE32'
44 *
45
46 DP2 SIO X'04',X'0'
47 L INTRPT,IARO
48 L ADRA,P1IAR
49 L ADRB,P1IAR
50 L ADRC,P2IAR
51 DPA L ADRB,P2IAR
52 DPC APL 0
53 BRANCH B DPC
54
55 B HALT
56 DC XL2'FE31'
57 *
58
59 DPB MVI BRANCH+1,X'87'
60
61 TST01B EQU *
62
63 A L CORSIZ,1
64 L CORSIZ,2
65 CLI CORSIZ,X'FF'
66 JNE B
67 L ZERO,1
68 L ZERO,2
69 B A NEG128,1
70 A NEG128,2
71 JZ TSTCOR
72 CLC 127(128, XR2), 127(, XR1)
73 B EXIT
74 B
75 TSTCOR CLI CORSIZ-2,X'00'
76 BE TEST2
77 *****
78 * CHECK ADDR. TRANSLATE TABLE REGS
79 *****
80 TSTATT MVC LATT1+3(2),AXFF
81 ZQODE MVI STATT1+1,X'00'
82 MVI LATT1+1,X'00'
83 MVC CATT+5(2),LATT1+3
84 LATT1 LCP *-*,*-*
85 STATT1 SCP KROW,*-*
86 CATT CLC KROW(2),*-*
87 JE GUUDE
88 B HALT
89 DC XL2'FE20'
90 GUUDE ALC LATT1+1(1),ONE
91 ALC STATT1+1(1),ONE
92 CLI LATT1+1,X'10'
93 BNE LATT1
94 ALC LATT1+3(2),TWO
95 CLC CATT+5(2),AXFF
96 BE ZQODE
97 B EXIT

```

```

TEST FOR VALID DCP ENTRY IN DATA SW
TEST FOR DUAL PROGRAM FEATURE
BYPASS IF NOT PRESENT
LOAD INTERRUPT IAR FOR ERROR
SET BRANCH INST. TO NOP
DISABLE DUAL PGM. & INTERPT KEY
LOAD PROGRAM LEVEL 1 IAR
LOAD PROGRAM LEVEL 2 IAR
LOAD PROGRAM LEVEL 2 IAR
ADVANCE PROGRAM LEVEL
TO NEXT TEST

GO HALT -CC32- BECAUSE APL INSTR
CAUSED PROGRAM ADVANCE WHEN NOT
ENABLED.

ENABLE DUAL PGM.
LOAD INTERRUPT LEVEL 0 IAR
LOAD PROGRAM LEVEL 1 IAR
LOAD PROGRAM LEVEL 1 IAR
LOAD PROGRAM LEVEL 2 IAR
LOAD PROGRAM LEVEL 2 IAR
ADVANCE PROGRAM LEVEL

GO TO HALT -OC31- BECAUSE APL DID
NOT CAUSE AN ADVANCE WHEN DUAL
PROGRAM WAS ENABLED.

SET BRANCH TO UNCONDITIONAL

LOAD CORE SIZE IN XR1
& XR2
.CHECK IF CPU HAS 64K OF CORE.
IF NOT, CONTINUE NOPALLY. IF
YES, ENTER X'0000' IN XR1
& XR2
.SUBTRACT 128 BY ADDING X'FF80'
.SUBTRACT 128 BY ADDING X'FF80'
-IF ALL CORE TESTED, END TEST.
IF NOT, CHECK PARITY OF 128
BYTES AND CHECK WITH SUPERVISOR
BEFORE CHECKING NEXT 128 BYTES.
.CHECK IF CPU IS MOD C
IF NOT, SKIP TRANSLATE.

PUT IN DATA ADDR.
PART WITH Q CODE 00
" " " " "
PUT DATA ADDR. IN CHECK INSTR. ALSO
LOAD A COUPLE ATT PEGS.
STORE 'EM
DATA STILL THE SAME ?

ATT REG ERROR OR LOAD/STORE CPU INST
RUCTION ERROR ON Q CODES 00 - 0F
ADD 1 TO Q CODE
" " "
DONE ALL 16 Q CODES ?

ADD TO USE 0'S DATA NEXT
DONE THE 0'S YET ?

```

FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
98 *****
99 * LOAD ATT, MOVE INST. TO UPPER CORE, EXEC INST. BACK TO LOW CORE
100 *****
0AED C2 02 0ED5 101 MOVUP LA ATHICO, XR2 LOAD ATT ADDR. TABLE ADDR. POINTER
0AF1 3C 00 0AF6 102 MVI LDMOV+1, X'00' LOAD 1ST Q CODE
0AF5 BF 00 00 103 LDMOV LCP 0(, XR2), *-* LOAD AN ATT
0AF8 0E 00 0AF6 0F06 104 ALC LDMOV+1(1), ONE ADD 1 TO Q CODE
0AFE 3D 10 0AF6 105 CLI LDMOV+1, X'10' DONE 16 PAIR ?
0B02 C0 01 0AF5 106 BNE LDMOV
0B06 F4 30 40 107 CCP X'40', CPMR SET EB CYCLE ON FOR PROPER MOVF
0B09 0C 06 0B1E 0B9D 108 MVC W(7), C+2 MOVE INST UP
0B0F 0C 05 0B24 0EA7 109 MVC W+6(6), UPHLT+5 TO HI CORE THEN
0B15 F4 30 70 110 CCF X'70', CPMR SET EA, EB, I CYCLE ON TO EXEC.
0B18 C0 87 0222 111 B HALT HALT IF CCP DID NOT
0B1C FE87 112 DC XL2'FE87' GO TO HI CORE
0B1E 00 113 W DC XL1'00'
114 *****
115 *****
116 * CHECK MEMORY USING ATT'S
117 *****
0B1F C0 87 0B55 118 ATTS B ATTLOD LOAD ATT'S FOR
0B23 0000 119 DC XL2'0000' LO CORE
0B25 35 01 0203 120 L CORSIZ, XR1 LOAD CORE SIZE
0B29 3D FF 0203 121 CLI CORSIZ, X'FF' CORE SIZE 64K OR MORE ?
0B2D F2 01 04 122 JNE DO64A
0B30 35 01 0F27 123 L ZERO, XR1
0B34 C0 87 0B89 124 DO64A B ACCESS ACCESS STORAGE 00-64K.
125 *****
0B38 C0 87 0B55 126 B ATTLOD SET ATT'S FOR HI CORE
0B3C 0020 127 DC XL2'0020'
0B3E 35 01 0EFC 128 L ETHOU, XR1 SET UP FOR 96K
0B42 3D 02 0201 129 CLI CORSIZ-2, X'02' 96K ?
0B46 F2 81 04 130 JE DO64B JUMP IF 128K (OR MORE)
0B49 35 01 0EFE 131 L FTHOU, XR1 SET UP FOR 80K SYSTEM.
0B4D C0 87 0B89 132 DO64B B ACCESS ACCESS 64-80K OR 64- 96K
0B51 C0 87 0BAE 133 B TFST2 CONTINUE WITH REST OF TESTS
134 *****
135 *****
136 * LOAD ATT'S SUBROUTINE (000K - 128K)
137 * SAMPLE LINKAGE :
138 * B ATTLOD
139 * DC XL2'0000' FOR LO CORE OR XL2'0020' FOR HI CORE
140 *
141 *****
0B55 36 08 0F06 142 ATTLOD A ONE, CARR
0B59 34 08 0B70 143 ST HIAD+3, CARR SET THE ADD INSTR.
0B5D 36 08 0F06 144 A ONE, CARR
0B61 34 08 0B88 145 ST LEXIT+3, CARR SET THE RETURN ADDR.
0B65 C2 02 0EB5 146 LA ATLOCO, XR2 LOAD ATT ADDR. TABLE ADDR. POINTER
0B69 3C 00 0B72 147 MVI LODATT+1, X'00' LOAD 1ST Q CODE
0B6D 36 02 0000 148 HIAD A *-*, XR2 ADD PARAMETER FOR UPPER OR LOWER
0B71 BF 00 00 149 LODATT LCP 0(, XR2), *-* LOAD AN ATT
0B74 0E 00 0B72 0F06 150 ALC LODATT+1(1), ONE ADD 1 TO Q CODE
0B7A E2 02 02 151 LA 2(, XR2), XR2 ADD 2 TO TABLE POINTER
0B7D 3D 10 0B72 152 CLI LODATT+1, X'10' DONE 16 PAIR ?
0B81 C0 01 0B71 153 BNE LODATT
0B85 C0 87 0000 154 LEXIT B *-* RETURN
155 *****
156 *****
157 * ACCESS *
158 *****
159 *
160 * SAMPLE LINKAGE :
161 * B ACCESS CAUSE STORAGE FROM XX TO XX TO BE ACCESSED
162 *
163 *****
0B89 34 08 0BAD 164 ACCESS ST ACCEXT+3, CARR SET THE RETURN ADDR.
0B8D 36 01 0F04 165 ATTLOP A NEG128, XR1 DECREMENT XR1

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0B91 F2 81 12 166 JZ ACCE
0B94 F4 30 60 167 CCP X'60', CPMR TRANSLATE
0B97 5D 7F 7F 7F 168 CLC 127(128, XR1), 127(, XR1) ACCESS 128 BYTES.
0B9B F4 30 00 169 CCP X'00', CPMR STOP TRANSLATE
0B9E C0 07 0E59 170 BC EXIT, X'07'
0BA2 C0 87 0B8D 171 B ATTLOP
0BA6 C0 87 0E59 172 ACCE B EXIT GO TO SUPERVISOR
173 *****
0BAA C0 87 0000 174 ACCEXT B *-* RETURN
175 *****
0BAE 176 TEST2 EQU *
177 MVI TSTPLD, 0 SET TEST FIELD TO ZF0
178 TBN TSTPLD, X'FF' TEST ALL BITS FOR ON
179 JF **9 BYPASS HALT IF ALL OFF
180 B HALT TO HALT IF ANY TEST ON
0B3E 181 DC XL2'FE01' HALT ID
182 *****
0BBF 39 FF 0F2C 183 TBF TSTPLD, X'FF' TEST ALL BITS FOR OFF
0BC3 F2 10 06 184 JT **9 BYPASS HALT IF ALL OFF
0BC6 C0 87 0222 185 B HALT TO HALT IF ANY ON
0ECA FE02 186 DC XL2'FE02' HALT ID
187 *****
0BCC 3C FF 0F2C 188 MVI TSTPLD, X'FF' SET TEST FIELD TO 'FF'
0BD0 39 FF 0F2C 189 TBF TSTPLD, X'FF' TEST ALL BITS FOR OFF
0BD4 C0 90 0BDE 190 BF **10 BYPASS HALT IF ALL ON
0BD8 C0 87 0222 191 B HALT TO HALT IF ANY TEST OFF
0BDC FE03 192 DC XL2'FE03' HALT ID
193 *****
0BDE 38 FF 0F2C 194 TBN TSTPLD, X'FF' TEST ALL BITS FOR ON
0BE2 F2 10 06 195 JT **9 BYPASS HALT IF ALL ON
0BE5 C0 87 0222 196 B HALT TO HALT IF ANY TEST OFF
0BE9 FE04 197 DC XL2'FE04' HALT ID
198 *****
0BEB 3C 00 0F2C 199 MVI TSTPLD, 0 SET TEST FIELD TO ZERO
0BEF 3A FF 0F2C 200 SBF TSTPLD, X'FF' SET ALL BITS ON
0BF3 38 FF 0F2C 201 TBN TSTPLD, X'FF' TEST ALL BITS FOR ON
0BF7 C0 10 0C01 202 BT **10 BYPASS HALT IF ALL ON
0BFB C0 87 0222 203 B HALT TO HALT IF ANY TEST OFF
0BFF FE05 204 DC XL2'FE05' HALT ID
205 *****
0C01 3C FF 0F2C 206 MVI TSTPLD, X'FF' SET TEST FIELD TO ALL BITS
0C05 3B FF 0F2C 207 SBF TSTPLD, X'FF' SET ALL BITS OFF
0C09 39 FF 0F2C 208 TBF TSTPLD, X'FF' TEST ALL BITS FOR OFF
0C0D C0 10 0C17 209 BT **10 BYPASS HALT IF ALL OFF
0C11 C0 87 0222 210 B HALT TO HALT IF ANY TEST ON
0C15 FE06 211 DC XL2'FE06' HALT ID
212 *****
0C17 3C 00 0F2C 213 MVI TSTPLD, 0 SET TEST FIELD TO ZERO
0C1B 3A 00 0F2C 214 SEN TSTPLD, 0 SET NO BITS ON
0C1F 3D 00 0F2C 215 CLI TSTPLD, 0 TEST FOR NO CHANGE
0C23 F2 81 06 216 JE **9 JUMP OVER HALT IF OK
0C26 C0 87 0222 217 B HALT TO HALT IF ANY TEST ON
0C2A FE07 218 DC XL2'FE07' HALT ID
0C2C 3C FF 0F2C 219 MVI TSTPLD, X'FF' SET ON ALL BITS IN TEST FIELD
0C30 3B 00 0F2C 220 SBF TSTPLD, 0 SET NO BITS OFF
0C34 3D FF 0F2C 221 CLI TSTPLD, X'FF' TEST FOR NO CHANGE
0C38 F2 81 06 222 JE **9 JUMP OVER HALT IF OK
0C3B C0 87 0222 223 B HALT TO HALT IF ANY TEST OFF
0C3F FE08 224 DC XL2'FE08' HALT ID
0C41 C0 87 0E59 225 B EXIT TO SUPERVISOR
226 *****
0C45 04 20 0F35 0F14 227 ZAZ WORK+9(3), UNITS(1) ZERO THE WORK AREA
0C4B 06 20 0F35 0E28 228 AZ WORK+9(3), DEONE(1) ADD DECIMAL ONE
0C51 07 20 0F35 0EF8 229 SZ WORK+9(3), DEONE(1) SUBTRACT DECIMAL ONE
0C57 3C F6 0F2C 230 MVI WORK, X'F6' SET WORK AREA TO F6
0C5B 04 00 0F2C 0F0D 231 ZAZ WORK(1), UNITS-7(1) ZERO & ADD DEC. 3
0C61 3D F3 0F2C 232 CLI WORK, X'F3' CHECK FOR DEC 3.
0C65 C0 81 0C6F 233 BE **10 BYPASS HALT IF OK

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FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| A | A | 004 | 0 | 0063 | |
| ACCE | A | 004 | 0:46 | 0172 | 0166 |
| ACCESS | A | 004 | 0B89 | 0164 | 0124 0132 |
| ACCEXT | A | 004 | 0BAA | 0174 | 0164* |
| ADRA | A | 002 | 0EA9 | 0419 | 0048 |
| ADRB | A | 002 | 0EAB | 0420 | 0049 0051 |
| ADRC | A | 002 | 0EAD | 0421 | 0050 |
| ADRX | A | 002 | 0EAF | 0422 | 0038 |
| ADRY | A | 002 | 0EB1 | 0423 | 0036 |
| ADRZ | A | 002 | 0EB3 | 0424 | 0037 |
| ARF | C | 001 | 0008 | 0488 | 0371 0383 |
| ATHICO | A | 002 | 0ED5 | 0442 | 0101 |
| ATLOCO | A | 002 | 0EB5 | 0425 | 0146 |
| ATTLOD | A | 004 | 0B55 | 0142 | 0118 0126 |
| ATTLOP | A | 004 | 0B87 | 0165 | 0171 |
| ATTS | A | 004 | 0B.F | 0118 | |
| ATTO1 | C | 001 | 0000 | 0489 | |
| AXFF | A | 002 | 0EF5 | 0457 | 0080 0095 |
| B | A | 004 | 0A7B | 0069 | 0066 0074 |
| BADINT | A | 002 | 0EF7 | 0460 | 0391 0406 |
| BR | A | 004 | 0E65 | 0386 | 0383* |
| BRANCH | A | 004 | 0A56 | 0053 | 0034* 0059* |
| C | A | 003 | 0E9B | 0169 | 0108 |
| CARR | C | 001 | 0008 | 0490 | 0142* 0143 0144* 0145 0164 |
| CATT | A | 006 | 0AB6 | 0086 | 0083* 0095 |
| CORSIZ | C | 001 | 0203 | 0491 | 0063 0064 0065 0075 0120 0121 0129 |
| CPMR | C | 001 | 0030 | 0492 | 0107 0110 0167 0169 |
| CPU | C | 001 | 0204 | 0493 | 0031 |
| DEONE | A | 001 | 0EF8 | 0461 | 0228 0229 |
| DO64A | A | 004 | 0B34 | 0124 | 0122 |
| DO64B | A | 004 | 0B4D | 0132 | 0130 |
| DPA | A | 004 | 0A4F | 0651 | 0419 |
| DPB | A | 004 | 0A60 | 0059 | 0420 |
| DPC | A | 003 | 0A53 | 0052 | 0053 0421 |
| DPX | A | 004 | 0A36 | 0042 | 0422 |
| DPY | A | 004 | 0A2C | 0038 | 0423 |
| DPZ | A | 003 | 0A30 | 0039 | 0424 |
| DP2 | A | 003 | 0A3C | 0046 | 0040 |
| ENHICO | A | 002 | 0EF3 | 0457 | |
| ENLOCO | A | 002 | 0ED3 | 0440 | |
| ENTRY | C | 001 | 0A0A | 0494 | 0385 |
| ERRINT | A | 002 | 0EFA | 0462 | 0033 |
| ETHOU | A | 002 | 0EFC | 0463 | 0128 |
| EXIT | A | 004 | 0E59 | 0383 | 0073 0097 0170 0172 0225 0292 0381 |
| FE1 | A | 001 | 0000 | 0005 | |
| FTHOU | A | 002 | 0EFE | 0464 | 0131 |
| GUUDE | A | 006 | 0AC5 | 0090 | 0087 |
| HALT | C | 001 | 0222 | 0495 | 0042 0055 0068 0111 0180 0185 0191 0196 0203 0210 0217 0223 0234 0242 0251 0255 0263 0271 0278 0300 0306 0312 0318 0326 0335 0342 0348 0352 0356 0363 0374 0378 0411 0416 |
| HIAD | A | 004 | 0B6D | 0148 | 0143* |
| IARO | C | 001 | 0080 | 0496 | 0033* 0047* |
| INTERR | A | 004 | 0E91 | 0406 | 0395 0398 0414 0462 |
| INTOK | A | 004 | 0E69 | 0388 | 0465 |
| INTRPT | A | 002 | 0F00 | 0465 | 0047 |
| KROW | A | 074 | 0F75 | 0486 | 0085 0086 |
| LATT1 | A | 004 | 0AAE | 0084 | 0080* 0082* 0083 0090* 0092 0093 0094* |
| LDMOV | A | 003 | 0AF5 | 0103 | 0102* 0104* 0105 0106 |
| LEXIT | A | 004 | 0B85 | 0154 | 0145* |
| LOAD1 | A | 003 | 0CFP | 0282 | 0285 |
| LOAD2 | A | 003 | 0D14 | 0288 | 0291 |
| LODATT | A | 003 | 0B71 | 0149 | 0147* 0150* 0152 0153 |
| MINUS2 | A | 002 | 0F02 | 0466 | 0284 0290 |
| MOVUP | A | 004 | 0AED | 0101 | |
| MVI1 | A | 003 | 0CC0 | 0259 | |
| MVI2 | A | 003 | 0CD4 | 0267 | |

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FE12 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| NEG128 | A | 002 | 0F04 | 0467 | 0069 0070 0165 |
| NEWLD | A | 003 | 0E83 | 0400 | 0397 |
| NOOOP | A | 004 | 0E78 | 0395 | |
| ONE | A | 002 | 0F06 | 0468 | 0090 0091 0104 0142 0144 0150 |
| P1IAR | C | 001 | 0020 | 0497 | 0036* 0048* 0049* |
| P1SAV | A | 002 | 0F29 | 0483 | 0388* 0402 |
| P2IAR | C | 001 | 0040 | 0498 | 0037* 0038* 0050* 0051* |
| P2SAV | A | 002 | 0F2B | 0484 | 0389* 0403 |
| REGSAV | A | 002 | 0F08 | 0469 | 0283* 0284 0289* 0290 0320* 0323* 0324 0329* 0332* 0333 |
| RESETT | A | 003 | 0E95 | 0409 | 0405 |
| SETARR | A | 004 | 0E98 | 0411 | 0460 |
| STATT1 | A | 004 | 0AB2 | 0085 | 0081* 0091* |
| TEST | C | 001 | 0212 | 0499 | 0030 |
| TEST2 | A | 001 | 0BAE | 0176 | 0076 0133 |
| TSTAT1 | A | 006 | 0A9A | 0080 | |
| TSTCOR | A | 004 | 0A92 | 0075 | 0071 |
| TSTFLD | A | 001 | 0F2C | 0500 | 0177* 0178 0183 0188* 0189 0194 0199* 0200* 0201 0206* 0207* 0208 0213* 0214* 0215 0219* 0220* 0221 |
| TST01 | A | 001 | 0A0A | 0024 | 0018 |
| TST01A | A | 004 | 0A0E | 0030 | 0382 0503 |
| TST01B | A | 001 | 0A64 | 0061 | 0032 |
| TWO | A | 002 | 0F0A | 0470 | 0094 |
| UNCND | A | 004 | 0E7C | 0397 | |
| UNITS | A | 010 | 0F14 | 0471 | 0227 0231 0239 0240 |
| UPHLT | A | 004 | 0EA2 | 0416 | 0109 |
| W | A | 001 | 0B1E | 0113 | 0108* 0109* |
| WORK | A | 001 | 0F2C | 0485 | 0227* 0228* 0229* 0230* 0231* 0232 0237* 0238 0238* 0239* 0240 0247* 0248* 0249 0253 0261 0269 0275* 0276 0295* 0296* 0297 0297* 0298 0303 0303* 0304 0309 0309* 0310 0315 0315* 0316 0321 0330 0339* 0340* 0345* 0346* 0359* 0360* 0361 0366* 0367 0367* 0368* 0369 0369* 0370* 0371* 0372 0372 0376 0472 0473 0474 0500 |
| WORK0 | A | 002 | 0F16 | 0472 | 0324 0333 |
| WORK31 | A | 002 | 0F1A | 0474 | 0376 |
| WORK5 | A | 002 | 0F18 | 0473 | 0258 0266 |
| XD9 | A | 001 | 0F1D | 0476 | 0340 0346 |
| XE1F0 | A | 002 | 0F1F | 0477 | 0360 |
| XFF | A | 002 | 0F23 | 0479 | 0245 0249 0320 0329 0370 |
| XFFZ | A | 002 | 0F25 | 0480 | 0459 |
| XF1F0 | A | 002 | 0F21 | 0478 | 0361 |
| XR1 | C | 001 | 0001 | 0501 | 0072 0120* 0123* 0128* 0131* 0165* 0168 0168 0245* 0247 0258* 0259 0274* 0275 0281* 0282 0282* 0283 0321* 0322 0331* 0332 |
| XR2 | C | 001 | 0002 | 0502 | 0072 0101* 0103 0146* 0148* 0149 0151 0151* 0246* 0248 0266* 0267 0287* 0288 0288* 0289 0322* 0323 0330* 0331 |
| X2020 | A | 002 | 0F1C | 0475 | 0359 |
| ZERO | A | 002 | 0F27 | 0481 | 0067 0068 0123 0246 0253 0276 |
| ZQODE | A | 004 | 0AA0 | 0081 | 0096 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

```

ERR LOC OBJECT CODE      ADDR SIMI SOURCE STATEMENT
2 *
3     DECK 4
4     SEC 6
5     COM          THIS PREVENTS GENERATION OF OBJECT DECK
6 PAF  START X'0'
7 *****
8 *              BOOTSTRAP - FIRST CARD *
9 *****
10 *****
11 *  LOADER FOR MFCU *
12 *  THIS ONE CARD PROGRAM IS CONTAINED IN THE FIRST CARD OF THE *
13 *  DIAGNOSTIC CONTROL PROGRAM.  IT IS READ INTO LOCATIONS 0-95 BY *
14 *  INITIAL PROGRAM LOAD.  WHEN GIVEN CONTROL, THE BOOTSTRAP ROUTINE *
15 *  READS THE SECOND CARD OF THE DCP OBJECT DECK INTO X'200' AND *
16 *  BRANCHES TO IT. *
17 *
18 *  NOTE - THE SECOND TIER OF THIS CARD CONTAINS THE PART NUMBER AND *
19 *  EC LEVEL OF DCP. *
20 *****
0000 0000 21 USING BCCT1,XR1
22 BOOT1 IA 0,XR1          LOAD BASE REGISTER
23          TIO BCCT1E(,XR1),X'F0' GC HALT IF MFCU ERROR OR NOT READY
24          LIO BCCT11(,XR1),X'F5'  LOAD READ ADDRESS REGISTER
25          SIC IPL,READ          READ A CARD INTO LOCATIONS 512-607
26 BOOT1A TIO BCCT1A(,XR1),X'F1'  LOOP UNTIL DONE
27          TIC BCCT1E(,XR1),X'F0' GC HALT IF ERROR
28          E BCCT2              GC TO BOOTSTRAP ROUTINE
29
0017 F0 3B 5D          30 BCCT1E HPI H5,HH          *MFCU NOT READY OR ERROR
001A D0 87 00          31 E BCCT1(,XR1)          GC TRY AGAIN
32
001D 0200          001E 33 BOOT11 DC AL2(512)
34
001F 40D7D540F4F2F4F8 003B 35 DC CL29' PW 4248230 EC XXXXXX I'
0027 F2F3F04040C5C340 35
002F E7E7E7E7E7E74040 35
0037 40404040D3 35
36 *

```

ACTUAL VALUES ARE IN ACTUAL CARD.

LAST CHG 01:27:77

ERR LOC OBJECT CODE ADDR SIMI SOURCE STATEMENT

```

38 *****
39 *              BCCTSTRAP - SECOND CARD *
40 *****
41 *
42 *  THIS ONE CARD PROGRAM IS CONTAINED IN THE SECOND CARD OF THE *
43 *  DIAGNOSTIC CONTROL PROGRAM.  IT IS READ INTO LOCATIONS 512-565 *
44 *  BY THE IPL CARD.  THIS ROUTINE READS THREE IPL FORMAT CARDS INTO *
45 *  LOW CORE TO BUILD ENOUGH OF THE DIAGNOSTIC LOADER TO HANDLE TEXT *
46 *  CARDS.  THEN THE BOOTSTRAP ROUTINE BRANCHES TO THIS PORTION OF *
47 *  THE DIAGNOSTIC LOADER, WHICH LOADS THE REMAINDER OF THE LOADER *
48 *  AND DCP. *
49 *
50 *****
51          ORG 512
52          USING BOOT2,XR1
53          USING BCCT2,XR2
54 BOOT2 LA BOOT2,XR2          LOAD BASE REGISTERS
55 ET2 IA 96(,XR1),XR1
56          J BCCT2A
57 BOOT2E HPI H5,HH          *MFCU NOT READY OR ERROR
58 BCCT2A TIC BCCT2E(,XR2),X'F0' GC HALT IF MFCU NOT READY OR ERROR
59          LIC BCCT23(,XR2),X'F5'  LOAD READ LSR FOR ADDR 0000
60          SIO IPL,READ          READ A CARD
61 BCCT2E TIO BCCT2E(,XR2),X'F1'  LOOP UNTIL DONE
62          TIO BCCT2E(,XR2),X'F0' GC HALT IF ERROR
63          MVC 59(60,XR1),59      MOVE DATA TO CORE
64          IA 60(,XR1),XR1        INCREMENT PCOUNTER FOR NEXT CARD
65          SLC BCCT22(1,XR2),BOOT21(,XR2) CONTINUE UNTIL 4 CARDS HANDLED
66          FNZ BCCT2A(,XR2)
67          MVI X'8FF',C'          CLEAR PRINT FIELD
68          MVC X'8FE'(255),X'8FF'
69          E NEXTR              GO TO DIAGNOSTIC LOADER
70
0200 0200 51          0200 71 BCCT21 EQU BT2+1
0200 0200 52          0239 72 BCCT22 DC I11'3'
0200 0200 53          023B 73 BOOT23 DC AL2(0)
0200 C2 02 0200
0204 D2 01 60
0207 F2 87 03
020A F0 3B 5D
020D E1 F0 0A
0210 B1 F5 3B
0213 F3 F1 40
0216 E1 F1 16
0219 E1 F0 0A
021C 4C 3B 3B 003E
0221 D2 01 3C
0224 AF 00 39 05
0228 E0 01 0E
022B 3C 40 08FF
022F 0C FE 08FE 08FF
0235 C0 87 008E

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FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

```

ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
0060                      75      CFG      X'60'
76 *****
77 *                      76      *****
78 *                      77      *
79 *                      78      *
80 *                      79      *
81 * A ONE CARD BOOTSTRAP READS THIS LOADER INTO CORE AND BRANCHES TO
82 * IT. THE DIAGNOSTIC LOADER THEN LOADS THE CONTROL PROGRAM,
83 * INCLUDING ITS SECTION REFERENCE TABLE. AFTER DCP IS LOADED, THIS
84 * MODULE THEN TRANSFORMS ITSELF INTO A SECTION LOADER BY ALTERING A
85 * BRANCH ADDRESS. OBJECT CARDS RECOGNIZED BY BOTH PHASES INCLUDE
86 *
87 *      TEXT
88 *      REPLACE
89 *      COMMENT
90 *      SENSE SWITCH
91 *      EBC
92 *
93 * THE DCP LOADER PORTION ALSO RECOGNIZES THE FOLLOWING CARDS--
94 *      CPE
95 *      UMT
96 *      CEAIN IMAGE CONTROL AND IMAGE CARDS
97 *
98 * OTHER CARDS ARE IGNORED.
99 *****
100
101 *
102 ** SUBROUTINE TO READ ONE CARD.
103 *
005C 104      USING CDREAD-4, XR2
105 CDREAD LA      CDREAD-4, XR2      LOAD LASE ADDRESS
106 LA      INPUT, XR1      SET
0067 107 AINPUT EQU      *-1
108 ST      CDEXIT+3(, XR2), ARR      SET UP RETURN ADDRESS
109 TIC      ERR(, XR2), X'F0'      GC HALT IF MFCU NOT READY OR ERROR
110 DOLIO LIC      AINPUT(, XR2), X'F5'      LOAD LSP TO START LOADING AT X'880'
111 SIC      NCRM, READ      READ A CARD - NORMAL MODE
112 BUSY TIC      BUSY(, XR2), X'F1'      LOOP UNTIL READ DONE
113 SNS      STATUS(, XR2), X'F3'      GO HALT IF FEED OR READ CHECK
114 TEF      STATUS(, XR2), X'86'
115 CDEXIT BT      *-
116 ERR      HPI      H5, HE      EXIT SUBROUTINE IF NO ERRORS
117 E      DOLIC(, XR2)      *MFCU NOT READY OR ERROR
118                      GO TRY START I/C
0087 119 B1      DC      XL2'0001'
0089 FFPC      008A 120 NEG4 DC      XL2'FFFC'
121
122
008B 123 NEXTP B      CDREAD      GO READ A CARD
008F 124 RED      CLI      0(, XR1), C'T'      BRANCH IF THIS IS TEXT CARD
0092 125 JE      LOOP
0095 126 CLI      0(, XR1), C'E'      BRANCH IF NOT END CARD
0098 127 JNE      CKREP
009B 128 ICCP CLI      1(, XR1), X'D0'      REPLACE ALL HEX 'D0' BYTES WITH '2A'
009E 129 JNE      *-+6
00A1 130 HVI      1(, XR1), X'2A'
00A4 131 LA      1(, XR1), XR1
00A7 132 ST      IDWORK(, XR2), XR1
00AA 133 CLI      IDWORK(, XR2), X'D8'
00AD 134 BL      LOOP(, XR2)
00B0 135 LA      INFUT+87, XR1
00B4 136 LA      CDREAD-4, XR2      INITIALIZE POINTERS
00B8 137 HVI      LABEL+2(, XR2), 1
00BB 138 LENGTH HVI      S1+1(, XR2), 0      INITIALIZE LENGTH OF ADD FIELD
00BE 139 CMICOP HVC      S2+1(1, XR2), S1+1(, XR2)
00C2 140 S1      ALC      1(*-+, XR1), 1(, XR1)      SHIFT CFF HIGH ORDER 2 BITS
00C6 141 S2      ALC      1(*-+, XR1), 1(, XR1)
00CA 142 ALC      S1+1(1, XR2), N1(, XR2)      PREPARE TO OPERATE ON NEXT BYTE

```

```

ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
00CE BD 04 67      143      CLI      S1+1(, XR2), 4      CONTINUE UNTIL 4 BYTES COMPRESSED
00D1 E0 01 62      144      BNE      CHLOOF(, XR2)
00D4 5C 02 00 00   145 LABEL HVC      *-+(3, XR1), 0(, XR1)      MOVE 3 COMPRESSED BYTES TO TEMPORARY
00D8 AE 00 7A 68   146      ALC      LABEL+2(1, XR2), S1+2(, XR2)
00DC E6 01 2E      147      A      NEG4(, XR2), XR1      DECREMENT BY 4
00DF BD 17 7A      148      CLI      LABEL+2(, XR2), 23
00E2 E0 82 5F      149      EI      LENGTH(, XR2)      CONTINUE UNTIL CARD DONE
00E5 7D C5 01      150 * XR1 = X'87F' AT THIS POINT
00E8 F2 81 21      151      CLI      1(, XR1), C'E'      IF THIS IS END CARD, GO ON
152      JE      CKREP
153
00EB 9C 02 A3 1A   154      HVC      MCVE+3(3, XR2), 26(, XR1)      SET UP TO MOVE TEXT DATA TO CORE
00EF 9C 00 A4 18   155 LPTONE HVC      MCVE+4(1, XR2), 24(, XR1)
00F3 D2 01 1B      156      LA      27(, XR1), XR1
00F6 BD 20 A2      157      CLI      MCVE+2(, XR2), X'20'      SEE IF TOO BIG FOR 8K
158
159 * ADDRESS OF NEXT INSTRUCTION MUST NOT CHANGE. IF IT DOES, THE
160 * REFERENCE TO IT WILL NOT WORK WITH THE 1442 CB OTHER CARD
161 * LOADERS.
162
00F9 F2 07 05      163 TOMU JC      TONUCH, X'07'      'JNL TONUCH' PATCHED IN IF 8K DEFINED
00FC 1C 00 0000 00 164 MCVE HVC      *-+(*-+), *-+(, XR1)      INSTRUCTION TO MOVE TEXT DATA
0101 165 TCHUCH EQU      *
166      B      X'108'      SEVEN BYTES
0105 000000      0107 167 DC      XL3'0'      OF FILLER.
168
169 * IF FIRST 5 CARDS OF DCP ARE USED AS A LOADER, ADDR IN END
170 * CARD WILL BE BRANCHED TO FROM HERE.
171 * LCADEF REQUIREMENTS-- FROM X'60' TO X'10F' AND
172 * X'88C' - 8DF AS BUFFER.
173 * SPACE
174 * THE NEXT INSTRUCTION BELOW MUST STAY AT X'108'
175 * IN ORDER TO REMAIN COMPATIBLE WITH 1442 LOADER ETC.
176
177      B      NEXTP
178      L      INFUT+2, XR1      (NOTE -- ADDRESS OF THIS INSTRUCTION
179      B      0(, XR1)      IS THE SAME AS THAT OF CKREP)
180
181 * THE ABOVE 3 INSTRUCTIONS ARE OVERLAYED DURING NORMAL DCP LOADING.
182 * FIRST THE CLEAR CORE ROUTINE OVERLAYS THEM. THEN THE REST OF THE
183 * LOADER OVERLAYS THAT ROUTINE.
184 * IF THESE FIRST 5 CARDS ARE USED AS A GENERAL LOADER, THESE LAST TWO
185 * INSTRUCTIONS CAUSE A BRANCH TO THE END CARD ADDRESS, WHEN END CARD
186 * IS READ
187
188
189 ** ALL ABOVE INSTRUCTIONS ARE CONTAINED IN IPL FORMAT BOOTSTRAP
190 ** CARDS AT THE BEGINNING OF THE DCP OBJECT DECK. THE CODE IS CAPABLE
191 ** OF HANDLING TEXT AND END CARDS AND IS USED TO GET THE REMAINDER OF
192 ** THE DCP LOADER INTO CORE.
193
194 *
195 *****
196      ECOM      BEGIN GENERATING TEXT CARDS
197      ORG      *-11
198
199 * THE FOLLOWING IS A ROUTINE TO CLEAR CORE FROM 8K DOWN TO ITSELF.
200 * IT IS CONTAINED IN THE FIRST TEXT CARD OF DCP, AND IS EXECUTED
201 * AS SOON AS IT IS MOVED TO CORE.
202
203 CLRCOR HVI      X'1FFF', C' '      CLEAR UPPER 256 BYTES OF
204      HVC      X'1FFE'(255), X'1FFF'      FIRST 8K WITH BLANKS
205 ZRO      HVC      X'1EPP'(256), X'1FFF'      CLEAR NEXT 256 BYTE SEGMENT
206      SLC      ZRO+3(2), NUM256      POINT TO NEXT 256 BYTE SEGMENT DOWN
207      CLI      ZRC+2, X'01'      CONTINUE UNTIL READY FOR 100-1FF
208      BE      ZRO

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FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR SYMT SOURCE STATEMENT
0126 0C CD 01FF 1FFF 209 HVC X'1FFF' (X200-ENDCLR), X'1FFF' CLEAR REST OF THIS SEGMENT
012C C0 87 008E 210 B NEXTR RE-ENTER LOADER
0130 0100 0131 211 NUB256 DC XL2'0100'

ERR LOC OBJECT CODE ADDR SYMT SOURCE STATEMENT
018C 7D 6B 01 270 CLI 1(,XR1),C', ' CHECK FOR MORE ENTRIES
018F D2 01 03 271 LA 3(,XR1),XR1 POINT TO NEXT NUMBER
0192 C0 81 017B 272 BE CHKSSO CONTINUE UNTIL CARD DONE
0196 C0 87 008E 273 E NEXTR WHEN DCNE, GO READ NEXT CARD
019A 7D C5 00 274 CHKEND CLI 0(,XR1),C'E' GO READ NEXT CARD IF NOT END
019D E0 01 2F 275 ENE NEXTR(,XR2)

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0A00 307 CRG X'A00'
308 * THESE INSTRUCTIONS AND CONSTANTS ARE USED ONLY BY THE DCP LOADER.
309 * THE UNIQUE SECTIONS OF THE SECTION LOADER ARE LOADED INTO THE
310 * LOADER AREA, X'000' - X'1FF'.

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0A01 F2 01 0A 374 JNE FTFDC COLUMN 4 IS NOT BLANK
0A04 3C 00 025F 375 MVI UTAB+45,X'0' IF BLANK - CLEAR UDT TABLE FOR ALL
0A08 0C 2C 025E 025F 376 MVC UTAB+44(45),UTAB+45 NEW ENTRIES

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

| ERR IOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-----------------|--------|--------|------------------|
| OBA0 | 3C FF 0878 | 442 | MVI | LPINAG+120,X'FF' |
| OBA4 | F2 87 46 | 443 | NOCHG | J RDCD |
| OBA7 | 7D C5 00 | 444 | | |
| OEAA | CO 81 0BB8 | 445 | CKEND | CLI 0(,XR1),C'E' |
| OBAA | FO 3B 6F | 446 | BE | ISEND |
| OBBI | FO 6F 03 | 447 | HPL | H0,HH |
| OE4 | CO 87 008E | 448 | HPI | H1,H0 |
| | | 449 | B | WEYTR |
| OB88 | 3D A0 0232 | 450 | ISEND | EQU * |
| OEBC | F2 01 0A | 451 | HGO | CLI UTAB,X'A0' |
| OBFF | FO 3B 6F | 452 | JNE | LDRCK |
| OBC2 | FO 6F 5D | 453 | HPL | H0,HH |
| OEC5 | CO 87 0BB8 | 454 | HPI | H5,H0 |
| | | 455 | B | HGO |
| | | 456 | LDROR | EQU * |
| | | 457 | | |
| OBC9 | C2 91 0154 | 458 | LA | CKCOM,XR1 |
| OBCD | 34 01 0116 | 459 | ST | CKCCM1+3,XR1 |
| OED1 | CO 87 0E86 | 460 | B | BEGIN |
| | | 461 | | |
| OBDS | CO 87 0226 | 462 | CKCTR | B PACK |
| OED9 | 30 | 463 | DC | IL1'48' |
| OBDA | 09AF | 464 | DC | AL2(INPUT+47) |
| OEDC | 0800 | 465 | IMGADR | DC IL2'800' |
| OBDE | 0E 00 0BDD 0A06 | 466 | ALC | IMGADR(1),N24 |
| OE4 | 0F 00 0A0E 0399 | 467 | SIC | CHCTR(1),ONE |
| OBEA | EO 04 2F | 468 | BNH | NEXTR(,XR2) |
| OEDD | CO 87 0060 | 469 | RDCD | B CDREAD |
| OE1 | CO 87 0BD5 | 470 | B | OKCTR |
| OE1 | E2E2E6 | 471 | SSWD | DC CI3'SSW' |
| OB1 | 0889 | 472 | INADR1 | DC AL2(INPUT+9) |
| | | 473 | | |
| | | 473 | | |
| | | 473 | | |
| | | 474 | | |
| | | 475 | | |
| | | 476 | | |
| 0880 | 477 | INPUT | EQU | X'880' |
| 005F | 478 | STATUS | EQU | CDREAD-1 |
| 005D | 479 | LDWCRK | EQU | CDREAD-3 |
| 0249 | 480 | UDT1 | EQU | X'249' |
| 0261 | 481 | UDT2 | EQU | X'261' |
| 0040 | 482 | IPL | EQU | X'40' |
| 0000 | 483 | NORM | EQU | X'0' |
| 00F1 | 484 | READ | EQU | X'F1' |

| ERR IOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|------------------|------|--------|--|
| 0200 | | 486 | CRG | X'200' |
| | | 487 | | ***** |
| | | 488 | * | SECTION REFERENCE TABLE |
| | | 489 | | ***** |
| | | 490 | * | |
| | | 491 | * | THE DATA IN THIS TABLE PROVIDES THE DIAGNOSTIC SECTION/CONTROL |
| | | 492 | * | PROGRAM INTERFACE. IT IS LOADED BY THESE METHODS-- |
| | | 493 | * | |
| | | 494 | * | CONTROL PROGRAM EXECUTION |
| | | 495 | * | CONTROL PROGRAM ASSEMBLY |
| | | 496 | * | UDT CARDS |
| | | 497 | * | |
| | | 498 | | ***** |
| | | 499 | * | |
| | | 500 | * | |
| | | 501 | ** | SRT DATA |
| | | 502 | * | |
| 0200 | 00 | 503 | SHOD | DC XL1'0' |
| 0201 | 00 | 504 | | DC XL1'0' |
| 0202 | 0000 | 505 | SIZE | DC XL2'0' |
| 0204 | 00 | 506 | CFU | DC XL1'0' |
| 0205 | 00 | 507 | | DC XL1'0' |
| 0206 | 0000 | 508 | PGCKR | DC XL2'0' |
| | | 509 | * | |
| 0208 | 00 | 510 | IBASE | EQU * |
| 0208 | 00 | 511 | SEYTE0 | DC XL1'0' |
| 0209 | 00 | 512 | SBYTE1 | DC XL1'0' |
| 020A | 00 | 513 | SBYTE2 | DC XL1'0' |
| 020B | 00 | 514 | SBYTE3 | DC XL1'0' |
| 020C | 00 | 515 | SBYTE4 | DC XL1'0' |
| 020D | 00 | 516 | SEYTE5 | DC XL1'0' |
| 020E | 00000000 | 517 | RFFX | DC XI4'0' |
| | | 518 | | |
| | | 519 | * | |
| | | 520 | ** | ASSEMBLED TRANSFER TABLE |
| | | 521 | * | |
| 0212 | 35 10 0531 | 522 | TEST | L TR1,IAR |
| 0216 | 35 10 0783 | 523 | LINK | L TR2,IAR |
| 021A | 35 10 02CA | 524 | PRINT | L TR3,IAR |
| 021E | 35 10 067A | 525 | UNPACK | L TR4,IAR |
| 0222 | 35 10 0785 | 526 | HALT | L TR5,IAR |
| 0226 | 35 10 0231 | 527 | PACK | L TR6,IAR |
| 022A | 35 10 0556 | 528 | ICAD | L TR7,IAR |
| 022E | 05AF | 529 | LMSG | DC AL2(LMSG) |
| 0230 | 03B4 | 530 | ITR6 | DC AL2(EPACK) |
| | | 531 | * | |
| | | 532 | ** | UNIT DEFINITION TABLE |
| | | 533 | * | |
| 0232 | 0000000000000000 | 534 | UTAB | EQU * |
| 023A | 0000000000000000 | 535 | | DC XL54'00' |
| 0242 | 0000000000000000 | 535 | | |
| 024A | 0000000000000000 | 535 | | |
| 0252 | 0000000000000000 | 535 | | |
| 025A | 0000000000000000 | 535 | | |
| 0262 | 000000000000 | 535 | | |
| 0268 | 0010 | 0269 | 536 | DC XL2'0010' |

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDEL 12

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
538 *****
539 * LOAD ***** LOAD *
540 *****
541 *
542 * SUBROUTINE TO LOAD PROGRAMS OR DATA RECORDS FROM THE LOADING
543 * DEVICE. ENTRY TO THIS SUBROUTINE IS MADE AS FOLLOWS--
544 *
545 *      B      ICAD      WHERE LCAD IS EQUATED TO X'22A'
546 *      *DC    XI'FLAGS'
547 *      **DC   XL2'DXXX'      XXX - PROGRAM ID (OR DISK ADDR)
548 *
549 *      FLAG BIT ON
550 *      NONE - NORMAL TERMINATION
551 *      0 - HE HALT, LCAD XXX, HA HALT AND GIVE XXX
552 *      CONTROL
553 *      1 - ABNORMAL TERMINATION
554 *      IF BIT 3 - - - 2 - READ FIRST RECORD OF XXX INTO X'880' AND
555 *      IS CN WITH RETURN CONTROL
556 *      2,4, JR 5, . . . 3 - READ NEXT SEQUENTIAL RECORD INTO X'880'
557 *      THEN PARM AND RETURN CONTROL
558 *      IS DISK - - - 4 - LCAD XXX AND GIVE XXX CONTROL
559 *      ADDR NOT - - - 5 - LCAD XXX AND RETURN CONTROL
560 *      PGM ID. 6 - SEEK TO VTOC AND RETURN CONTROL
561 *      *NOTE FLAG BYTE, NOT MORE THAN ONE BIT CAN BE SET ON
562 *      A CALL TO THE LCAD ROUTINE IN DCP
563 *      **NOTE PROGRAM ID IS ONLY INCLUDED IF BIT 0,2,4, OR 5
564 *      IS ON
565 *
566 *****
0208 567 USING LBASE, XR2
00FD 568 F0 EQU X'FD'
00FA 569 F1 EQU X'FA'
00F1 570 F4 EQU X'F1'
026A 34 02 02A2 571 RLOAD ST ICDEM+7, XR2 SAVE XR2
026E C2 02 0208 572 LA LBASE, XR2
0272 E4 08 9E 573 ST R1DA+3(, XR2), ARR SET UP RETURN ADDRESS
0275 C0 87 7E9F 574 B DPFIX RETURN DPP TO PROG LVL1
0279 B5 01 9E 575 RTNFX L R1DA+3(, XR2), XR1 POINT AT FLAGS
027C 8E 01 9E C359 576 ALC R1DA+3(2, XR2), ONE ADJUST RETURN @
027D 577 LCNE EQU *-4
578 MVC LTABLE+1(3), 2(, XR1) MOVE FLAG AND DXXX PARAMETER
0286 79 24 00 579 TBF 0(, XR1), BIT2+BIT5 IF 2 OF 5 CN, THEN BUMP RTN ADR
0289 F2 10 05 580 JT NOBMP .. TO MISS PARAMETERS
028C 8E 01 9E 033B 581 ALC R1DA+3(2, XR2), TWO ADJUST RETURN @
0291 78 10 00 582 NOBMP TBN 0(, XR1), BIT3 TEST 'READ ONE RECORD' BIT
0294 F2 90 10 583 JF ID1
0297 C0 87 0000 584 B *-* GO TO LCADER TO READ A RECORD
029A 585 ENTRY1 EQU *-1
586 LODEN LA *-*, XR1 RESTORE REGISTERS (THIS CODE MUST
029F C2 02 0000 587 LA *-*, XR2 FOLLOW BRANCH TO LOADER, ENTRY1)
02A3 C0 87 0000 588 R1DA E *-*
02A7 589 LD1 EQU *
590 TBF 0(, XR1), BIT2+BIT4+BIT5+BIT6 FLAG BIT 2,4,5, OR 6 ON?
02AA F2 90 81 591 JF LE2 IF ANY ON, GO ENTER LCADER
592
02AD BA 80 C3 593 SEN R1FLGS(, XR2), BIT0 SET ERROR BIT IF ABNORMAL
02B0 78 40 00 594 TBN 0(, XR1), BIT1 TERMINATION
02B3 F2 10 11 595 JT PMSG
02B6 BB 80 C3 596 SEF R1FLGS(, XR2), BIT0 OTHERWISE, TURN IT OFF
02B9 B8 40 00 597 TBN SEYTE0(, XR2), SSW01 LOOP CN ROUTINE IF SSW 01 IS ON
02BC C0 10 0539 598 BT LNK1A
02C0 B8 80 00 599 TBN SEYTE0(, XR2), SSW00 LOOP CN SECTION IF SSW00 SET
02C3 C0 10 0000 600 FIZERO BT 0
02C7 C0 87 05D2 601 PMSG B RPRINT PRINT SECTION TERMINATE MSG
02CA 602 ITR3 EQU *-1
02CB C7 02CB 603 R1FLGS DC XL1'C7'
02CC 12 02CC 604 DC IL1'18'
02CD 05A1 02CE 605 DC AL2(TMSG)

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
02CF F000 02D0 606 DC XI2'F00'
02D1 B8 01 00 607 TBN SBYTE0(, XR2), SSW07 BYPASS HALT IF SSW07 ON
02D4 F2 10 06 608 JT RLD2
02D7 F0 3B 7C 609 H1TF HFL HE, HH HALT TO INDICATE SECTION COMPLETED
02DA E0 87 0A 610 B TEST(, XR2) GO CHECK DATA SWITCHES
02DD B8 40 01 611 RLD2 TBN SEYTE1(, XR2), SSW09 IF SSW09 IS ON,
02E0 F2 10 04 612 JT LE1 THEN DON'T CLR SECT. SWITCHES
02E3 AF 03 05 05 613 SLC SBYTE5(4, XR2), SBYTE5(, XR2) CLEAR SECTION SSW
02E4 614 THREE EQU *-3
615 LE1 TBN 0(, XR1), BIT0 FLAG BIT 0 ON
616 JT LE2 IF ON
02E7 78 80 00 617 XREP1 LA LBASE, XR2
02EA F2 10 41 618 B TEST(, XR2) FOR -HD- HALT
02ED C2 02 0208 619 LX1 LA DIABLE-1, XR1 INSTRUCTION MAY BE ALTERED
02F1 E0 87 0A 620 EQU *-1
02F4 C2 01 01ED 621 TBN 0(, XR1), BIT7 FOR CARD SYS (J LE2) ....
02F8 78 01 00 622 LY2 EQU * .. THIS REFERS TO PREVIOUS INSTRUCTION
02FB F2 90 0D 623 JF CHKF4
02FE 6E 0C 02 75 624 ALC 2(1, XR1), LCNE(, XR2)
0302 78 0F 02 625 TBN 2(, XR1), X'0F'
0305 F2 90 16 626 JF MOVID
0308 7B 0F 02 627 SEF 2(, XR1), X'0F'
030B BD F1 EF 628 CHKF4 CLI FTR(, XR2), F4
030E F2 01 09 629 JNE STEP
0311 F0 3E 6C 630 HLTC1 HPL HC, HH
0314 E0 87 0A 631 E TEST(, XR2)
0317 BC FD EF 632 MVI FTR(, XR2), F0
031A AF 00 EF EC 633 STEP SLC FTR(1, XR2), THREE(, XR2)
031E B5 01 EF 634 MCVID L FTR(, XR2), XR1
0321 6D 01 02 EE 635 CLC 2(2, XR1), PTZERO+3(, XR2)
0325 C0 81 0311 636 BE HLTC1
0329 1C 02 01FF 02 637 *VC FTABLE+1(3), 2(, XR1)
032E C0 87 0000 638 LE2 B *-*
0331 639 ENTRY2 EQU *-1
640 E LCDEM

```

FFP4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFP4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

| ERR LOC | OBJECT CODE | ADDR | SYMT | SOURCE STATEMENT |
|---------|-------------|------|-----------------------------|-------------------|
| | | 0000 | 642 | HZZ EQU 00 |
| | | 0001 | 643 | HZN EQU 01 |
| | | 0002 | 644 | HNZ EQU 02 |
| | | 0003 | 645 | HNN EQU 03 |
| 0336 | 00 | 0336 | 646 | CTR DC X11'0' |
| 0337 | FFFF | 0338 | 647 | NEG1 DC XL2'FFFF' |
| 0339 | 00 | 0339 | 648 | DC X11'00' |
| 033A | 0002 | 033B | 649 | TWC DC IL2'2' |
| | | 650 | * | |
| 033C | 34 08 0362 | 651 | CHEK ST CHEKX@,ARR | |
| 0340 | C0 87 03A0 | 652 | B SAVREG | |
| 0344 | 35 02 0402 | 653 | I ARRSV,XR2 | |
| 0348 | C2 01 0336 | 654 | LA CTR,XR1 | |
| | | 0336 | 655 | USING CTR,XR1 |
| | | 656 | ALC ARRSV(2,XR1),FIVE(,XR1) | |
| 034C | 5E 01 CC BD | 657 | MVC CTR(1,XR1),00(,XR2) | |
| 0350 | 6C 00 00 00 | 658 | MVC DEST1(2,XR1),4(,XR2) | |
| 0354 | 6C 01 4C 04 | 659 | MVC DEST2(2,XR1),4(,XR2) | |
| 0358 | 6C 01 A5 04 | 660 | L 2(,XR2),XR2 | |
| 035C | E5 02 02 | 661 | B *-* | |
| 035F | C0 87 0000 | 0362 | 662 CHEKX@ EQU *-1 | |
| | | 0362 | 663 TEMP EQU *-1 | |

SPARE BYTE NOT USED, MUST BE
LOCATED HERE TO GENERATE
THE CONSTANT FIVE

SAVE REGISTERS
PICK UP RETURN @
LOAD BASE @
AJUST RETURN @
MOVE LENGTH BYTE
MOVE TO @
MOVE TO @
PICK UP FROM @

| ERR LOC | OBJECT CODE | ADDR | SYMT | SOURCE STATEMENT |
|---------|-------------|------|--|--|
| | | 665 | * | ***** |
| | | 666 | * | UNPACK ***** UNPACK * |
| | | 667 | * | ***** |
| | | 668 | * | * |
| | | 669 | * | SUBROUTINE TO CONVERT PACKED HEXADECIMAL DATA TO PRINTABLE * |
| | | 670 | * | EBCDIC. TWO PRINT CHARACTERS, 0-F, RESULT FROM EACH SOURCE BYTE. * |
| | | 671 | * | LINKAGE TO THIS SUBROUTINE IS AS FOLLOWS-- * |
| | | 672 | * | * |
| | | 673 | * | B UNPACK WHERE UNPACK IS EQUATED TO X'21E' * |
| | | 674 | * | DC X11'LENGTH OF HEX FIELD IN BYTES' * |
| | | 675 | * | DC AL2(FROM ADDRESS -RIGHTMOST BYTE-) * |
| | | 676 | * | DC AL2(TC ADDRESS -RIGHTMOST BYTE-) * |
| | | 677 | * | * |
| | | 678 | * | ***** |
| | | 679 | BUNPK ST ARRSV,ARR | |
| | | 680 | B CHEK | |
| | | 681 | UNPK1 MVI MVX1(,XR1),HNN DC NUMERIC | |
| | | 682 | UNPK2 MVI TEMP1(0,XR1),0(,XR2) | |
| | | 036F | 683 MVX1 EQU *-3 | |
| | | 684 | SBN TEMP1(,XR1),X'FO' SET FOR 0-9 | |
| | | 685 | CLI TEMP1(,XR1),X'FA' CHECK FOR A-F | |
| | | 686 | JL UNPK3 | |
| | | 687 | SLC TEMP1(1,XR1),X39(,XR1) SUBSTRACT X'39' IF A-F | |
| | | 688 | UNPK3 MVI *-*,0 | |
| | | 0380 | 689 TEMP1 EQU *-3 | |
| | | 0382 | 690 DEST1 EQU *-1 | |
| | | 691 | ALC DEST1(2,XR1),NEG1(,XR1) DECREMENT TO ADDRESS | |
| | | 692 | CLI MVX1(,XR1),HNN CHECK FOR ZONE DONE | |
| | | 0389 | 693 X39 EQU *-1 | |
| | | 694 | JE UNPK4 | |
| | | 695 | MVI MVX1(,XR1),HNN DO ZONE | |
| | | 696 | B UNPK2(,XR1) | |
| | | 697 | UNPK4 A NEG1(,XR1),XR2 DECREMENT FROM @ | |
| | | 698 | ALC CTR(1,XR1),NEG1-1(,XR1) DECREMENT LENGTH & CHECK FOR 0 | |
| | | 0399 | 699 CNE EQU *-1 | |
| | | 700 | BNZ UNPK1(,XR1) NO | |
| | | 701 | B IDREG(,XR1) YES | |
| | | 702 | * | |
| | | 703 | SAVREG ST SR1+3,ARR SAVE RETURN @ | |
| | | 704 | ST IDREG+3,XR1 SAVE XR1 | |
| | | 705 | ST SR2+3,XR2 XR2 | |
| | | 706 | B RTST CHECK DATA SWITCHES | |
| | | 707 | SR1 E *-* | |

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
709 *****
710 * PACK ***** PACK *
711 *****
712 *
713 * SUBROUTINE TO CONVERT EBCDIC DIGITS 0-F TO PACKED HEXADECIMAL
714 * DATA. LINKAGE TO THIS SUBROUTINE IS AS FOLLOWS--
715 *
716 *      B      PACK
717 *      DC     XL1'LENGTH'
718 *      DC     AL2(FROM ADDRESS -RIGHTMOST BYTE-)
719 *      DC     AL2(TC ADDRESS -RIGHTMOST BYTE-)
720 *****
03B4 34 08 0402          721 RPACK ST  ARESAV,ARR
03B8 C0 87 033C          722      B      CHEK
03BC 78 01 00           723      TEN    CTR(,XR1),X'01'      CHECK FOR ODD LENGTH
03BF F2 90 05           724      JF     FK1                      OKAY IF EVEN LENGTH
03C2 4F 00 00 0399      725      SLC    CTR(,XR1),ONE          SUBTRACT 1 IF ODD LENGTH
03C7 7C 03 A3           726 PK1 MVI    MVX2(,XR1),MNN          DO NUMERIC
03CA 6C 00 2C 00       727 PK2 MVC    TEMP(,XR1),0(1,XR2)      PACK BYTE INTO HIGH HALF BYTE
03CE 7D F0 2C          728      CLI    TEMP(,XR1),X'F0'      CHECK FOR 0-9
03D1 F2 02 04          729      JNL    PK3                      JUMP IF 0-9
03D4 5E 00 2C E5       730      ALC    TEMP(1,XR1),NINE(,XR1)  AJUST FOR A-F
03D8 18 00 0000 2C     731 PK3 MVX    *-*(0),TEMP(,XR1)        MOVE HALF BYTE TO @
03D9 732 MVX2 EQU      *-4
03DE 733 DEST2 EQU     *-2
734      A      NEG1(,XR1),XR2          DECREMENT FROM @
735      CLI    MVX2(,XR1),MZN          CHECK FOR ZONE DONE
736      JF     FK4                      JUMP IF DONE
737      MVI    MVX2(,XR1),MZN          DO ZONE
738      B      FK2(,Xb1)
739 PK4 ALC    DEST2(2,XR1),NEG1(,XR1)  DECREMENT TO @
740      SLC    CTR(1,XR1),TNC(,XR1)    CHECK FOR END
03F3 741 FIVE EQU      *-1
742      BNZ    FK1(,XR1)                IF NOT DO NEXT BYTE
743 IDREG LA      *-*,XR1              RESTORE XR1
744 SB2 LA      *-*,XR2
745      B      *-*
0402 746 ARRSV EQU     *-1

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
748 *****
749 * TEST ***** TEST *
750 *****
751 *
752 * SUBROUTINE USED TO READ CONSOLE SWITCHES AND TEST FOR VALIDITY
753 * POSITIONS. ONCE ONE OF THE FOLLOWING VALIDITY CONDITIONS IS
754 * ENCOUNTERED, ENTRIES ARE ACCEPTED UNTIL THE VALIDITY SWITCH IS
755 * CHANGED.
756 *
757 *      FOYX - TURN OFF SSW XX.
758 *      F1XX - TURN ON SSW XX.
759 *      F2XX - GO TO ROUTINE XX.
760 *      EFXI - TERMINATE SECTION.
761 *      DXXO EXECUTE ALL PROGRAMS FOR DEVICE XX -DISK-.
762 *      DXXI - EXECUTE SECTION XXI
763 *
764 *****
0403 765 TBASE EQU      *
0403 766 SETO DC        XL1'CO'
0409 767      DC        XL6'402010080402'  . ALL TOGETHER
040A 768      DC        XL1'01'
040C 769 DATSW DC        XL2'0'          . READIN AREA FOR DATA SWITCHES
0403 770      USING SETO,XR1
040E 771 TCNE EQU      *-1
040C 772 XREF5 EQU      DATSW
040D 773 XREF4 EQU      *
774 SETSW ST          VXR1+3,XR1
775      LA      SETO,XR1
776      ST          SETSW(,XR1),ARR
777      MNN          CHKSS1+3(,XR1),DATSW(,XR1) FORM CORRECT BIT PATTERN
041B 778 NINE EQU      *-1
779      SBF          CHKSS1+3(,XR1),X'F8'      TO SET A BIT ON IN
780 CHKSS1 MVC          CHKSS2+1(1,XR1),*-*(,XR1)  SBYTE0 THRC BYTES
781      ALC          DATSW(,XR1),DATSW(,XR1)
782      MNZ          CHKSS2+2(,XR1),DATSW(,XR1)
783      LA          SBYTE0,XR1
042F 784 MCDIFY EQU      *
785 CHKSS2 SBN          *-*(,XR1),*-*
786      SBF          MCDIFY,X'01'
787 VXR1 LA            *-*,XR1
788      B          *-*
043D 789 SETSW EQU      *-1
0001 790      DROP    XR1
040E 791      USING DATSW-1,XR2
792 RTEST ST          TEXT1+3,XR2
793      LA          DATSW-1,XR2
794      ST          TEXT1+3(,XR2),XR1
795      ST          TESTE+3(,XR2),ARR
796      B          TRYPED
797 TSTCVL J          TEXT1
798      CLI          DATSW-1(,XR2),X'ED'
799      JH          TEST1
800      TBN          DATSW-1(,XR2),X'DO'
801      JY          TEST1          FOR CARD SYS (JT 0)
045E 802 TSIDSK ZQU     *-1
803 TEXT1 LA          *-*,XR1
804 TEXT1 LA          *-*,XR2
805 TESTE B          *-*
046B 806      DC        XL1'00'
046C 807 TEST1 EQU      *
808
809 HLTA MVI          THLT+2(,XR2) 'F
810      J          THLT
811
812 TEST2 CLI          THLT+2(,XR2),HP
813      JE          TEST3
814 HLTB MVI          THLT+2(,XR2),HP
815      J          THLT

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FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

Table with columns: ERR LOC, OBJECT CODE, ADDR, STMT, SOURCE STATEMENT. Contains assembly code for diagnostic control program, including instructions like EQU, TEST, TBLT, DATSW, etc.

Table with columns: ERR LOC, OBJECT CODE, ADDR, STMT, SOURCE STATEMENT. Contains assembly code for diagnostic control program, including instructions like RLINK, LNK, RTEST, etc.

DATE 29AUG75 07NOV75 19MAR76 03JUN76 11FEB77
EC NO. 827804 827805 827872 571871 387010

PROG ID FFF-4
PAGE 9
DATE 29AUG75 07NOV75 19MAR76 03JUN76 11FEB77
EC NO. 827804 827805 827872 571871 387010
PROG ID FFF-4
PAGE 9A

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
927 *****
928 * PRINT ***** PRINT *
929 ***** PRINT *
930 * LINKAGE TO PRINT IS AS FOLLOWS--
931 *
932 * B PRINT WHERE PRINT IS EQUATED TO 1304
933 * DC XL1'FLAGS'
934 * 1*DC IL1'LENGTH -MAXIMUM OF 91-'
935 * 1*DC AL2(ADDRESS OF LAST CHARACTER OF PRINT FIELD)
936 * 2,1*DC XL2'MESSAGE IDENTIFICATION'
937 *
938 * FLAGS
939 * BIT 0 - DEFINES THIS AS AN ERROR PRINTOUT
940 * 1 - FIRST LINE OF MESSAGE -HEADING PRINTED-
941 * 2 - PRINT FROM DCP PRINT AREA.
942 * 3 - SPACE ONLY
943 * 4 - RESERVED
944 * 5 - BITS 5-7 MUST CONTAIN THE NUMBER OF
945 * 6 - SPACES DESIRED. FOR A PRINT, -001-
946 * 7 - MUST BE ENTERED TO PRINT AND SPACE TO
947 * THE NEXT LINE. - ,0- MAY BE ENTERED
948 * TO PROVIDE FOR MULTIPLE OPERATIONS ON
949 * THE SAME LINE.
950 *
951 * 1*NOTE - THESE PARAMETERS MUST BE ABSENT FOR SPACE
952 * ONLY OPERATIONS.
953 *
954 * 2*NOTE - THE MESSAGE IDENTIFICATION IS INCLUDED
955 * ONLY FOR A FIRST LINE PRINTOUT. THE FOUR
956 * DIGIT IDENTIFICATION REFERS TO A TABLE OF
957 * ERROR DESCRIPTIONS OR PRINTOUT DEFINITION.
958 *
959 * OPTIONS-- SSW03 - BYPASS ERROR PRINT.
960 * SSW04 - BYPASS NCM-ERROR PRINT.
961 * SSW05 - USE ALTERNATE PRINTER
962 *****
05B1 963 USING FR3,XR2
0590 E2C5C3E3C9D6D540 05A1 964 MSG DC CL18'SECTION TERMINATED'
0598 E3C5E9D4C9D5C1E3 964
05A0 C5C4 964
05A2 E2C5C3E3C9D6D540 05AF 965 LMSG DC CL14'SECTION LOADED'
05AA D3D6C1C4C5C4 965
05B0 0880 05B1 966 ER3 DC AL2(PLINE)
05E2 967 HDG1 EQU *
05B2 40C9C440E7E7E7E7 05CD 968 HDG DC CL28' ID XXXX. PROG UUIX-RR. SSW5'
05EA 4B40D7E9D6C740E4 968
05C2 E4E7E760D9D94B40 968
05CA E2E2E6E2 968
05CC 969 SSW EQU *-2
05CE 00 05CE 970 NSPACE DC XL1'0' SPACE COUNTER
05CF 0600 05D0 971 SNUM DC XL2'0'
05D1 00 05D1 972 FTAGS DC XL1'0'
05D2 34 02 070C 973 RPRINT ST PRTE2+3,XR2 SAVE INDEX REGS AND SET UP BASE
05D6 C2 02 05E1 974 LA FR3,XR2
05DA 34 01 0708 975 RPONE ST PRTE1+3,XR1
05DE 34 08 0710 976 ST PRINTE+3,ARR LCAD RETURN ADDRESS
05E2 35 01 0710 977 I PRINTE+3,XR1 POINT AT PARAMETER LIST WITH XR1
05E6 3C 40 0900 978 NVI LPDATA+132,C' SET BLANK CHAR INTO X900 ONCE
979
05EA 9C 00 20 00 980 MVC FTAGS(1,XR2),0(,XR1)
05FE BC 40 01 981 NVI HDG1(,XR2),C' PUT NON-ERR PRINT INDICATION IN HDNG
05F1 78 80 00 982 TBN 0(,XR1),BIT0 BRANCH IF THIS IS NON-ERROR PRINT
05F4 F2 90 0A 983 JF PR12
05F7 BC 5C 01 984 NVI HDG1(,XR2),C' PUT ERROR * IN PRINT LINE
05FA 39 10 0208 985 TBF SBYTE0,SSW03
05FE F2 87 04 986 J PRT2A
0601 39 08 0208 987 PRT2 TBF SBYTE0,SSW04
0605 F2 90 17 988 PRT2A JF PRT2A

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0608 9C 00 1D 00 989 MVC NSPACE(1,XR2),0(,XR1) LCAD SPACE COUNTER
060C BB F8 1D 990 SEF NSPACE(,XR2),X'F8' LIMIT TO SEVEN
060F 3C 60 06C3 991 NVI PRT6+1,96 SET UP COUNT FOR CONSOLE I/O
992
0613 78 10 00 993 TBN 0(,XR1),BIT3 BRANCH IF THIS IS SPACE ONLY OP
0616 F2 10 B5 994 JT FRT7
0619 78 20 00 995 TEN 0(,XR1),BIT2 SKIP SETUP IF DATA FIELD READY
061C F2 10 A9 996 JI PRT6A
061F C0 87 0711 997 B PRTM DUMMY COMMAND TO MAKE SURE NO BUSY
0623 E000 0624 998 LUNCOM DC XL2'E000'
0625 0C 83 08FF 0900 999 MVC LPDATA+131(132),LPDATA+132 BLANK PRINT BUF
062B 78 40 00 1000 TBN 0(,XR1),BIT1 SKIP HDG PRINT IF NOT CALLED FOR
062E F2 90 74 1001 JF FRT5
0631 D2 01 05 1002 LA 5(,XR1),XR1 SET UP TO UNPACK MESSAGE
0634 B4 01 8C 1003 ST IDADDR(,XR2),XR1 IDENTIFIER
0637 C0 87 021E 1004 B UNPACK UNPACK IT FOR PRINTING
063B 02 063E 1005 DC IL1'2'
063C 0000 063D 1006 IDADDR DC XL2'0'
063E 05B9 063F 1007 DC AL2(HDG1+7)
0640 C0 87 021E 1008 B UNPACK PUT PROG IDENT IN PRINTOUT
0644 02 0644 1009 DC IL1'2'
0645 0A01 0646 1010 DC AL2(FROGID)
0647 05C4 0648 1011 DC AL2(HDG1+18)
0649 C0 87 021E 1012 B UNPACK PUT ROUTINE NUM IN HEADING LINE
064D 01 064D 1013 DC IL1'1'
064E 0A03 064F 1014 DC AL2(RNUM)
0650 05C7 0651 1015 DC AL2(HDG1+24)
0652 C0 87 0711 1016 B PRTM SPACE BEFORE PRINTING HEADING
0656 E001 0657 1017 SFBFNG DC XL2'E001'
0658 2C 1B 089B 1C 1018 MVC PLINE+27(28),HDG(,XR2) MOVE HEADER LINE TO PRINT FIELD
1019
1020 ** SET UP SENSE SWITCH PRINTOUT
065D C2 01 089C 1021 LA PLINE+28,XR1 SET UP PRINT FIELD POINTER
0661 BC 00 1F 1022 NVI SNUM(,IF2),0 SET SWITCH # TO 0
0664 0E 05 020D 020D 1023 CHKSWS ALC SBYTES(6),SBYTES ADD SENSE BYTES
066A F2 20 16 1024 JNOL NEXTSS TEST FOR NO OVERFLOW
066D 3A 01 020D 1025 SBN SBYTES,X'01'
0671 D2 01 03 1026 LA 3(,XR1),XR1 SET UP PRINT FIELD #
0674 B4 01 CE 1027 ST SDES(,XR2),XR1
0677 C0 87 0363 1028 E RUMPK UNPACK SSW # INTO PRINT FIELD
067A 1029 ITR4 EQU *-1
067B 01 067B 1030 XCFE DC IL1'1'
067C 05D0 067D 1031 DC AL2(SNUM)
067E 009A 067F 1032 SSDEST DC XL2'009A'
0680 7C 6B 01 1033 NVI 1(,XR1),C' PLACE , INTO PRINT FIELD
0683 AE 00 1F CA 1034 NEXTSS ALC SNUM(1,XR2),XONE(,XR2) UP SWITCH #
0687 B4 30 1F 1035 CLI SNUM(,XR2),X'30' CHECK FOR LAST SSW
068A E0 82 B3 1036 BI CHKSWS(,XR2) BRANCH IF ICW
068D 7C 40 01 1037 NVI 1(,XR1),C' CLEAR THE LAST COMMA
0690 3C 7F 06C3 1038 CRTCHG NVI PRT6+1,X'7F' - PUT ACTUAL LENGTH OF LINE INTO
0694 2E 00 06C3 CE 1039 ALC PRT6+1(i),SSDEST(,XR2) - PRT6+1 FOR THE KEYBOARD PRINTER
0699 C0 87 0711 1040 B PRTM GO PRINT THIS HEADING
069D E200 069E 1041 PRTNG DC XL2'E200'
069F C0 87 0711 1042 E PRTM
06A3 E001 06A4 1043 DC XL2'E001'
1044
06A5 1C 00 06C3 01 1045 FRT5 MVC PRT6+1(1),1(,XR1) SET UP MOVE WHICH WILL LOAD THE
06AA 0F 00 06C3 0399 1046 SLC PRT6+1(1),ONE PRINTOUT POINTED TO BY PARAMETER
06B0 F2 82 1B 1047 JL FRT7 SKIP PRINTING IF COUNT IS ZERO
06B3 1C 01 06C7 03 1048 MVC PRT6+5(2),3(,XR1)
06B8 2C 01 06C5 00 1049 NVC PRT6+3(2),FR3(,XR2)
06BD 1E 00 06C5 01 1050 ALC PRT6+3(1),1(,XR1)
06C2 0C 00 0000 0000 1051 FRT6 NVC *-*(+*),+* SET UP PRINT LINE
06C8 C0 87 0711 1052 FRT6A S PRTM PRINT THE LINE
06CC E200 06CD 1053 DC XL2'E200'
1054
06CE AF 0C 1D 2A 1055 FRT7 SLC NSPACE(1,XR2),RPONE+1(,XR2) SPACE PRINTER DESIRED
06D2 F2 82 0A 1056 NVI PRT2A NUMBER OF TIMES

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FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

Table with columns: ERR LOC, OBJECT CODE, ADDR, STMT, SOURCE, STATEMENT. Contains assembly code for diagnostic control program, including instructions like FRTN, SPAPRT, PREXIT, PRINT, and HSTAT.

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

Table with columns: ERR LOC, OBJECT CODE, ADDR, STMT, SOURCE, STATEMENT. Contains assembly code for diagnostic control program, including instructions like FRTN, PRINT, HPL, PTCIO, and CIO1.

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0858 0000000000000000 1188
0860 0000000000000000 1188
0868 0000000000000000 1188
0870 0000000000000000 1188
1189
1190 **
1191 ** THE FOLLOWING INSTRUCTIONS COMPLETE THE SECTION LOADER BY
1192 ** HANDLING END CARDS. IT IS IN AN AREA THAT IS READ INTO BY
1193 ** THE DISK LCADEF.
0A03 1194 CRG X'A03'
087F 1195 EQU *
1196 CRG X'87F'
087F 1197 EQU *
087F 1198 USING X87F, XR1
0900 1199 ORG X'900'
0900 40 1200 DC C11'
0901 1201 ENDRTN EQU *
1202 MVC 22(23), RESTRT+2 PROGRAM RESTART
1203 TEN SPFIGS, BIT0 BRANCH IF NO UDT ENTRIES
1204 JT LDEND
1205 LA SPUDT, XR2 POINT XR2 AT SECTION PREFACE UDT
1206 UFIND1 LA UTAB, XR1 POINT XR1 AT DCP UNIT TABLE
1207 UFIND2 CLC 0(1, XR1), 0(, XR2) BRANCH IF NOT PROPER UDT
1208 JNE UFIND4
1209 MVC 2(1, XR2), 2(, XR1) LOAD SECTION PREFACE OPTION
1210 MNN 1(, XR2), 1(, XR1)
1211 SEN 1(, XR2), BIT2 SET ASSIGNED FLAG
1212 UFIND3 TBN 1(, XR2), BIT3
1213 LA 3(, XR2), XR2 INCREMENT SPUDT POINTER
1214 BF UFIND1 IF NOT LAST ENTRY, GO LOAD NEXT
1215 J LDEND OTHERWISE - GO START SECTION
1216 UFIND4 TBN 1(, XR1), BIT3 CHECK FOR LAST LCP ENTRY
1217 LA 3(, XR1), XR1 INCREMENT TO NEXT ENTRY
1218 BF UFIND2 CONTINUE IF NOT LAST ENTRY
1219 TBF 1(, XR2), BIT1 SKIP ERROR HALT IF REQUIRED FLAG
1220 JT **6 NOT ON
1221 HPI H1, HH *UDT CANNOT BE SATISFIED
1222 B UFIND3 BYPASS ERROR IF HALT RESET
1223 LDEND B PRINT PRINT DCP HEADING AND SKIP UP
0950 1224 DC X11'47'
0951 1225 DC IL1'14'
0953 1226 LM2 DC AL2(LMSG)
0954 FF00 1227 DC X12'FF00'
1228
1229 TBF SBYTE0, SSW07 BYPASS HALT AFTER LOADING SECTION
1230 TBF FLAG, BIT4
1231 JF **06
1232 HPL HA, HH HALT TO ALLOW DATA SWITCH ENTRY
1233 **
1234 ** THE FOLLOWING FIVE INSTRUCTIONS ARE STORED AT LOCATION ZERO
1235 ** (0000) AFTER LOADING OF EACH SECTION IS COMPLETED TO PROVIDE
1236 ** A PROGRAM RESTART (SYSTEM RESET/START).
0A03 1237 USING RNUM, XR2
1238 LA RNUM, XR2 SAVE FIRST ROUTINE PREFIX AND
1239 L 4(, XR2), XR1
1240 NVC RNUM(1, XR2), 0(, XR1) LOAD CURRENT ROUTINE NUMBER
1241 NVC RFFX(4), 3(, XR1)
1242 B TEST
1243 TEST CHECK DATA SWITCHES
1244 RESTRT B 4(, XR1) START FIRST ROUTINE
097F 1245 DC X15'0' FILLER

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
FFF4 1247 CRG X'FFFF'-X'980'+* IF FLAGGED, CODE IS OVERLAYING ITSELF
0980 1248 ORG X'980'
1249 * ***** HALT MUST START AT X'980' *****
1250
1251 *****
1252 * HALT ***** HALT *
1253 *****
1254 *
1255 * SUBROUTINE USED TO PROVIDE A COMMON HALT FUNCTION. ENTRY TO THIS *
1256 * ROUTINE IS ACCOMPLISHED BY BRANCHING-- *
1257 *
1258 * B HALT WHERE HALT IS EQUATED TO 1312 *
1259 * DC X12'0UXX' HEX EBBR IDENTIFIER *
1260 *
1261 * NORMALLY, ONLY A HALT WITH CODE 'IX' WILL OCCUR. BUT WHEN THE *
1262 * SYSTEM TEST IS RUNNING, HALT 'UU' WILL PRECEED HALT 'X' TO *
1263 * IDENTIFY THE DEVICE IN ERROR. *
1264 *
1265 *
1266 * UU - UNIT IDENTIFICATION *
1267 * XX - INDEX NUMBER *
1268 *
1269 * IF THE INDEX NUMBER IS 01-9F, THE HALT WILL OCCUR UNLESS SENSE *
1270 * SWITCH 06 IS ON. HALTS WITH INDICES A0-CF ARE PERFORMED ONLY *
1271 * WHEN NCN-ERRCR PRINTCUTS ARE BEING BYPASSED -SSW 04-. HALTS *
1272 * DO-FF ARE ALWAYS PERFORMED. *
1273 *****
0980 1273 USING HITAB, XR2
0980 1274 HLTTAB EQU *
0985 1275 DC X16'6F03'6571E5D' TABLE OF HALTS 0-F
0986 1276 DC X16'7D077F5F3F79'
098F 1277 DC X14'6C737C3C'
1278
0990 34 08 0402 1279 RHALT ST ARRSV, ARR SAVE RETURN ADDRESS
0994 C0 87 03A0 1280 B SAVREG GO SAVE REGISTERS
0998 C2 02 0980 1281 IA HLTTAB, XR2 LOAD BASE
099C 35 01 0402 1282 L ARRSV, XR1 POINT XR1 AT PARAMETER LIST
09A0 0E 01 0402 033B 1283 ALC ARRSV(2), TWO ADJUST RETURN ADDRESS
09A6 7D A0 01 1284 CLI 1(, XR1), X'A0' BRANCH IF THIS IS ERROR HALT PAIR
09A9 F2 82 10 1285 JI HALT2
09AC 7D CF 01 1286 CLI 1(, XR1), X'CF' DO HALT IF CODE 'DO'-'FF'
09AF F2 84 11 1287 JH HALT3
09B2 38 08 0208 1288 TBN SBYTE0, SSW04 EXIT IF NOT BYPASSING NCN-ERR PRINT
09E6 F2 90 3E 1289 JF HEXIT
09B9 F2 87 07 1290 J HALT3
09BC 38 02 0208 1291 HALT2 TBN SBYTE0, SSW06 EXIT IF BYPASS ERROR HALT SET
09C0 F2 10 31 1292 JT HEXIT
1293
09C3 98 02 61 00 1294 HALT3 HNZ LHL1+3(, XR2), 0(, XR1) SET UP TO LOAD CODES FOR 1ST HALT
09C7 98 03 65 00 1295 MNN LHL1A+3(, XR2), 0(, XR1)
09CB 98 02 6C 01 1296 HNZ LHL2+3(, XR2), 1(, XR1) SET UP FOR SECOND HALT
09CF 98 03 70 01 1297 MNN LHL2+3(, XR2), 1(, XR1)
1298 CLI X'A00', X'FF' PERFORM FIRST HALT ONLY IF SYSTEM TEST.
09D7 39 C0 0A01 1299 TBF X'A01', X'C0' (ACTUALLY PGMS FFO, 1, 2, 3)
09DB F2 96 0E 1300 JC LHL2, X'96' JUMP FALSE OR HIGH CR LC
09DE AC 00 67 00 1301 LHLT1 NVC HALTA+1(1, XR2), *(, XR2) LOAD FIRST HALT
09E2 AC 00 68 00 1302 IHLT1A NVC HALTA+2(1, XR2), *(, XR2)
09E6 F0 00 00 1303 HALTA HPL **-, ** HALT TO INDICATE DEVICE
09E9 AC 00 72 00 1304 LHLT2 NVC HALTB+1(1, XR2), *(, XR2) LOAD SECOND HALT
09ED AC 00 73 00 1305 LHLT2A NVC HALTB+2(1, XR2), *(, XR2)
1306 HALTB HPL **-, ** HALT TO DISPLAY INDEX NUMBER
09F4 C0 87 043E 1307 HEXIT B RTEST GC CHF (PCR SWITCH ENTRY)
09F8 C0 87 03F7 1308 B LDREG GO RESTORE REGS & EXIT SUBROUTINE
1309 *****
1310 * TRANSFER TABLE CONSTANTS *****
1311 *****
0531 1312 TR1 EQU ITR1
0783 1313 TR2 EQU ITR2
02CA 1314 TR3 EQU ITR3

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|------|------|--------|-----------|
| 067A | 1315 | TR4 | EQU | ITR4 | |
| 0785 | 1316 | TR5 | EQU | ITR5 | |
| 0231 | 1317 | TR6 | EQU | ITR6 | |
| 0556 | 1318 | TR7 | EQU | ITR7 | |

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|------------|--------|-------------------|------------------------------------|
| FFF4 | | | ORG | X'FFFF'-X'A00' ** | IF FLAGGED, X'A00' BEING OVERLAYED |
| | | | 1321 | ***** | |
| | | | 1322 | * XREF | ***** |
| | | | 1323 | ***** | |
| | 1FEE | | 1324 | ORG | X'1FEE' |
| | 1FEE | 0000 | 1325 | DC | XL2'0000' |
| | | | 1326 | * | |
| | | | 1327 | | |
| | 1FF0 | C0 87 0E86 | 1328 | B | BEGIN |
| | | | 1329 | * | |
| | | | 1330 | * | |
| | | | 1331 | * | |
| | | | 1332 | * | |
| | | | 1333 | * | |
| | 1FF4 | 0000 | 1FF5 | 1334 | DC XL2'0000' |
| | 1FF6 | 040C | 1FF7 | 1335 | DC AL2(XREF5) |
| | 1FF8 | 040D | 1FF9 | 1336 | DC AL2(XREF4) |
| | 1FFA | 0E86 | 1FFB | 1337 | DC AL2(XREF3) |
| | 1FFC | 1318 | 1FFD | 1338 | DC AL2(XREF2) |
| | 1FFE | 02ED | 1FFF | 1339 | DC AL2(XREF1) |
| | | | 1340 | | |
| | 0E86 | | 1341 | ORG | ALTPRT+X'700' |
| | | | 1342 | | |
| | | | 1343 | ***** | |
| | | | 1344 | * EQUATES | ***** |
| | | | 1345 | ***** | |
| | 0010 | 1346 | IAR | EQU | X'10' |
| | 0008 | 1347 | ARR | EQU | X'08' |
| | 0004 | 1348 | PSR | EQU | X'04' |
| | 0020 | 1349 | F1IAR | EQU | X'20' |
| | 0081 | 1350 | F7IAR | EQU | X'81' |
| | 0001 | 1351 | IR1 | EQU | 1 |
| | 0002 | 1352 | IR2 | EQU | 2 |
| | 087C | 1353 | LPDATA | EQU | X'87C' |
| | 0880 | 1354 | FLINE | EQU | X'880' |
| | 0A00 | 1355 | SPT | EQU | X'A00' |
| | 0A01 | 1356 | FROGID | EQU | X'A01' |
| | 0A02 | 1357 | SPELGS | EQU | X'A02' |
| | 0A07 | 1358 | FRTN | EQU | X'A07' |
| | 0A0A | 1359 | SFUDT | EQU | X'A0A' |
| | 0018 | 1360 | SIOI | EQU | X'18' |
| | 0879 | 1361 | CRFLG | EQU | X'0879' |
| | | | 1362 | | |
| | | | 1363 | ** | COMMON SENSE SWITCHES |
| | | | 1364 | | |
| | 0080 | 1365 | SSW00 | EQU | X'80' |
| | 0040 | 1366 | SSW01 | EQU | X'40' |
| | 0C20 | 1367 | SSW02 | EQU | X'20' |
| | 0010 | 1368 | SSW03 | EQU | X'10' |
| | 0008 | 1369 | SSW04 | EQU | X'08' |
| | 0004 | 1370 | SSW05 | EQU | X'04' |
| | 0002 | 1371 | SSW06 | EQU | X'02' |
| | 0001 | 1372 | SSW07 | EQU | X'01' |
| | 0080 | 1373 | SSW08 | EQU | X'80' |
| | 0C40 | 1374 | SSW09 | EQU | X'40' |
| | 0020 | 1375 | SSW0A | EQU | X'20' |
| | 0010 | 1376 | SSW0B | EQU | X'10' |
| | 0008 | 1377 | SSW0C | EQU | X'08' |
| | 0004 | 1378 | SSW0D | EQU | X'04' |
| | 0002 | 1379 | SSW0E | EQU | X'02' |
| | 0001 | 1380 | SSW0F | EQU | X'01' |
| | 0001 | 1381 | SSW2F | EQU | X'01' |
| | | | 1382 | | |
| | 0080 | 1383 | BIT0 | EQU | X'80' |
| | 0040 | 1384 | BIT1 | EQU | X'40' |
| | 0020 | 1385 | BIT2 | EQU | X'20' |
| | 0010 | 1386 | BIT3 | EQU | X'10' |
| | 0008 | 1387 | BIT4 | EQU | X'08' |

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-----------------|------|--------|--------|---------------------|
| OF35 | C0 87 021A | 1478 | NOPOP | EQU | * |
| OF39 | 01 | 1479 | | B | PRINT |
| OF3A | 17 | 1480 | | DC | XL1'01' |
| OF3B | 1189 | 1481 | | DC | IL1'23' |
| | | 1482 | | DC | AL2(LINE1) |
| | | 1483 | | | |
| OF3D | C0 87 021A | 1484 | WASPOP | EQU | * |
| OF41 | 01 | 1485 | | B | PRINT |
| OF42 | 33 | 1486 | | DC | XL1'01' |
| OF43 | 124F | 1487 | | DC | IL1'51' |
| OF45 | C0 87 021A | 1488 | | DC | AL2(DASH) |
| OF49 | 01 | 1489 | | B | PRINT |
| OF4A | 33 | 1490 | | DC | XL1'01' |
| OF4B | 11E1 | 1491 | | DC | IL1'51' |
| OF4D | C0 87 021A | 1492 | | DC | AL2(LINE2) |
| OF51 | 01 | 1493 | | B | PRINT |
| OF52 | 33 | 1494 | | DC | XL1'01' |
| OF53 | 124F | 1495 | | DC | IL1'51' |
| | | 1496 | | DC | AL2(DASH) |
| | | 1497 | | | |
| OF55 | C2 01 0232 | 1498 | | LA | UTAB, XR1 |
| OF59 | 3C 01 1161 | 1499 | | HVI | FLAGS, 1 |
| OF5D | 7D 00 00 | 1500 | UDTLP | CLI | 0(, XR1), X'0' |
| OF60 | F2 81 8E | 1501 | | JE | NCUNIT |
| OF63 | 34 01 0F6D | 1502 | | SI | UADDR, XR1 |
| OF67 | C0 87 021E | 1503 | | B | UNPACK |
| OF6B | 01 | 1504 | OF6B | DC | IL1'1' |
| OF6C | 0000 | 1505 | OF6D | DC | AL2(*-*) |
| OF6E | 0883 | 1506 | OF6F | DC | AL2(ELINE+3) |
| OF70 | C2 02 0884 | 1507 | | LA | ELINE+4, XR2 |
| OF74 | BC 60 00 | 1508 | | HVI | 0(, XR2), C'-' |
| OF77 | 0C 01 115D 0399 | 1509 | | HVC | MASK(2), ONE |
| OF7D | 3C 00 115E | 1510 | | HVI | CENUM, 0 |
| OF81 | 0C 00 0F8E 115C | 1511 | UDTLP1 | HVC | CHK1+1(1), MASK-1 |
| OF87 | 0C 00 0F91 115D | 1512 | | HVC | CHK2+1(1), MASK |
| OF8D | 79 00 01 | 1513 | CHK1 | TBF | 1(, XR1), *-* |
| OF90 | 79 00 02 | 1514 | CHK2 | TBF | 2(, XR1), *-* |
| OF93 | F2 10 16 | 1515 | | JT | NEXTOP |
| OF96 | 8C 00 01 115E | 1516 | | HVC | 1(1, XR2), CENUM |
| OF9B | BA F0 01 | 1517 | | SEN | 1(, XR2), X'F0' |
| OF9E | BD FA 01 | 1518 | | CLI | 1(, XR2), X'FA' |
| OFA1 | F2 82 05 | 1519 | | JL | *+8 |
| OFA4 | 8E 00 01 1155 | 1520 | | ALC | 1(1, XR2), XC7 |
| OFA9 | E2 02 01 | 1521 | | LA | 1(, XR2), XR2 |
| OFAC | 0E 01 115D 115D | 1522 | NEXTOP | ALC | MASK(2), MASK |
| OFB2 | 0E 00 115E 0399 | 1523 | | ALC | CENUM(1), ONE |
| OFB8 | 3D 0C 115E | 1524 | | CLI | OPNUM, X'0C' |
| OFBC | C0 82 0F81 | 1525 | | BL | UDTLP1 |
| | | 1526 | | | |
| OFCD | 3D 01 1161 | 1527 | | CLI | FLAGS, 1 |
| OFD0 | F2 01 0C | 1528 | | JNE | CKPTR |
| OFD3 | 8C 05 09 116B | 1529 | | HVC | 9(6, XR2), LDR |
| OFD7 | 3C 02 1161 | 1530 | | HVI | FLAGS, 2 |
| OFD8 | F2 87 10 | 1531 | | J | PRUDT |
| | | 1532 | | | |
| OFD3 | 3D 02 1161 | 1533 | CKPTR | CLI | FLAGS, 2 |
| OFD7 | F2 01 09 | 1534 | | JNE | PRUDT |
| OFDA | 8C 06 0A 1172 | 1535 | | HVC | 10(7, XR2), PRNTR |
| OFDF | 3C 00 1161 | 1536 | | HVI | FLAGS, 0 |
| | | 1537 | | | |
| OFE3 | 0C 19 11FB 089A | 1538 | PRUDT | HVC | LINE3(26), ELINE+26 |
| OFE9 | C0 87 021A | 1539 | | B | PRINT |
| OFE0 | 01 | 1540 | OFED | DC | XL1'01' |
| OFE2 | 1A | 1541 | OFEE | DC | IL1'26' |
| OFEF | 11FB | 1542 | OFF0 | DC | AL2(LINE3) |
| | | 1543 | | | |
| OFF1 | 78 10 01 | 1544 | NOUNIT | TBN | 1(, XR1), X'10' |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|-----------|------|--------|---|
| OFF4 | D2 01 03 | 1545 | | LA | 3(, XR1), XR1 |
| OFF7 | C0 90 0F5D | 1546 | | EF | UDTLP |
| | | 1547 | | | |
| | | 1548 | | | ***** |
| | | 1549 | | | * |
| | | 1550 | | DO | MISCELLANECUS DCP PRINTOUTS |
| | | 1551 | | | * |
| | | 1552 | | | * |
| | | 1553 | | | ***** |
| | | 1554 | | | |
| OFFB | C0 87 021A | 1555 | | E | PRINT SPACE PRINTER |
| OFFF | 11 | 1556 | | DC | XL1'11' |
| 1000 | C0 87 021A | 1557 | | E | PRINT |
| 1004 | 05 | 1004 1558 | | DC | IL1'05' |
| 1005 | 21 | 1005 1559 | | DC | IL1'33' |
| 1006 | 121C | 1007 1560 | | DC | AL2(LINE4) 'DCP IS LOADED' |
| 1008 | C0 87 12E5 | 1561 | | B | CHKID TEST FOR TAPE ON SYSTEM |
| 100C | 70 | 100C 1562 | | DC | XL1'70' |
| 100D | F2 01 27 | 1563 | | JNE | TST07 JUMP IF IT IS NOT |
| | | 1564 | | | |
| 1010 | C0 87 12E5 | 1565 | | B | CHKID TEST FOR 5444 ON SYSTEM |
| 1014 | A0 | 1014 1566 | | DC | XL1'A0' |
| 1015 | F2 01 1F | 1567 | | JNE | TST07 JUMP IF IT IS NOT |
| | | 1568 | | | |
| 1018 | C2 01 0232 | 1569 | | LA | UTAB, XR1 FCINT AT X'232' |
| 101C | 7D A0 00 | 1570 | | CLI | 0(, XR1), X'A0' IF 5444, PRINT TAPE MESSAGE |
| 101F | F2 01 15 | 1571 | | JNE | TST07 |
| | | 1572 | | | |
| 1022 | C0 87 12BF | 1573 | XB | B | PTX PRINT LINE OF '-' |
| 1026 | C0 87 021A | 1574 | | B | PRINT PRINT MESSAGE TO DUMP TAPE ERROR ST. |
| 102A | 01 | 102A 1575 | | DC | XL1'01' |
| 102B | 3C | 102B 1576 | | DC | IL1'60' |
| 102C | 128A | 102D 1577 | | DC | AL2(XM1) |
| 102E | C0 87 12BF | 1578 | | B | PTX PRINT LINE OF '-' |
| 1032 | C0 87 021A | 1579 | | B | PRINT SPACE 4 |
| 1036 | 14 | 1036 1580 | | DC | XL1'14' |

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1582 *****
1583 *
1584 *      CHECK FOR MODEL G
1585 *
1586 *****
1587
1037 1588 TST07 EQU *
1589      CLI S*CL,C'G'      TEST FOR RUNNING ON MODEL 'G'
1590      BNE DCHA           BRANCH IF NOT
1591      CLI UTAB,X'40'     TEST FOR LOADING FROM 3741
1592      JE FD6C            IF TRUE GO SET UP FOR LOADING
1593      TBN UTAB+1,X'80'   TEST FOR LOADING FROM DISK
1594      BF DOHA           IF NOT, HALT HA
1595
1596 *****
1597 *
1598 *      LOAD AND EXECUTE ANY PROGRAMS WHICH MUST BE
1599 *
1600 *      RUN AT DCP LOAD TIME
1601 *
1602 *      FD6 - RUNS ON ALL MODEL G SYSTEMS
1603 *
1604 *****
1605
104E 1606 ISAO LA X'0232',XR1 SET-UP XR1 ADDRESS FOR UTAB TABLE *GC*
1052 1607 CLI 0(,XR1),X'A0' SEE IF DISK IS A 5444 *GC*
1055 1608 JNE ISA1 JUMP IF NOT A 5444 DISK *GC*
1058 1609 MVI DKFLAG,X'A0' IDENTIFY IT A 5444 DISK *GC*
1610
105C 1611 ISA1 B SEARCH GO GET DISK ADDR OF PROGRAMS *GC*
1612
1060 1613 TBN SRFLAG,BIT2 SEE IF FD6 FOUND ON DISK
1064 1614 JF FD6RTN IF NOT, DON'T RUN
1615 *****
1616 *      TEST UDT TABLE FOR DISK FILE 3340 OR DISK FILE 5444
1617 *****
1618      CLI DKFLAG,X'A0' SEE IF DISK IS A 5444
1619      JE FD6D JUMP IF IS
1620      MVC FD6@ (2),CCHH2@ MOVE IN ADDRESS OF 3340 CCHRR (FD6)
1074 1621 FD6D EQU *
1622 *****
1623      HVC X'1FF5' (2),FD6ADR SET UP FOR FD6 TO COME BACK
1624      SBN SBYTES,SSW2F SET ON SSW 2F TO SHOW FD6 TO LINK BACK
1625      B LOAD LOAD AND RUN LSR TESTS
1082 1626 FLG1 DC XL1'08'
1083 1627 FD6@ DC XL2'DFD6' DISK ADDRESS FILLED IN BY 'SEARCH' RTN
1085 1628 FD6ADR DC AL2(FD6RTN)
1087 1629 FD6RTN EQU * RETURN HERE FROM FD6
1630      MVC 16 (17),GOLCAD+16 STORE A PROGRAM RESTART AT 0000
108D 1631 ISTFD6 MVI X'1FD',X'10' RESET FLAG BIT FOR LOAD RTN
1091 1632 B DCHA

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1634 *****
1635 *****
1636 *
1637 *      S E A R C H      SEARCH VTCCS FOR FD6,143,FCO AND INSERT
1638 *                      DISK ADDRESSES IN 'B LOAD'
1639 *****
1640
1641 SEARCH ST SFX+3,ARR
1642      MVI FLG1,X'18' SET BRANCH TO LOAD FLAG BITS
1643      MVI X'1FEE',0 SET TO ZERO AS FLAG
1644      MVI SRFLAG,0 SET FLAG TO ZERO (SUPPORT INSTR AT '1FPO')
1645      B LOAD SEEK TO VTCC AND CHECK FOR PROGRAM 143
10A9 1646 DC XL1'02'
1647      IA X'880',XR1 LOAD XR1 AS POINTER TO VTCC RECORD
1648
1649 READRC B LOAD TO READ NEXT RECORD INTO X'880'
10E2 1650 DC XL1'10'
1651      CL 0(,XR1),X'FF' TEST FOR END OF VTCC
1652      BE NE2 JUMP IF YES
1653      CL 0(,XR1),0 TEST FOR END OF VTCC
1654      BE NE2 JUMP IF YES
1655      CLC 2(3,XR1),ACTKON TEST FOR AN ACTIVE VTCC ENTRY
1656      ENE NE2 JUMP IF NOT 'ACT'
1657
1658      CLI UTAB,X'C1' CHANGE DISPLACEMENT OF ID IN VTCC
1659      JE ISWIN ENTRY IF THIS IS 5444.
1660      MVI HVCID+4,IDS444 IF 3340, LEAVE DISPLACEMENT AS IS
10D5 1661 ISWIN EQU *
1662      MVCID HVC VTID(3),ID3340(,XR1) MOVE ID INTO TEMP AREA
1663
1664 TRYFD6 CLC VTID(3),FD6KON LOOK FOR ID OF FD6 *GCDP
1665      TRYOUT JNE
1666      MVC FD6@ (2),VTAD(,XR1) MOVE IN DISK ADDR OF FD6 (5444)
1667      MVC CCHH2(5),VT33(,XR1) MOVE IN CCHRR ADDR FROM VTCC (3340)
1668      SBN SRFLAG,BIT2 INDICATE FD6 FOUND
10F1 1669 TRYOUT EQU *
1670      TBN SRFLAG,BIT2 SEE IF FOUND YET
1671      READRC GO LOAD 143 ETC
1672      SRI B RETURN TO CALLER SECTION
0007 1673 IDS444 EQU 7 DISPLACEMENT OF ID IN 5444 VTCC
0006 1674 ID3340 EQU 6 DISPLACEMENT OF ID IN 3340 VTCC
0004 1675 VTAD EQU 4 LOCATION IN VTCC OF 5444 ADDRESS
0002 1676 VT33 EQU 14 LOCATION IN VTCC OF 3340 ADDRESS CCHRR *GC*
10FD 1677 EKFLAG DC XL1'FF'
10FE 1678 SRFLAG DC XL1'00' BIT 0 - 143
1679 * BIT 1 - FCO
1680 * BIT 2 - FD6
1681
1682 FE2 TBN SRFLAG,BIT2 DID FD6 GET IN
1683      JT DCHO
1684      MVC IDLOST(3),FD6KON MOVE 'FD6' INTO MESSAGE
1685      B PRINT
1110 1686 DC XL1'02'
1111 1687 DC XL1'30' PROGRAM XXX NOT FOUND ON DISK
1113 1688 DC AL2(NCTFND)
1114 1689 EOB0 EQU *
1690      B PRINT
1118 1691 DC XL1'17' SPACE 7 TIMES
1692      HPL H0,HH NO HALT TO SHOW PGH'S MISSING
1693      HPL H4,H0 SECONDARY H' T SAYS PGH'S MISSING
1694
111F 1695 B SRI RETURN TO CALLER

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FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-------------|-----------|--------|---|
| 1123 | 38 01 0208 | 1697 | DOHA | TBN SEYTE0,SSW07 |
| 1127 | F2 10 03 | 1698 | JT | GCLOAD |
| | | 1699 | | |
| | | 1700 | | ***** |
| | | 1701 | * | H H AAAAAAAAAA |
| | | 1702 | * | H H A A |
| | | 1703 | * | H H A A |
| | | 1704 | * | HHHHHHHHH AAAAAAAAAA |
| | | 1705 | * | H H A A |
| | | 1706 | * | H H A A |
| | | 1707 | * | H H A A |
| | | 1708 | | ***** |
| | | 1709 | | |
| 112A | F0 3B 3F | 1710 | BLTG | HPI HA,HH DCP LOADING COMPLETE |
| | | 112D 1711 | GCLOAD | ECU * * |
| 112D | C0 87 0212 | 1712 | B | TEST CHECK DATA SWITCHES |
| 1131 | C0 87 02ED | 1713 | B | XREP1 GO LCAD SECTION |
| | | 0002 1714 | DRCF | XF2 |
| | | 1715 | | ***** |
| | | 1716 | * | |
| | | 1717 | * | STORAGE EC'S FCR DCP |
| | | 1718 | * | |
| | | 1719 | | ***** |
| | | 1720 | | |
| 1135 | 00 | 1135 1721 | TEMPA | DC XL1'00' |
| 1136 | 04 | 1136 1722 | X04 | DC XL1'04' |
| 1137 | 0800 | 1138 1723 | TWOK | DC XL2'0800' |
| 1139 | 000000 | 113B 1724 | VIID | DC XL3'000000' TEMP STORAGE FOR ID FROM VTOC |
| 113C | 0000000000 | 1140 1725 | CCHHO | DC XL5'0000000000' CYL HED REC FCR 143 (3340) |
| 1141 | 0000000000 | 1145 1726 | CCHH1 | DC XL5'0000000000' CYL HED REC FCR PC0 |
| 1146 | 0000000000 | 114A 1727 | CCHH2 | DC XL5'0000000000' CYL HED REC FCR PD6 |
| 114B | 1140 | 114C 1728 | CCHH0@ | DC AL2(CCHHO) |
| 114D | 1145 | 114E 1729 | CCHH1@ | DC AL2(CCHH1) |
| 114F | 114A | 1150 1730 | CCHH2@ | DC AL2(CCHH2) |
| 1151 | 0100 | 1152 1731 | X100 | DC XL2'100' |
| 1153 | 0008 | 1154 1732 | FRIV | DC XL2'0008' PRIVILEGE MODE ONLY |
| 1155 | C7 | 1155 1733 | XC7 | DC XL1'C7' |
| 1156 | F2 87 29 | 1734 | J | J TEST7-TSTCRD-1 |
| 1159 | F2 87 33 | 1735 | J1 | J IE2-LX2 |
| 115C | 0000 | 115D 1736 | HASK | DC XL2'0' |
| 115E | 00 | 115E 1737 | CFNUM | DC XL1'0' |
| 115F | F0F4 | 1160 1738 | DFCUR | DC DL2'4' |
| 1161 | 00 | 1161 1739 | FLAGS | DC XL1'0' |
| 1162 | 0000 | 1163 1740 | X0000 | DC XL2'0000' |
| 1164 | 01E0 | 1165 1741 | D0480 | DC IL2'480' |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|------------------|-----------|--------|---|
| | | 1743 | | ***** |
| | | 1744 | * | PRINTOUTS ***** |
| | | 1745 | | ***** |
| | | 1746 | | |
| 1166 | D3D6C1C4C5D9 | 116E 1747 | LDR | DC CL6'LCADER' |
| 116C | D7D9C9D5E3C5D9 | 1172 1748 | PRNTR | DC CL7'PRINTER' |
| 1173 | D4D6C4C5D340E74B | 1189 1749 | LINE1 | DC CL23'MODEL X. STORAGE XXK' |
| 117B | 4040E2E3C6E9C1C7 | | | 1749 |
| 1183 | C54040E7E7E7D2 | | | 1749 |
| 118A | 404040C3D7E440D6 | 11AD 1750 | LINE1A | DC CL36' CPU OPTIONS ARE X * \| TOGETHER |
| 1192 | D7E3C9D6D5E240C1 | | | 1750 |
| 119A | D9C54040E7404040 | | | 1750 |
| 11A2 | 4040404040404040 | | | 1750 |
| 11AA | 40404040 | | | 1750 |
| 11AE | 40 | 11AE 1751 | | DC CL1' \| |
| 11AF | E4D5C9E340C4C5C6 | 11C4 1752 | | DC CL22'UNIT DEFINITION TABLE \| |
| 11B7 | C9D5C9E3C9D6D540 | | | 1752 |
| 11BF | E3C1C2E3C540 | | | 1752 |
| 11C5 | 4B4B4B4B40D4E4E2 | 11E1 1753 | LINE2 | DC CL29'.... MUST BE CORRECT -VERIFY- |
| 11CD | E340C2C540C3D6D9 | | | 1753 |
| 11D5 | D9C5C3E34060E5C5 | | | 1753 |
| 11DD | D9C9C6E860 | | | 1753 |
| 11E2 | 4040404040404040 | 11FB 1754 | LINE3 | DC CL26' * |
| 11EA | 4040404040404040 | | | 1754 |
| 11F2 | 4040404040404040 | | | 1754 |
| 11FA | 4040 | | | 1754 |
| 11FC | 4040404040404040 | 121C 1755 | LINE4 | DC CL33' DCP IS LOADED' |
| 1204 | 4040404040404040 | | | 1755 |
| 120C | 40404040C4C3D740 | | | 1755 |
| 1214 | C9E240D3D6C1C4C5 | | | 1755 |
| 121C | C4 | | | 1755 |
| 121D | 4040404040404040 | 1232 1756 | | DC CL22' * |
| 1225 | 4040404040404040 | | | 1756 |
| 122D | 40404040404040 | | | 1756 |
| 1233 | 6060606060606060 | 124F 1757 | DASH | DC 29CL1'-' |
| 123B | 6060606060606060 | | | 1757 |
| 1243 | 6060606060606060 | | | 1757 |
| 124B | 6060606060 | | | 1757 |
| 1250 | C4E4D4D740E3C1D7 | 127D 1758 | | DC CL46'DUMP TAPE ERROR STATISTICS BEFORE RUNNING DISK' |
| 1258 | C540C5D9D9D6D940 | | | 1758 |
| 1260 | E2E3C1E3C9E2E3C9 | | | 1758 |
| 1268 | C3E240C2C5C6D6E9 | | | 1758 |
| 1270 | C540D9E4D5D5C9D5 | | | 1758 |
| 1278 | C740C4C9E2E2 | | | 1758 |
| 127E | 40C4C9C1C7D5D6E2 | 128A 1759 | XH1 | DC CL13' DIAGNOSTICS-' |
| 1286 | E3C9C3E260 | | | 1759 |
| 128B | E7D9E6C7E9C1D440 | 1295 1760 | IDLOST | DC CL11'PROGRAM XXI' ---- \| MUST BE TOGETHER |
| 1293 | E7E7E7 | | | 1760 |
| 1296 | 40D5D6E340C6D6E4 | 12A8 1761 | NCTFND | DC CL19' NCT FOUND ON DISK * ---- \| |
| 129E | E5C440E6E540C4C9 | | | 1761 |
| 12A6 | E2D240 | | | 1761 |
| 12A9 | F1F2F3F4F5F6F7F8 | 12A9 1762 | OPPTAB | EQU * TABLE FOR CPU OPTIONS |
| 12B1 | DB | 12B1 1763 | EC | CL19'12345678Q' Q SIGNALS END |
| 12B2 | 00 | | | 1763 |
| 12B3 | F1F4F3 | 12B2 1764 | OPBUF | DC XI1'00' |
| 12E6 | C6C3F0 | 12B5 1765 | HICIDR | DC CI03'1:3' |
| 12B9 | C1C3E3 | 12B8 1766 | HICDAT | DC CI03'FC0' |
| 12BC | C6C4F6 | 12B9 1767 | ACTKON | DC CI03'ACT' |
| | | 12BE 1768 | ED6KON | DC CL03'FD6' |
| | | | | 1769 |
| | | 1770 | | ***** |
| | | 1771 | * | SUBROUTINE TO PRINT ----- |
| | | 1772 | | ***** |
| | | 1773 | | |
| 12BF | 34 08 12E3 | 1774 | PTX | ST PTX2+3,ARB |
| 12C3 | 3C 02 12E4 | 1775 | | MVI CNT,2 |
| 12C7 | 3C 60 08BC | 1776 | XZ1 | MVI X'880'+60,C'-' |
| 12CB | 0C 3A 08BB 08BC | 1777 | | MVC X'880'+59(59),X'880'+60 |

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

| ERR LOC OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|----------------------|-----------|--------|-----------------------|
| 13C4 51 | 13C4 1873 | DC | XL1'51' |
| 13C5 F2 01 09 | 1874 | JNE | HSHALT |
| 13C8 0C 4B 07D8 18D3 | 1875 | BVC | FRINA+75(76),PHALT+75 |
| 13CE F2 87 03 | 1876 | J | SAVE1 |
| 13D1 F0 3B 3B | 1877 | HSHALT | HPL HH,HH |
| 13D4 C2 01 0000 | 1878 | SAVE1 | LA *-*,XR1 |
| | 13D8 1879 | LVHCB | ECU * |
| 13D8 C0 87 0212 | 1880 | B | TEST |
| 13DC C0 87 0000 | 1881 | LEXT | B *-* |
| | 1882 | | |
| | 1883 | USING | DAISWS-1,XR2 |
| 13E0 B0 00 01 | 1884 | ISTINS | SNS DAISWS(,XR2),0 |

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

| ERR LOC OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------------------|------|------|----------------------------------|
| | | | 1442 DEVICE CODE |
| | | | GO HALT IF NO ALT. FOUND |
| | | | OVERLAY ALT. CODE WITH 1442 CODE |
| | | | EXIT THIS ROUTINE |
| | | | HALT TO INDICATE NO ALT. FOUND |
| | | | RESTORE XR1 |

| | | | | | |
|--------|---------|---------|---------|---------|---------|
| DATE | 29AUG75 | 07NOV75 | 19MAR76 | 03JUN76 | 11FEB77 |
| EC NO. | 827804 | 827805 | 827872 | 571871 | 387010 |

| | | | | | | | |
|---------|-------|--------|---------|---------|---------|---------|---------|
| PROG ID | FFF-4 | DATE | 29AUG75 | 07NOV75 | 19MAR76 | 03JUN76 | 11FEB77 |
| PAGE | 19 | EC NO. | 827804 | 827805 | 827872 | 571871 | 387010 |

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
1887 *****
1888 * 5424 ALTERNATE CCDE *
1889 *****
FD5A 1688 1890 ORG X'FFFF'-X'1688'+* IF FLAGGED, OVER LAY PROBLEM
1891 CRG X'1688'

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
1897 71 50 4A 1955 LIC FUNNUM(XR1),X'50' LOAD PUNCH COUNT REGISTER (128-N)
189A D1 50 00 1956 FUNERR TIO PHALT(XR1),X'50' TEST FOR NOT READY OR ERROR
189D F3 54 00 1957 SIC X'00',X'54' PUNCH ONLY

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MCDL 12

| ERR LOC OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------------------|-----------|------------------------|---|
| | 2097 | | *THIS FIXES DUAL PROGRAM FEATURE PROC CHECK PRCELEM, BY DISABLING |
| | 2098 | | *DPF & RETURNING DCP CONTROL TO PROGRAM LEVEL 1. |
| 7E9F 35 20 7EBA | 7E9F 2099 | DPFIX EQU * | DUAL PRCG. LVL CHANGE FIX |
| 7EA3 F1 00 00 | 2100 | I DISDF,FIAR | PCINT PIAR TO DISABLE DPF |
| 7EA6 F3 00 00 | 2101 | APL X'00',X'00' | ADVANCE PRCGRAM LEVEL |
| 7EA9 C2 02 0208 | 2102 | LABEL1 SIO X'00',X'00' | DISABLE DPF FEAT. |
| 7EAD 34 01 029E | 2103 | IA LEASE,XR2 | LOAD XR2 |
| 7EB1 C0 87 0212 | 2104 | ST !CDEN+3,XR1 | SAVE XR1 |
| 7EB5 C0 87 0279 | 2105 | F TEST | |
| 7EB9 7EA6 | 2106 | B RTNFI | RETURN FROM DPF FIX RTN. |
| | 7EBA 2107 | DISDPF DC AL2(LABEL1) | ADDR PIAR TO DISABLE DPF |

| ERR LOC OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------------------|------|--------|---|
| | FEBA | 2109 | ORG X'FFFF'-X'8000' ** IF THIS ORG FLAGGED YOU'RE OVER |
| | | 2110 * | CCFE ECUNARY. |
| | | 2111 | |
| | | 2111 | |
| | | 2111 | |
| | | 2111 | |
| 06CE | | 2112 | ORG PRT7 ORG AT END SO IF NCT ENOUGH CORE, LINKAGE NOT DONE |
| 06CE C0 87 7D00 | | 2113 | B SPC34 INTERCEPT SPACE COMMANDS AND TRY TO SPC 34 |
| | | 2114 | |
| | | 2115 | ***** |
| | | 2116 * | THE FOLLOWING 10 'TREP' CARDS WERE INSERTED TO PROVIDE |
| | | 2117 * | A MEANS OF CHANGING UDT,CPU AND CHAIN IMAGI WHEN |
| | | 2118 * | OPERATING ON A 3741. |
| | | 2119 | ***** |
| | | 2120 | TREP |
| | | 2121 | TREP |
| | | 2122 | TREP |
| | | 2123 | TREP |
| | | 2124 | TREP |
| | | 2125 | TREP |
| | | 2126 | TREP |
| | | 2127 | TREP |
| | | 2128 | TREP |
| | | 2129 | TREP |
| | | 2130 * | TREP |
| | | 2131 | ***** |
| | | 2132 | ***** |
| | | 2133 | TREP |
| | | 2134 | TREP |
| | | 2135 | TREP |
| | | 2136 | TREP |
| | | 2137 | TREP |
| | | 2138 | TREP |
| | | 2139 | TREP |
| | | 2140 | TREP |
| | | 2141 | TREP |
| | | 2142 | TREP |
| | | 2143 | TREP |
| | | 2144 | TREP |
| | | 2145 | TREP |
| | | 2146 | TREP |
| | | 2147 | TREP |
| | | 2148 | TREP |
| | | 2149 | TREP |
| | | 2150 * | |
| 0E86 2151 | | | END PEGIN |

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

CRCSS-REFERENCE

CRCSS-REFERENCE

Table with columns: SYMBOL, T, LEN, VALUE, DEFN, REFERENCES. Contains diagnostic symbols and their cross-references.

Table with columns: SYMBOL, T, LEN, VALUE, DEFN, REFERENCES. Contains diagnostic symbols and their cross-references.

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

CROSS-REFERENCE

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| RLD2 | A | 003 | 02DD | 0611 | 0608 |
| RLFLGS | A | 001 | 02CB | 0603 | 0593* 0596* |
| RLINK | A | 004 | 052A | 0889 | 1129 |
| RLOAD | A | 004 | 026A | 0571 | 0904 |
| RNUM | A | 001 | 0A03 | 1195 | 0860* 0861 0869* 0895 0909* 0910 1014 1238 1239 1241* |
| RPACK | A | 004 | 03B4 | 0721 | 0530 |
| RPFY | A | 004 | 0211 | 0517 | 0872* 0899 0908 0916* 1242* |
| RPGNE | A | 004 | 05DA | 0975 | 1055 |
| RPRINT | A | 004 | 05D2 | 0973 | 0601 |
| RTEST | A | 004 | 043E | 0792 | 0706 0891 1307 |
| RTNPLX | A | 003 | 0279 | 0575 | 2106 |
| RUNEX | A | 004 | 0363 | 0679 | 1028 |
| SADDR | A | 002 | 0185 | 0267 | 0264* |
| SALLY | A | 005 | 0A43 | 0336 | |
| SAVE1 | A | 004 | 13D4 | 1878 | 1857* 1861 1866 1871 1876 |
| SAVREG | A | 004 | 03A0 | 0703 | 0652 1280 |
| SBYTE0 | A | 001 | 0208 | 0511 | 0254 0328 0424* 0597 0599 0607 0783 0893 0902 0917 0985 0987 |
| | | | | | 1096 1098 1101 1103 1229 1288 1291 1697 |
| SBYTE1 | A | 001 | 0209 | 0512 | 0425* 0611 1992 1994* 1997 |
| SBYTE2 | A | 001 | 020A | 0513 | |
| SBYTE3 | A | 001 | 020B | 0514 | |
| SBYTE4 | A | 001 | 020C | 0515 | |
| SBYTE5 | A | 001 | 020D | 0516 | 0262 0262* 0613 0613* 1023 1023* 1025* 1624* |
| SEARCH | A | 004 | 1095 | 1641 | 1611 |
| SETSSW | A | 004 | 040D | 0774 | 0269 0855 |
| SETSI0 | A | 001 | 043D | 0789 | 0776* |
| SET0 | A | 001 | 0403 | 0766 | 0770 0775 |
| SID | A | 001 | 1301 | 1797 | 1794* |
| SIOI | C | 001 | 0018 | 1360 | |
| SIZE | A | 002 | 0203 | 0505 | 0346 1435 1439 1446 1450 |
| SMOD | A | 001 | 0200 | 0503 | 0336* 1433 1589 1851 |
| SNUM | A | 002 | 05D0 | 0971 | 1022* 1031 1034* 1035 |
| SPAPRT | A | 002 | 06DA | 1058 | |
| SPBFHG | A | 002 | 0657 | 1017 | |
| SFC34 | A | 001 | 7D00 | 1991 | 2113 |
| SPFLGS | C | 001 | 0A02 | 1357 | 1203 |
| SPT | C | 001 | 0A00 | 1355 | |
| SPUDT | C | 001 | 0A0A | 1359 | 1205 |
| SRC | A | 002 | 7DA6 | 2059 | 2029* 2030* 2039* 2040* 2061 2075 2080* |
| SRCE | A | 002 | 0138 | 0236 | 0233* |
| SRC1 | A | 002 | 7DEE | 2065 | 2061* 2062* 2067 |
| SRC2 | A | 002 | 7DD0 | 2071 | 2067* 2068* |
| SRFLAG | A | 001 | 10FE | 1678 | 1613 1644* 1668* 1670 1682 |
| SRX | A | 004 | 10F9 | 1672 | 1641* 1695 |
| SR1 | A | 004 | 03B0 | 0707 | 0703* |
| SR2 | A | 004 | 03FE | 0744 | 0705* |
| SSDEST | A | 002 | 067F | 1032 | 1027* 1039 |
| SSW | A | 001 | 05CC | 0969 | 0260 |
| SSWD | A | 003 | 0BF7 | 0471 | 0422 |
| SSW0A | C | 001 | 0020 | 1375 | |
| SSW0B | C | 001 | 0010 | 1376 | |
| SSW0C | C | 001 | 0008 | 1377 | |
| SSW0D | C | 001 | 0004 | 1378 | |
| SSW0E | C | 001 | 0002 | 1379 | |
| SSW0F | C | 001 | 0001 | 1380 | |
| SSW00 | C | 001 | 0080 | 1365 | 0599 0902 |
| SSW01 | C | 001 | 0040 | 1366 | 0597 0853 |
| SSW02 | C | 001 | 0020 | 1367 | 0917 |
| SSW03 | C | 001 | 0010 | 1368 | 0985 1096 |
| SSW04 | C | 001 | 0008 | 1369 | 0987 1098 1288 |
| SSW05 | C | 001 | 0004 | 1370 | 1101 1103 |
| SSW06 | C | 001 | 0002 | 1371 | 1291 |
| SSW07 | C | 001 | 0001 | 1372 | 0254 0328 0607 1229 1697 |
| SSW08 | C | 001 | 0080 | 1373 | |
| SSW09 | C | 001 | 0040 | 1374 | 0611 |
| SSW2F | C | 001 | 0001 | 1381 | 1624 |

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| STATUS | A | 004 | 005F | 0478 | 0113* 0114 |
| STEP | A | 004 | 031A | 0633 | 0629 |
| S1 | A | 004 | 00C2 | 0140 | 0138* 0139 0142* 0143 0146 |
| S2 | A | 004 | 00C6 | 0141 | 0139* |
| TBASE | A | 001 | 0403 | 0765 | |
| TEMP | A | 001 | 0362 | 0663 | 0727* 0728 0730* 0731 |
| TEMPA | A | 001 | 1135 | 1721 | 1439* 1443* |
| TEMP1 | A | 001 | 0380 | 0689 | 0682* 0684* 0685 0687* |
| TEST | A | 004 | 0212 | 0522 | 0610 0618 0631 1C93 1243 1712 1880 2105 |
| TESTE | A | 004 | 0467 | 0805 | 0795* 0841* 0874* |
| TEST1 | A | 001 | 046C | 0807 | 0799 0801 |
| TEST11 | A | 003 | 04F2 | 0857 | 0847 |
| TEST12 | A | 005 | 04F1 | 0861 | 0871 |
| TEST13 | A | 003 | 04F9 | 0863 | |
| TEST14 | A | 004 | 04FF | 0865 | 0862 |
| TEST16 | A | 005 | 0518 | 0872 | 0866 |
| TEST2 | A | 003 | 0472 | 0812 | 0838 0842 0853 0856 0864 0876 |
| TEST3 | A | 003 | 047E | 0817 | 0813 |
| TEST5A | A | 004 | 049F | 0831 | |
| TEST6 | A | 004 | 04A3 | 0833 | |
| TEST6A | A | 001 | 04B0 | 0837 | 0835 |
| TEST7 | A | 003 | 04B3 | 0839 | 0824 1734 |
| TEST7A | A | 001 | 04C1 | 0843 | 0840 |
| TEST8 | A | 003 | 04D0 | 0849 | 0845 |
| TEST9 | A | 001 | 04EC | 0854 | 0850 |
| TEXTI | A | 004 | 045F | 0803 | 0794* 0797 0858 |
| TEXTI1 | A | 004 | 0463 | 0804 | 0792* |
| THLT | A | 003 | 0481 | 0818 | 0809* 0810 0812 0814* 0815 0817* |
| THREE | A | 001 | 02E4 | 0614 | 0633 |
| THSG | A | 018 | 05A1 | 0964 | 0605 |
| TOMU | A | 003 | 00F9 | 0163 | |
| TOMUCH | A | 001 | 0101 | 0165 | 0163 |
| TOPE | A | 001 | 040E | 0771 | 0869 |
| TRYCPU | A | 004 | 132B | 1828 | 1825 |
| TRYFDD | A | 004 | 7800 | 1982 | 0796 |
| TRYFD6 | A | 006 | 10DA | 1664 | |
| TRYOUT | A | 001 | 10F1 | 1669 | 1665 |
| TRY64 | A | 004 | 0EC3 | 1446 | 1436 |
| TR1 | A | 001 | 0531 | 1312 | 0522 |
| TR1442 | A | 004 | 13C0 | 1872 | 1869 |
| TR2 | A | 002 | 0783 | 1313 | 0523 |
| TR3 | A | 001 | 02CA | 1314 | 0524 |
| TR3741 | A | 004 | 13AF | 1867 | 1864 |
| TR4 | A | 001 | 067A | 1315 | 0525 |
| TR5 | A | 002 | 0785 | 1316 | 0526 |
| TR5424 | A | 004 | 139E | 1862 | 1860 |
| TR5 | A | 002 | 0231 | 1317 | 0527 |
| TR7 | A | 001 | 0556 | 1318 | 0528 |
| TSTCRD | A | 001 | 0489 | 0821 | 1734 1846* |
| TSTDSK | A | 001 | 045E | 0802 | 1845* |
| TSTFD6 | A | 004 | 108E | 1631 | |
| TSTINS | A | 003 | 13E0 | 1884 | 1841 |
| TSTOVL | A | 003 | 0450 | 0797 | 1841* 1982 |
| TSTUET | A | 001 | 133D | 1833 | 1829 |
| TST07 | A | 001 | 1037 | 1588 | 1563 1567 1571 |
| TWO | A | 002 | 033B | 0649 | 0581 0740 1092 1283 |
| TWOK | A | 002 | 1138 | 1723 | |
| T3 | A | 001 | 047D | 0816 | |
| UADDR | A | 002 | 0F6D | 1505 | 1502* |
| UDTA | A | 005 | 0AE5 | 0290 | 0386 |
| UDTB | A | 003 | 0B1F | 0407 | 0404 |
| UDTC | A | 003 | 0B2A | 0410 | 0408 |
| UDTD | A | 006 | 0B45 | 0416 | 0413 |
| UDTLP | A | 003 | 0F5D | 1500 | 1546 |
| UDTLP1 | A | 006 | 0F81 | 1511 | 1525 |
| UDT1 | C | 001 | 0249 | 0480 | |

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

CROSS-REFERENCE

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| UDT2 | C | 001 | 0261 | 0481 | |
| UFIND1 | A | 004 | 0912 | 1206 | 1214 |
| UFIND2 | A | 004 | 0916 | 1207 | 1218 |
| UFIND3 | A | 003 | 0928 | 1212 | 1222 |
| UFIND4 | A | 003 | 0935 | 1216 | 1208 |
| ULP1 | A | 004 | 0AC1 | 0378 | 0406 |
| ULP2 | A | 003 | 0AD2 | 0384 | 0393 |
| ULP3 | A | 005 | 0B33 | 0412 | 0415 |
| ULP4 | A | 003 | 0B08 | 04C0 | 0420 |
| UNPACK | A | 004 | 021E | 0525 | 0284 1004 1008 1012 1503 2057 2063 2069 2073 |
| UNPK1 | A | 003 | 036E | 0681 | 0700 |
| UNPK2 | A | 004 | 036E | 0682 | 0696 |
| UNPK3 | A | 004 | 037F | 0688 | 0686 |
| UNPK4 | A | 003 | 0393 | 0697 | 0694 |
| UOK | A | 004 | 0A2A | 0327 | 0322 0324 |
| UPTR | A | 002 | 0ACE | 0381 | 0378* |
| USET1 | A | 003 | 0B51 | 0418 | 0416* |
| USET2 | A | 003 | 0B54 | 0419 | 0417* |
| UTAB | A | 001 | 0232 | 0534 | 0321 0323 0375* 0376 0376* 0383 0451 1206 1498 1569 1591 1593 1658 1795 1834 1842 |
| VTAD | C | 001 | 0C04 | 1675 | 1666 |
| VTID | A | 003 | 113E | 1724 | 1662* 1664 |
| VT33 | C | 001 | 000E | 1676 | 1667 |
| VXR1 | A | 004 | 0436 | 0787 | 0774* |
| WASPOP | A | 001 | 0F3D | 1484 | 1477 |
| XC7 | A | 001 | 1155 | 1732 | 1520 |
| XPRLIN | A | 002 | 17CE | 1941 | 1925* 1926 1928 |
| XFRSNS | A | 003 | 1797 | 1925 | 1929 |
| XF1 | A | 001 | 0A96 | 0362 | 0350 |
| XM | A | 004 | 1022 | 1573 | |
| XM1 | A | 013 | 128A | 1759 | 1577 |
| XONE | A | 001 | 067B | 1030 | 1034 |
| XREF1 | A | 004 | 02ED | 0617 | 1339 1713 |
| XREF2 | A | 001 | 1318 | 1821 | 1338 |
| XREF3 | A | 001 | 0E86 | 1418 | 1337 |
| XREF4 | A | 001 | 040D | 0773 | 1336 |
| XREF5 | A | 002 | 040C | 0772 | 1335 |
| XR1 | C | 001 | 0001 | 1351 | 0021 0022* 0023 0024 0026 0027 0031 0052 0055 0055* 0063 0064 0064* 0106* 0124 0126 0128 0130 0131 0131* 0132 0135* 0140 0140 0141 0141 0145 0145 0147* 0151 0154 0155 0156 0156* 0164 0178* 0179 0218* 0219 0228 0230* 0231 0232 0232* 0233 0239 0241 0241* 0242 0244 0244* 0252 0260 0263 0263* 0264 027C 0271 0271* 0274 0277 0288 0290 0292 0319 0334 0336 0337 0339 0339 0340 0342 0350 0351 0356 0356* 0357 0360* 0363 0371 0373 0377 0377* 0378 0397 0397* 0398 0400 0400* 0401 0403 0405 0405* 0407 0409 041C 0412 0422 0429 0434 0436 0445 0458* 0459 0575* 0578 0579 0582 0586* 0590 0594 0615 0619* 0621 0624 0625 0627 0634* 0635 0637 0654* 0655 0656 0656 0657 0658 0659 0681 0682 0684 0685 0687 0687 0691 0691 0692 0695 0696 0697 0698 0698 0700 0701 0704 0723 0725 0726 0727 0728 0730 0730 0731 0734 0735 0737 0738 0739 0739 0740 0740 0742 0743* 0770 0774 0775* 0776 0777 0777 0779 0780 0780 0781 0781 0782 0782 0783* 0785 0787* 0790 0794 0803* 0827* 0829 0829 0830 0831* 0833 0834 0836 0859* 0860 0861 0865 0867 0870 0870* 0872 0873 0873* 0874 0875 0889 0908* 0910 0916 0918 0921 0921* 0922 0923* 0975 0977* 0980 0982 0989 0993 0995 1000 1002 1002* 1003 1021* 1026 1026* 1027 1033 1037 1045 1048 1050 1063* 1064 1065 1068 1074* 1090* 1091 1126* 1133* 1157* 1158 1163 1164 1164* 1198 1206* 1207 1209 1210 1216 1217 1217* 1240* 1241 1242 1244 1282* 1284 1286 1294 1295 1296 1297 1461* 1464 1468 1468* 1469 1498* 1500 1502 1513 1514 1544 1545 1545* 1569* 1570 1606* 1607 1647* 1651 1653 1655 1662 1666 1667 1791 1792* 1794 1795* 1796 1799 1800 1800* 1802* 1857 1878* 1893 1901 1903 1904 1909 1910 1919 1922 1925 1926 1927 1928 1929 1932 1934 1937 1949 1955 1956 1958 1962 1963 1968 1969 1970 2104 C053 0054* 0058 0059 0061 0062 0065 0065 0066 0104 0105* 0108 0109 0110 0112 0113 0114 0117 0132 0133 0134 0136* 0137 0138 |

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| | | | | | 0139 0139 0142 0142 0143 0144 0146 0146 0147 0147 0149 0154 |
| | | | | | 0155 0157 0230 0233 0238 0238 0240 0243 0245 0255 0258 0275 |
| | | | | | 0283 0299 0329 0332 0364 0367 0383* 0384 0384* 0385 0390 0392 |
| | | | | | 0394 0395 0396 0418 0419 0440 0468 0567 0571 0572* 0573 0575 |
| | | | | | 0576 0581 0587* 0593 0596 0597 0599 0607 0610 0611 0613 0613 |
| | | | | | 0617* 0618 0624 0628 0631 0632 0633 0633 0634 0635 0653* 0657 |
| | | | | | 0658 0659 0660 0660* 0682 0697* 0705 0727 0734* 0744* 0791 0792 |
| | | | | | 0793* 0794 0795 0798 0800 0804* 0809 0812 0814 0817 0820 0822 |
| | | | | | 0823 0830 0833 0838 0839 0841 0842 0844 0846 0848 0849 0853 |
| | | | | | 0855 0856 0857 0858 0864 0865 0869 0871 0874 0876 0877 0963 |
| | | | | | 0973 0974* 0980 0981 0984 0989 0990 1003 1018 1022 1027 1034 |
| | | | | | 1034 1035 1036 1039 1049 1055 1055 1064* 1067 1067* 1070 1070* |
| | | | | | 1071 1071* 1072 1075* 1086 1087* 1088 1090 1091 1092 1116 1117 |
| | | | | | 1118 1119 1120 1121 1123 1124 1125* 1140 1144 1145 1147 1148 |
| | | | | | 1150 1151 1156 1160 1161 1162 1165 1166 1167 1205* 1207 1209 |
| | | | | | 1210 1211 1212 1213 1213* 1219 1238 1239* 1240 1241 1273 1281* |
| | | | | | 1294 1295 1296 1297 1301 1301 1302 1302 1304 1304 1305 1305 |
| | | | | | 1460* 1464 1465 1465* 1507* 1508 1516 1517 1518 1520 1521 1521* |
| | | | | | 1529 1535 1714 1883 1884 1892 1895 1896 1897 1898 1899 1905 |
| | | | | | 1907 1908 1912 1918 1921 1923 1924 1935 1936 1939 1948 1951 |
| | | | | | 1952 1953 1954 1959 1960 1961 1971 2103* |
| YTCHKI | A | 003 | 1300 | 1796 | 1801 |
| XZ1 | A | 004 | 12C7 | 1776 | 1781 |
| X0000 | A | 002 | 1163 | 1740 | |
| X04 | A | 001 | 1136 | 1722 | 1442 |
| X100 | A | 002 | 1152 | 1731 | |
| X200 | A | 001 | 0200 | 0214 | 0209 |
| X39 | A | 001 | 0389 | 0693 | 0687 |
| X87F | A | 001 | 087F | 1197 | 1198 |
| ZCNE | A | 001 | 0719 | 1089 | 1145 1165 |
| ZEO | A | 006 | 0112 | 0205 | 0206* 0207 0208 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

OBJECT CARD LISTING

OBJECT CARD LISTING

| CL 1 THROUGH 16 | CL 17 THROUGH 32 | CL 33 THROUGH 48 | CL 49 THROUGH 64 | CL 65 THROUGH 80 | CL 81 THROUGH 96 | CL 1 THROUGH 16 | CL 17 THROUGH 32 | CL 33 THROUGH 48 | CL 49 THROUGH 64 | CL 65 THROUGH 80 | CL 81 THROUGH 96 | |
|-------------------|--------------------|-------------------|--------------------|---------------------|-------------------|--------------------|-------------------|----------------------|---------------------|-------------------|------------------|--------------------|
| T+/-5 | | | | | | */EFFF40049 | T+/G:0*.L1MA.K4 | .E (LU8) (OXN 0'S | R6*PC84A-9*PR2*\$ | YQDA EDA EDA EDA | EDA EDA EDA EDA | ED 8LDFPP40071 |
| T E/7 | | | | | | EJ<FFF40050 | T+/H5EDA EDA EDA | EDA EDA EDA EDA | 1<\|PE<XSG (\|CO*L | E1DA EDA EDA EDA | ELA EDA EDA EDA | -QF RK7FFF40072 |
| T+-U:8 00 AQI;TS | B-.2DC#E -YH0-E | B<W4 C2 JS* H | BW <A \$Y- \$-E ;H | E @BEBJ.2/1) 8L G | K &< EC&FFF40051 | T+/10QFA-QFA-QFA | -QFA-QFA-QFA-QFA | -QFA-QFCD9 (LP6+ | A52N 1) XR5_V 8> | A824S8@XC8UCP1*\$ | O6*M 2SYFFF40073 | |
| T+-V50I IE,V -H | E " # @BGBKT /OH | EJ08E,"@ +EDBECU | H -72U \|0+3"E -Y | C_EDDX AOC /D | COH* *-FFF40052 | T+/H,E (XU5) PI5*) | 1<XS4UCD2*GG5)\$ | S8@XC8WCP6)\$G6*G | H6+-X94CN5> (1_\$ | U5+J 5_N 1<XS4UC | 1@?< *3@FFF40074 | |
| T+-W0 /.E/0E | F@C)V*\$PP4G-5@ | " :013-C04B E80H* | CY<HBBQ 5 E&PC-D | D -<*-E A@YH6-*@ | A@Y6 5\$4FFF40053 | T+/.W* P6*"TQ G | 4@2\$C@<GC8@SD*TE | HD><@ / O F H? 0 | :B.XE7<BG /Y/CO | K9 +R0 DK1@BG | (- PCHFFF40075 | |
| T+-X,DL-H -T2UC? | 2/0*8 -HH@/ 1W I | / I-CR&BQ W0AW (| 0 L7"E- 90 YA@ZQ | , AX H@ E CO B | % GH @RHFFF40054 | T+</D1*4 J<L (8D | LE0BAD1*CWJO D0D | 0-DE<Y4 \|HABX- | E)HA @E&DOCB E | OH* C&HD*@'P S | @YD 13-FFF40076 | |
| TCOX# H0 *OC0 C | /0E=0H*C'0 | | | | | H/@FFF40055 | T+/(#BC7EBHC J | Q16 B < AD370+6" | 0\$7\$ /11Q16 E<X&E | AD3 A1 Q H*LJ-0 | A 2YA"EOA 3DA"CO | BAEH =-\$4FFF40077 |
| TDJ" C /0:F | EC &(CYQIF | | | | | 8JHFFF40056 | T+/*PD=H8- H3@/ | RC HB=/E\$\| DP-0 | BAHUJC @C -@A"EH | GA-@E -@A"37E -C | 2 E 2/4U4 J POH* | K9J LEQFFF40078 |
| T+-# CA DAD'OH* | LF<BG /YJC J;&H | \| C(T4A -G2-/4 | < AD5 -D@D <6C- | C(/D6C0 J (&R0 D | +X\|H J:DFFF40057 | T+\|K@-DC@Y*60H* | K9-C2 EU<+0-HEX\| | 2/2P /1.V@\|HAB&1 | BA@E27HGE<EGD>N | J@-DICD@G6ATL2Y* | C@C% ;/4FFF40079 | |
| T+-##/1E"OHBA-D | G\|A C(?HGA--B 3Q | B -E-DQ-JF0QJDQ- | JQ @ 3QCW* AC_4 | <C1F_DE8< AH2 -E | @/O@ RQ0FFF40058 | TC1\|S+@HA C /OH | KOH* . E | | | | .8FFF40080 | |
| T+-@G@H@BDR#E JH | ZC- KX/H20B \|FZO | CS -H@A0@Y4-D | A-) - @YDDOH*\|A-H | B@BG /YE+1E_@Y* | H0H* O/MFFF40059 | T+/\$B@C_-8H*L?;A |)8HEVX (>A "a/ | I4--@"- 4-DS4-- | X-JB@20X (>D | "4A X4-- CB@H"0U | 8H* *.<FFF40081 | |
| T+-'1 /YAE1FIOH* | BF-D3DU" /OH E L< | J8*BG /YA<1I\|0-D | B<T0AD0E' C2-Q8 | 4 E'_OH*BG-D S | CO-H "R*FFF40060 | T A\$CBE | | | | | | -\$HFFF40082 |
| T+-=XBHK@Q < JE |) 9U@ AE;C \|T/E | *C \|UJE);E A;E | B@/ OT ADN::@ F | '=-G2--O+ DJN;H | B E8 *I4FFF40061 | T+/-B@C_-8H*L*ND | =?;A)8HEV*D (; E | "4I ; D"4I \|@4< | H<H&GNPEB? (B (E | BH#AB& UH\|'E@ \| ( | CB+ 38HFFF40083 | |
| T+-"X JE) DN4+ AE | ; 9U'CAE;OHH\|L4 | ADCG2 E2<A&UJ E30 | BDOG2/1' /E/@-D | IT QHDPH@ AE/CAU | J=0- LIMFFF40062 | TA1-H/6N G@ | | | | | | QK FFF40084 |
| T+/ SW@BG /YAF/G | #;A A4-DCOI \|P*E | G /YJ0H*EF-M/D/3 | /1.V*\|HAI@BGD>C | -@-D-0-DE<X6- \|H | AE* 'HE'FFF40063 | T+/TE@C_-8H*L?;A |)8HEVXNJ@NAH4N | 25E 4NHQXE (>LB | >E' 4I K--'.@YD | O\|D H200-B<YH200 | >BH' 120FFF40085 | |
| I+/A)/1H"OH*BF-D | @DY, /1H"OH*BF/E | '10H 0 DJH35 T. | 2-K88- H30I JH@H | A TI'Y C2 E&@YAC | '0H* =-0FFF40064 | TDATE\|Z@"47E/1I | @ D7-/6H < | | | | | @JQFFF40086 |
| T+/BQDIM8HAC=@Z | -\|E E"-HAA-CADBE | JH OAG"HE/TYA -7 | /OHDB ("ODH*<D | E DI4@D G'OH*JH3E | HD\|O K3DFFF40065 | T 7-COH*DM | | | | | | 424FFF40087 |
| T+/CL\|A-E-T0 G=8 | @ AC=OH*EH-.B E&S | OH*BH/A'"OC -JC | "-E OHDE"44E /H | #0 DE"37A T.2-E&E | @A1 QSDFFF40066 | T+X4:+ EBB-H&BCX | D -X /75P+ DDEI- | FA*#2UA-2CEP+CC | E3X700HBF7@EGA1G | -@BG-J8\| P+--C | --Q RR<FFF40088 | |
| T+/D+6J0BDLXFC&H | J+1H=@-D+G D6/ E | *AAEHCTY-D\|88HAC | =OI E,XBG C" C- | -D\|@2D 8< /HND,# | /OH 4H0FFF40067 | T+X557@BGA1G- *B | G-L. /OHED*BG /E | AHG8VCG<H'G;:OH* | BFDD@C76W\| A'ZL | --0 G76CEP'Y7 | 8@YD 82 FFF40089 | |
| T+/EIF-H;DDT /OH | EE" #S"A?F@BGE\|U | 8 EHH@/ C@C'OH* | BDXBG >4 A - | | OADFFF40068 | T+X60E 0A-ER''TO | \|E-Q< P78--Q+ G7 | #--.2HAC /OHED&1 | 3B\|J=X@BG /D/OH* | BG SRC E'>76 | WC-D PQ FFF40090 | |
| T+/FD AE DMJK-D | TG@Y*2@Y*3 | @ E A8(100*L | E6)-E2)PT1)X85X1 | E44CXK4A 8>\|06+G | G1H "8EFFF40069 | T+X7,-\$ _@XBG /8 | E H3-0A-)A'>08 | A-)A'@XBG /8E | H'XBG /8B-EQH/C3 | OEHL /OH EY-8A-ER | '< 4K0FFF40091 | |
| T+/F"6+-X9'I EDC | C5=J 5_-I2) \$N8UC | A6*N 6+) EDA EDA | EDA EDA EDA 9(P | I84CD1*\$I5*XTI2)\$ | N6+< =D4FFF40070 | T+X8W/75D D D | 0 | O@T A5*-EE+.W2; C2DC | 1E<GN1DC2E<\$06HC | N1;R 1+LM54CA1<L | R&D 3H0FFF40092 | |

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF4 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

OBJECT CARD LISTING

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|-------------------|-------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------------------|------------------|
| T+X9/8DA 6<GD1(V | 8 C06DC0@UA @ J | 8 C68DC0=DA @<E | 8 CC&DC01MA 8DA | 8DA 8DC0@DA @ I | 8 5CUFFF40093 | * 04-BYPASS NCN- | ERROR PRINT. | * F 2 X | X - GO TO RCUTI | NE XX. | * FFF40115 |
| T+X: *DA @\|R 8\|C | 8&DC00MA @<\| 8\|C | 8&DA 8DA 8DA 8\|C | 0&DC0@UA @\|J 8\|C | 6&DC0=DA @<E 8\|C | C&D 8Y0FFF40094 | * 05-PRINT ON AL | TERNATE DEVICE. | * | | | * FFF40116 |
| TGP::@<M5HG::@6 | @0 0-HEFC&A Z# | /CHKOH*B;P:W | | | @2 FFF40095 | * 06-BYPASS ERRO | R HALTS. | * E E X | X - TERMINATE S | ECTION. | * FFF40117 |
| T 0&J0H) | | | | | -YHFFF40096 | * 07-LOAD AND GO | | * | | | * FFF40118 |
| TB&4I0'-UE (XEO'S | F1 | | | | 4- FF FFF40097 | * 08-NOT USED. | | * D X X | X - DISK-RUN SE | CTION XXX. | * FFF40119 |
| TB&4I9<L16 (XEC'S | F1 | | | | =QQFF FFF40098 | * 09-LEAVE SECT. | SWITCHES ON. | * D X X | 0 - DISK-RUN DE | VICE XI SECTIONS | * FFF40120 |
| TE&4ZQ0GC2<GI5MC | X9=) QDCC5=\|I5_P | A40 | | | "HXFF FFF40099 | * 0D-SPEC. PUEPO | SE STORAGE LUMP. | * | | | * FFF40121 |
| TG&5G2) LA1@N 0@G | R1DC16<XN6<TE94A | -8(\$P8@XC5*GL | | | @/YFF FFF40100 | * 0F-SPACE 36 TI | MES INSTEAD OF 6 | * | | | * FFF40122 |
| TG&5V2) LA1@N 0@G | R1DC26<XN6<TE94A | -8(\$P8@X05*GL | | | H/%FF FFF40101 | ***** | ***** | ***** | ***** | ***** | * FFF40123 |
| TG&6C2) LA1@N 0@G | R1DC36<XN6<TE94A | -8(\$P8@XC5*GL | | | */%FF FFF40102 | ECYR*E7*=-DC"EH\$ | = "7M&F ! C | FR ASC H A SO Q | | 03370630750 21277NRQFFF40124 | |
| TG&6/2) LA1@N 0@G | R1DC46<XN6<TE94A | -8(\$P8@X05*GL | | | 0/YFF FFF40103 | | | | | | |
| TG-7 2) LA1@N 0@G | R1DC56<XN6<TE94A | -8(\$P8@XC5*GL& | | | ;/6FF FFF40104 | | | | | | |
| TG&7;5<XSO4CR1* | 06*J 1_\$R& (-A8@ | H1:I,6<PT04A | | | 6:YFF FFF40105 | | | | | | |
| TF07:5<XSO4CR1* | C6*J 1_\$R& (-A8@ | H1:I,6<PT00 | | | 8 HFF FFF40106 | | | | | | |
| * | DIAGNOSTIC CCN | TROL PROGRAM | | | * FFF40107 | | | | | | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| * | COMMON S | ENSE SWITCHES | * | DATA SWITCH ENTR | Y | * FFF40109 | | | | | |
| * | | | | | | * FFF40110 | | | | | |
| * 00-LOOP ON SEC | TION. | * 1 2 3 4 | | | | * FFF40111 | | | | | |
| * 01-LOOP ON ROU | TINE. | * ** ** ** * | ** | | | * FFF40112 | | | | | |
| * 02-SKIP INTERV | ENTION ROUTINES. | * F 0 X | X - TURN OFF SE | NSE SWITCH XX. | | * FFF40113 | | | | | |
| * 03-BYPASS ERRO | R PRINT. | * F 1 X | X - TURN ON SEN | SE SWITCH XX. | | * FFF40114 | | | | | |

LAST PAGE

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

LAST CHG :03:25:77

```

2 *
3 DECK 4
4 SEQ 0
0000 5 STARTX START 0
6 TREP
0A00 7 ORG X'0A00'
0A00 8 EDIT EQU *
0A03 9 RNUM EQU **3
10 *****
11 * SECTION PREFACE *
12 *
0A0C DD63 0A01 13 DC XL2'DD63'
0A02 00 0A02 14 DC XL1'00' SECTION FLAGS
0A03 01 0A03 15 ONE DC XL1'01' ROUTINE NO.
0A04 0000 0A05 16 DC XL2'00' RESERVED
0A06 0B99 0A07 17 DC AL2(EDITA) ADDRESS OF FIRST ROUTINE PREFIX
0A08 0000 0A09 18 DC AL2(*--*) ADDRESS OF ERROR RECORDING TABLE
0A0A C14000 0A0C 19 DC XL3'C14000'
0A0D E00000 0A0F 20 X5203 DC XL3'E00000'
0A10 E11000 0A12 21 X1403 DC XL3'E11000'
22 *
23 *****
24
0A13 0A14 25 STATE DS XL2
0A15 26 SAVIDB EQU *
0A15 27 PRTEBF EQU SAVIDB
0A15 0A74 28 SAVID DS XL96
29
0A80 30 ORG X'0A80'
0A80 31 READIN EQU *
0B04 32 ORG READIN+132
33
0B04 404040404040 0B09 34 BLNK DC CL6'
0B09 35 DGS2B EQU *-1
0B0A 0B5F 36 DGSNS2 DS XL86
0B60 0B60 37 DGSNSB EQU *
0B77 38 DGSNS1 DS XL24
39 *
40 * SUBROUTINE TO SET DISK DATA FIELD TO X'00'
41 *
0B78 34 08 0B89 42 SETTO ST SETTOR+3,ARR SAVE RETURN ADDRESS
0B7C 3C 00 48FF 43 MVI DDDF+255,0 ZERO OUT DDDF FIELD
0B80 0C FE 48FE 48FF 44 MVC DDDF+254(255),DDDF+255
0B86 C0 87 0000 45 SETTOR B ** RETURN TO CALLER
46
0B8A 34 08 0B98 47 SETO ST SETOR+3,ARR STORE RETURN ADDRESS
0B8E 7C 00 FF 48 MVI 255(,XR1),0 ZERO OUT DDDF
0B91 5C FE FE FF 49 MVC 254(255,XR1),255(,XR1)
0B95 C0 87 0000 50 SETOR B ** RETURN TO CALLER
51
51
51
51 * ROUTINE PREFACE
53
0B99 01 0B99 54 EDITA DC XL1'01' ROUTINE NUMBER
0B9A 00 0B9A 55 DC XL1'00' ROUTINE FLAGS
0B9B FFFF 0B9C 56 MINUS1 DC XL2'FFFF' ADDRESS OF NEXT ROUTINE
57
58 *****
59 *
60 * OPERATING INSTRUCTIONS
61 *
62 * AT THE FIRST HALT, SET THE FOLLOWING SWITCHES,
63 *
64 * 1. SET NO SWITCHES TO RUN ON DRIVE 1.
65 * 2. SET SWITCH 22 TO RUN ON DRIVE 2.

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66 * 3. SET SWITCH 17 TO USE 3741 AS INPUT. *
67 * 4. SET SWITCH 18 TO USE THE 1442 AS INPUT. *
68 * 5. SET SWITCH 1A TO USE THE MFCU AS INPUT. *
69 * 6. 5471 IS THE INPUT DEVICE IF SSW 17, 18, OR 1A IS NOT ON *
70 *
71 *****
72
72
72
73 *****
74 *
75 * S E L E C T DISK DRIVE, AND INPUT DEVICE *
76 *
77 * ETC. *
78 *****
0B9D 79 SETDSK EQU *
80 TBN UTAB+1,X'80' IF NOT RUNNING FROM DISK, SET
81 JT **11 SVPREQ LATCH (ALLOWS USAGE OF 12
82 LIO XREG,X'C5' MBYTE DATA MODULE)
83 LIO SVPREQ,X'C5'
84 TBN SWITCH+3,SSW2F IF SSW 2F IS ON, WE HAVE BEEN
85 JT EDITAA CALLED BY 'FE7' (MLTA
86 * CONFIGURATOR PROGRAM.)
87 B PRINT PRINT 'SELECT SSW OPTIONS'
88 DC XL1'42' FLAGS
89 DC AL1(STRTMS-STRTHB) LENGTH
90 DC AL2(STRTMS) MESSAGE ADDRESS
91 DC XL2'FFF0'
92 B PRINT PRINT 'SELECT INPUT DEVICE'
93 DC XL1'06' FLAGS
94 DC AL1(STRTA-STRTAB) LENGTH
95 DC AL2(STRTA) MESSAGE ADDRESS
96 B HALT TO DCP HALT
97 DC XL2'FFF0' HALT ID
98
98
99 EDITAA B TEST GO READ CONSOLE SWITCHES
100 B SELDRV TO SEL DISK DRIVE RTN
101 SBF ADDFLG,X'FF' TURN OFF ADD MODE SWITCH
102 SBF F3741,X'FF' TURN OFF 3741 FLAGS
103 LA DDDF,XR1
104 TBN SWITCH+1,SSW1B SSW1B IS ON, GO TO $ADD
105 BT GET2
106
106
107 TBN SWITCH+3,SSW2F IF SSW 2F IS ON, GET RECORD FROM FE7
108 JF AA07 OTHERWISE, GO ON AS USUAL
109 MVI NODS+1,X'07' DON'T DO ANY PRINTING ON 5471
110
111 AA07 B PRINT1 GO DISPLAY MESSAGE
112 DC XL1'01'
113 DC AL1(MENU1-MENU1A)
114 DC AL2(MENU1) MSG. SELECT OPTION (CONTROL CARD)
115 B PRINT1 PRINT
116 DC XL1'01' FLAG
117 DC AL1(MENU11-MENU1B) MESSAGE LENGTH
118 DC AL2(MENU11) MESSAGE ADDRESS
119 B PRINT1 PRINT
120 DC XL1'01' FLAG
121 DC AL1(MENU12-MENU1C) MESSAGE LENGTH
122 DC AL2(MENU12) MESSAGE ADDRESS
123 B PRINT1 PRINT
124 DC XL1'01' FLAG
125 DC AL1(MENU13-MENU1D) MESSAGE LENGTH
126 DC AL2(MENU13) MESSAGE ADDRESS
127 B PRINT1 PRINT
128 DC XL1'01' FLAG
129 DC AL1(MENU14-MENU1E) MESSAGE LENGTH

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DD63 3340 CE DISK EDITOR MOD 12

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-------------|------|------|--|
| 0C18 | 328C | 0C19 | 130 | DC AL2(MENU14) MESSAGE ADDRESS |
| 0C1A | C0 87 2A42 | | 131 | B PRINT1 PRINT |
| 0C1E | 01 | 0C1E | 132 | DC XL1'01' FLAG |
| 0C1F | 28 | 0C1F | 133 | DC AL1(MENU15-MENU1F) MESSAGE LENGTH |
| 0C20 | 32B4 | 0C21 | 134 | DC AL2(MENU15) MESSAGE ADDRESS |
| 0C22 | C0 87 2A42 | | 135 | B PRINT1 PRINT |
| 0C26 | 01 | 0C26 | 136 | DC XL1'01' FLAG |
| 0C27 | 28 | 0C27 | 137 | DC AL1(MENU16-MENU1G) MESSAGE LENGTH |
| 0C28 | 32DC | 0C29 | 138 | DC AL2(MENU16) MESSAGE ADDRESS |
| 0C2A | C0 87 2A42 | | 139 | B PRINT1 PRINT |
| 0C2E | 01 | 0C2E | 140 | DC XL1'01' FLAG |
| 0C2F | 28 | 0C2F | 141 | DC AL1(MENU 7-MENU1E) MESSAGE LENGTH |
| 0C30 | 3304 | 0C31 | 142 | DC AL2(MENU17) MESSAGE ADDRESS |
| 0C32 | C0 87 2A42 | | 143 | B PRINT1 PRINT |
| 0C36 | 02 | 0C36 | 144 | DC XL1'02' FLAG |
| 0C37 | 28 | 0C37 | 145 | DC AL1(MENU18-MENU1I) MESSAGE LENGTH |
| 0C38 | 332C | 0C39 | 146 | DC AL2(MENU18) MESSAGE ADDRESS |
| 0C3A | C0 87 2A42 | | 147 | B PRINT1 PRINT MSG |
| 0C3E | 06 | 0C3E | 148 | DC XL1'06' FLAG |
| 0C3F | 14 | 0C3F | 149 | DC AL1(KBRDY-KBRDYB) LENGTH |
| 0C40 | 303C | 0C41 | 150 | DC AL2(KBRDY) ADDRESS |
| 0C42 | C0 87 2749 | | 151 | GET1 B RECORD READ A RECORD |
| 0C46 | AD 5F 5F 60 | | 152 | CLC 95(96, XR2), 96(, XR2); CHECK FOR BLANK RECORD |
| 0C4A | C0 81 0C42 | | 153 | BE GET1 IF BLANK THEN READ NEXT CARD |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|---------------|-----------|-----------------|---------------------------------|
| 155 | | | | ***** |
| 156 | * | | | * |
| 157 | * | CHECK FOR | | \$ /* /& OR C * |
| 158 | * | | | * |
| 159 | * | | | * |
| 160 | * | | | * |
| 161 | | | | ***** |
| 162 | | | | |
| 163 | RTRN | CLI | 0(, XR2), C'S' | DOES COLUMN 1 CONTAIN A \$? |
| 164 | | JE | ADDTST | BRANCH IF YES |
| 165 | | CLI | 0(, XR2), C'/' | DOES COLUMN 1 CONTAIN A SLASH? |
| 166 | | JNE | FLAGS | JUMP IF NO |
| 167 | | CLI | 1(, XR2), C'&' | DOES COLUMN 2 CONTAIN A & ? |
| 168 | | BE | LINKH | IF YES EXIT PROGRAM |
| 169 | | CLI | 1(, XR2), C'*' | DOES COLUMN 2 CONTAIN A * ? |
| 170 | | JE | PAUSE | TO PROGRAM HALT IF YES |
| 0C67 | 171 | FLAGS | EQU * | |
| 172 | | B | PRINT1 | GO DISPLAY MESSAGE |
| 0C6B | 173 | DC | XL1'06' | FLAG |
| 0C6C | 174 | DC | AL1(MCTL-MCTLB) | LENGTH |
| 0C6E | 175 | DC | AL2(MCTL) | MSG. INVALID CONTROL CARD |
| 0C6D | 360A | HVI | PADD, C'0' | RESET 3741 FORCED ADD FLAG |
| 0C6F | 3C F0 2AB6 | TBN | USECRT, X'F0' | IS CRT IN USE, DON'T PRINT/HALT |
| 0C73 | 38 F0 27F5 | | GET1 | GO GET CONTROL CARD AGAIN |
| 0C77 | C0 10 0C42 | BT | PRINT | NO, PRINT ERROR. |
| 0C7B | C0 87 021A | B | PRINT | NO, PRINT ERROR. |
| 0C7F | 46 | 0C7F | 180 | DC XL1'46' |
| 0C80 | 14 | 0C80 | 181 | DC IL1'20' |
| 0C81 | 3188 | 0C82 | 182 | DC AL2(ERRO) |
| 0C83 | PFEO | 0C84 | 183 | DC XL2'PFEO' |
| 0C85 | C0 87 0222 | B | HALT | TO DCP ERROR HALT |
| 0C89 | PFEO | 0C8A | 185 | DC XL2'PFEO' |
| 0C8B | C0 87 0BF2 | B | AA07 | HALT ID |
| 0C8F | 188 | LINKH | EQU * | |
| 0C8F | C0 87 2A42 | B | PRINT1 | GO DISPLAY MESSAGE |
| 0C93 | 06 | 0C93 | 190 | DC XL1'06' |
| 0C94 | 12 | 0C94 | 191 | DC AL1(TERM-TERMB) |
| 0C95 | 3059 | 0C96 | 192 | DC AL2(TERM) |
| 0C97 | C0 87 0216 | B | LINK | MSG. OPERATION TERMINATED |
| 0C9B | C0 67 0222 | | 193 | LINK |
| 0C9F | PFEO | | 194 | LINK |
| OCA1 | C0 87 0BCB | | 195 | PAUSE B HALT |
| | | OCA0 | 196 | DC XL2'PFE1' |
| | | | 197 | B EDITAA |
| | | | 198 | B |
| | | OCA5 | 199 | ADDTST EQU * |
| 0CL5 | BD C1 01 | 200 | CLI | 1(, XR2), C'A' |
| OCA8 | F2 81 68 | 201 | JE | SETADD |
| OCA9 | BD D9 01 | 202 | CLI | 1(, XR2), C'R' |
| OCAE | F2 01 07 | 203 | JNE | TPI |
| OCB1 | BD 40 04 | 204 | CLI | 4(, XR2), C' ' |
| OCB4 | C0 01 1614 | 205 | BNE | REPPGH |
| OCB8 | 8D 01 02 2B16 | 206 | TFI | CLC 2(2, XR2), FIGCON |
| OCBD | C0 81 1D97 | 207 | BE | CFGPGH |
| OCC1 | 8D 01 02 2C09 | 208 | CLC | 2(2, XR2), DEL |
| OCC6 | F2 01 07 | 209 | JNE | TL |
| OCC9 | BD 40 04 | 210 | CLI | 4(, XR2), C' ' |
| OCCC | C0 01 160B | 211 | BNE | DELPGH |
| OCDO | BD D3 01 | 212 | TL | CLI 1(, XR2), C'L' |
| OCDD | C0 81 1B4F | 213 | BE | LSTPGH |
| OCDE | 8D 01 02 2B18 | 214 | CLC | 2(2, XR2), CMPCON |
| OCDC | C0 81 1C69 | 215 | BE | CHPPGH |
| OCE0 | 8D 01 02 2C0B | 216 | CLC | 2(2, XR2), DU |
| OCE5 | F2 01 07 | 217 | JNE | DE |
| OCE8 | BD 40 04 | 218 | CLI | 4(, XR2), C' ' |
| OCEB | C0 81 1877 | 219 | BE | DSKDUP |
| OCEP | C0 87 2A42 | 220 | DE | B PRINT1 |
| OCF3 | 06 | OCF3 | 221 | DC XL1'06' |
| OCF4 | 27 | OCF4 | 222 | DC AL1(MCTL-MCTLB) |

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|----------------------|-------------|------|-----------|---|---------------------------------------|
| OCF5 360A | OCF6 | 223 | DC | AL2(MCTL) | MSG. INVALID CONTROL CARD |
| OCF7 38 F0 27F5 | | 224 | TBN | USECRT,X'F0' | IS 5471 IN USE,DON'T PRINT/HALT |
| OCFB C0 10 OC42 | | 225 | BT | GET1 | GO GET CONTROL CARD AGAIN |
| OCFF C0 87 021A | | 226 | B | PRINT | NONE OF THE ABOVE, GO PRINT ERROR. |
| OD03 C6 | OD03 | 227 | DC | XL1'C6' | FLAGS |
| OD04 15 | | 228 | DC | IL1'21' | LENGTH |
| OD05 3191 | OD06 | 229 | DC | AL2(ERR2) | ADDRESS OF LAST PRINT CHARACTER. |
| OD07 FFE2 | OD08 | 230 | DC | XL2'FFE2' | MESSAGE IDENTIFICATION |
| OD09 C0 87 0222 | | 231 | B | HALT | TO DCP ERROR HALT |
| OD0D FFE2 | OD0E | 232 | DC | XL2'FFE2' | HALT ID |
| OD0F C0 87 0BF2 | | 233 | B | AA07 | |
| | | 234 | | | |
| | | 235 | ***** | | |
| | | 236 | ***** | | |
| | | 237 | ** | | ** |
| | | 238 | ** | \$ADD | ** |
| | | 239 | ** | | ** |
| | | 240 | ** | ADD PROGRAM DECK OR DECKS TO CE DATA MODULE | ** |
| | | 241 | ** | | ** |
| | | 242 | ***** | | |
| | | 243 | ***** | | |
| | | 244 | | | |
| | | 244 | | | |
| | | 244 | | | |
| OD13 C0 87 2A42 | | 245 | SETADD B | PRINT1 | GO DISPLAY MESSAGE |
| OD17 06 | OD17 | 246 | DC | XL1'C6' | |
| OD18 26 | | 247 | DC | AL1(MADD-MADDB) | |
| OD19 3630 | OD1A | 248 | DC | AL2(MADD) | MSG. ADD ILLEGAL IF ON 5471 |
| OD1B 38 F0 27F5 | | 249 | TBN | USECRT,X'F0' | IF USING 5471,RETURN TO START |
| OD1F C0 10 OC42 | | 250 | BT | GET1 | |
| | | 251 | | | |
| | | 251 | | | |
| | | 252 | ***** | | |
| | | 253 | * | | * |
| | | 254 | * | CHECK FOR HEADER CARD AND TYPE OF DECK | * |
| | | 255 | ***** | | |
| | | 256 | | | |
| | | 256 | | | |
| OD23 C0 87 2749 | | 257 | GET2 B | RECORD | READ 1ST RECORD |
| OD27 AD 5F 5F 60 | | 258 | CLC | 95(96, XR2), 96(, XR2) | CHECK FOR BLANK CARD |
| OD2B C0 81 0D23 | | 259 | BE | GET2 | READ ANOTHER CARD IF BLANK |
| | | 260 | | | |
| | | 260 | | | |
| OD2F 3A 0F 2AC0 | OD2F | 261 | RTRN2 EQU | * | |
| OD33 0F 06 2AB3 2AB3 | | 262 | SBN | ADDPLG,X'0F' | TURN ON ADD MODE SWITCH |
| OD39 0C 06 3103 3152 | | 263 | SLC | DCPPG(7),DCPPG | ZER OUT DCPFG,DFLAG,NWRTFG,NWRT,PFLAG |
| OD3F 2C 14 3123 1F | | 264 | MVC | ADMSG+6(7),ADDED | PREPARE PRINT FIELD TO PRINT |
| OD44 2C 1F 314B 3F | | 265 | MVC | ADMSG+38(21),31(, XR2) | PROGRAM ADDED AT END OF ROUTINE |
| | | 266 | MVC | ADMSG+78(32),63(, XR2) | |
| | | 267 | | | |
| OD49 38 0F 2ABD | | 268 | TBN | CPUPG,X'0F' | IF CPU MODULE JUST READ, THEN CHECK |
| OD4D C0 10 121D | | 269 | BT | CPUPG | IF THIS IS CPU MODULE |
| | | 270 | | | |
| OD51 04 30 2B1E 2AE7 | | 271 | ZAZ | SEQCTR(4),D0(1) | INITIALIZE SEQUENCE COUNTER |
| | | 272 | | | |
| OD57 8D 01 0C 2AF9 | | 273 | CLC | 12(2, XR2),PN | IS IT A HEADER CARD? |
| OD5C C0 01 1454 | | 274 | BNE | TSTDPC | TO ERROR RTN |
| OD60 3C F0 2AB6 | | 275 | MVI | FADD,C'0' | RESET 3741 FORCED ADD FLAG |
| OD64 8D 03 5F 2AE7 | | 276 | CLC | 95(4, XR2),D0 | IS HEADER CARD SEQ #=0? |
| OD69 C0 01 1541 | | 277 | BNE | INVSEQ | PRINT ERROR IF NOT |
| OD6D BD D4 00 | | 278 | CLI | 0(, XR2),C'M' | IS IT A TAP DECK? |
| OD70 F2 01 07 | | 279 | JNE | **+10 | SKIP IF NOT |
| OD73 3C F0 2AB2 | | 280 | MVI | DFLAG,X'F0' | SET FLAG FOR TAP DECK |
| OD77 F2 87 30 | | 281 | J | CONTE6 | DON'T CHECK FOR SYSTEM TEST |
| OD7A 8D 05 50 0B09 | | 282 | CLC | 80(6, XR2),BLNK | ARE COL'S 75-81 BLANK/ |
| OD7F F2 81 28 | | 283 | JE | CONTE6 | IF SO SKIP OUT OF ROUTINE |
| OD82 BD 40 4A | | 284 | CLI | 74(, XR2),C' ' | IS COLUMN 75 BLANK? |
| OD85 C0 01 150D | | 285 | BNE | INVSCD | BRANCH TO INVALID SYS TEST HDR |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|----------------------|-------------|------|------------|---|---------------------------------|
| OD89 0C 00 0D97 2B8B | | 286 | MVC | CLI2+2(1),X74 | INITIALIZE COMPARE INSTRUCTION |
| | | 287 | | | |
| OD8F 0E 00 0D97 0A03 | | 288 | LOOP7 ALC | CLI2+2(1),ONE | INCREMENT POINTER |
| OD95 BD 40 00 | | 289 | CLI2 CLI | *-(, XR2),C' ' | IS FIELD BLANK |
| OD98 C0 81 150D | | 290 | BE | INVSCD | TO INVALID SYS TST HDR |
| OD9C 0D 00 0D97 27EE | | 291 | CLC | CLI2+2(1),X80 | IS COUNTER =80 |
| ODA2 C0 01 0D8F | | 292 | BNE | LOOP7 | |
| ODA6 3C 0F 2AB0 | | 293 | MVI | SCDFG,X'0F' | SET SYSTEM TEST MODJLE FLAG |
| | | 294 | | | |
| | ODAA | 295 | CONTE6 EQU | * | |
| ODAA 2C 5F 0A74 5F | | 296 | MVC | SAVID(96),95(, XR2) | SAVE INFO FOR VTOC |
| ODAF 2C 03 2ADD 5B | | 297 | MVC | SAVEID(4),91(, XR2) | SAVE ID FOR LATER COMPARE |
| ODB4 8D 02 5A 2B29 | | 298 | CLC | 90(3, XR2),PFA | IS IT LOADER? |
| ODB9 C0 81 116B | | 299 | BE | ADDFPA | TO LOADER SEEK RTN |
| ODBD 8D 02 5A 2B2C | | 300 | CLC | 90(3, XR2),PFB | IS IT LOADER? |
| ODC2 F2 01 0D | | 301 | JNE | CONTE1 | TO LOADER SEEK RTN |
| ODC5 3C FF 2AAE | | 302 | MVI | NWRTFG,X'FF' | DON'T WRITE IN VTOC |
| ODC9 0C 04 2BBE 2B38 | | 303 | MVC | DDCFM(5),C3H172 | SET CONTROL FIELD |
| ODCF F2 87 35 | | 304 | J | CONTE2 | |
| ODD2 8D 03 03 2B33 | | 305 | CONTE1 CLC | 3(4, XR2),DTAHDR | IS IT DATA DECK? |
| ODD7 F2 01 13 | | 306 | JNE | CKH | |
| ODDA 2C 03 2AED 56 | | 307 | MVC | LSTDOD(4),86(, XR2) | SAVE # OF LAST DATA CARD |
| ODDF 3C 0F 2AB2 | | 308 | MVI | DFLAG,X'0F' | |
| ODE3 BD D7 52 | | 309 | CLI | 82(, XR2),C'P' | IS IT PROG DATA DECK? |
| ODE6 F2 01 04 | | 310 | JNE | CKH | NO, DON'T SET FLAG |
| ODE9 3C 0F 2AAD | | 311 | MVI | PFLAG,X'0F' | SET PROG DATA DECK FLAG |
| | | 312 | | | |
| ODED C0 87 121D | | 313 | CKH B | CPUPG | CHECK IF CPU MODULE |
| | ODF1 | 314 | DCECT1 EQU | * | |
| ODF1 C0 87 2201 | | 315 | B | RDFAS | READ FAS SECTOR |
| | | 316 | | | |
| ODF5 0C 01 2AC3 2272 | | 317 | MVC | VTOC(2),FASINF | STORE # OF RECORDS IN VTOC |
| ODFB 0C 04 2BB8 226F | | 318 | MVC | NAS(5),FASINB+8 | STORE NEXT AVAIL SECTOR |
| 0Z01 0C 04 2BBE 2BB8 | | 319 | MVC | DDCFM(5),NAS | SET DDCF FOR SEEK |
| | | 320 | | | |
| | | 320 | | | |
| | | 321 | ***** | | |
| | | 322 | * | THIS SECTION READS 48 CARDS AT A TIME, CHECKS THEM, AND | * |
| | | 323 | * | BRANCHES TO A WRITE ROUTINE. | * |
| | | 324 | * | | * |
| | | 325 | ***** | | |
| | | 326 | | | |
| | | 326 | | | |
| | | 326 | | | |
| OE07 3C 00 2BAD | OE07 | 327 | CONTE2 EQU | * | |
| OE0B 0C 01 2BAB 2B5A | | 328 | MVI | VTH-5,0 | ZERO SYSTEM TEST FLAG |
| OE11 C6 30 2B1E 2AE6 | | 329 | MVC | SCTR(2),ZERO | ZERO SECTOR LENGTH FIELD |
| OE17 3C 01 2B20 | | 330 | AZ | SEQCTR(4),D1(1) | INITIALIZE SEQ CTR |
| | | 331 | MVI | RCTR,1 | INITIALIZE RECORD COUNTER |
| | | 332 | | | |
| OE1B 6C 5F DF 5F | | 333 | MVC | 223(96, XR1),95(, XR2) | |
| OE1F 6C 5F 5F 5F | | 334 | MVC | 95(96, XR1),95(, XR2) | MOVE 2ND DDDF FIELD IN |
| OE23 36 01 2B8A | | 335 | A | X256, XR1 | INCREMENT POINTER TO NEXT FIELD |
| OE27 F2 87 08 | | 336 | J | LOOP1 | |
| | | 337 | | | |
| OE2A C2 01 4800 | | 338 | LOCP2 LA | DDDF, XR1 | INITIALIZE XR1 |
| OE2E 3C 00 2B20 | | 339 | MVI | RCTR,0 | INITIALIZE RECORD COUNTER TO -1 |
| | | 340 | | | |
| OE32 C0 87 2749 | | 341 | LOOP1 B | RECORD | READ A CARD RECORD |
| | | 342 | | | |
| OE36 AD 5F 5F 60 | | 343 | CLC | 95(96, XR2),96(, XR2) | IS IT A BLANK CARD? |
| OE3A C0 81 0E32 | | 344 | BE | LOOP1 | IF SO, FLUSH IT |
| | | 345 | | | |
| OE3E 3D 00 2AB2 | | 346 | CLI | DFLAG,0 | IS IT DATA DECK OR TAP DECK? |
| OE42 F2 01 6E | | 347 | JNE | CONTE7 | IF IT IS, DONT CHECK TEXT CARD |
| | | 348 | | | |
| OE45 BD E2 00 | | 349 | CLI | 0(, XR2),C'S' | IS IT AN 'S' CARD? |
| OE48 F2 01 0A | | 350 | JNE | **+13 | IF NOT, SKIP THIS SECTION |
| OE4B 06 30 2B1E 2AE6 | | 351 | AZ | SEQCTR(4),D1(1) | INCREMENT SEQ # COUNTER |

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT | ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-----------------|------|--------|-------------------------|---------|-------------|------|------------------------------------|--|
| OE51 | CO 87 OE32 | 352 | B | LOOP1 | 420 | | | | ***** THIS SECTION WRITES DECKS ON THE DISK. * |
| | | 353 | | | 421 | * | | | ***** |
| OE55 | BD D9 00 | 354 | CLI | 0(,XR2),C'R' | 422 | | | | |
| OE58 | F2 01 15 | 355 | JNE | CONTE2 | 423 | | | | |
| OE5B | BD 40 01 | 356 | CLI | 1(,XR2),C' ' | 423 | | | | |
| OE5E | CO 01 1153 | 357 | BNE | REPERR | 424 | LWRITE | MVI | LWRT,X'FF' | SET LAST RECORD FLAG |
| OE62 | BD 40 06 | 358 | CLI | 6(,XR2),C' ' | 425 | | SBP | F3741,X'01' | RESET 3741 ADD FLAG |
| OE65 | CO 01 1153 | 359 | BNE | REPERR | 426 | | MVC | 95(96,XR1),95(,XR2) | WRITE END CARD IMAGE ON PACK |
| OE69 | CO 87 202E | 360 | B | CONVRT | 427 | | MVC | MSGBGN+LENGTH-ENDROU(XR1),LENGTH-1 | LENGTH-ENDROU(XR1),LENGTH-1 |
| OE6D | F2 87 A9 | 361 | J | LOOP4 | 428 | | | | |
| | | 362 | | | 429 | * | | | THE ABOVE INSTRUCTION ADDS THE END CARD ROUTINE |
| OE70 | BD 5C 00 | 363 | CONTE2 | CLI 0(,XR2),C''' | 430 | * | | | INTO THE LAST HALF OF THE END CARD. |
| OE73 | CO 81 12F1 | 364 | BE | ASTRK | 431 | | | | |
| OE77 | BD 03 03 2B0D | 365 | CLC | 3(4,XR2),SSWID | 432 | WRITE | MVC | DDCF(1),RCTR | SET # OF RECORDS TO WRITE |
| OE7C | F2 01 0B | 366 | JNE | NOTSSW | 433 | | B | WINRW | WRITE N RECORDS |
| OE7F | 38 FF 2AB3 | 367 | TBN | DCPFG,X'FF' | 434 | | DC | XL1'40' | WRITE FLAG |
| OE83 | CO 10 1319 | 368 | BT | DCPCD1 | 435 | | DC | AL2(DDDF) | @ OF DDDF |
| OE87 | F2 87 8F | 369 | J | LOOP4 | 436 | | DC | AL2(DDCFB) | @ OF DDCF |
| OE8A | BD 03 03 2B11 | 370 | NOTSSW | CLC 3(4,XR2),UDTID | 437 | | | | |
| OE8F | CO 81 13F5 | 371 | BE | DCPCD3 | 438 | | ALC | SCTR(2),RCTR | INCREMENT SECTOR COUNTER |
| OE93 | BD 03 03 2B01 | 372 | CLC | 3(4,XR2),CPUIDZ | 439 | | ALC | SCTR(2),ONE | ADJUST TO CORRECT VALUE |
| OE98 | CO 81 141D | 373 | BE | DCPCD4 | 440 | | | | |
| OE9C | BD 07 07 2B09 | 374 | CLC | 7(8,XR2),CHNID | 441 | | B | STPFLD | STEP DDCF TO NEXT SECTOR |
| OEA1 | CO 81 1383 | 375 | BE | DCPCD2 | 442 | | DC | AL2(DDCFM) | @ OF RIGHT MOST BYTE |
| | | 376 | | | 443 | | | | |
| OEAS | BD C5 00 | 377 | CLI | 0(,XR2),C'E' | 444 | | CLI | LWRT,X'FF' | IS LAST WRITE FLAG SET? |
| OEAS | CO 81 OF33 | 378 | BE | LWRITE | 445 | | BNE | LOOP2 | READ ANOTHER RECORD IF NOT |
| | | 379 | | | 446 | | | | |
| OEAC | BD E3 00 | 380 | CLI | 0(,XR2),C'T' | 446 | | | | |
| OEAF | CO 01 1521 | 381 | BNE | INVCD | 446 | | | | |
| | | 382 | * | | 446 | | | | |
| OEBS | 3D F0 2AB2 | 383 | CONTA7 | CLI DFLAG,X'FO' | 446 | | | | |
| OEBS | F2 01 09 | 384 | JNE | **+12 | 447 | * | | | ***** SCAN VTOC AND OVERWRITE OLD PROGRAMS ***** |
| OEBA | BD 01 01 2AFB | 385 | CLC | 1(2,XR2),HE | 448 | * | | | ***** |
| OEBS | CO 81 OF33 | 386 | BE | LWRITE | 449 | | | | |
| | | 387 | | | 450 | | | | |
| OECS | 3D OF 2AB2 | 388 | CLI | DFLAG,X'OF' | 450 | | | | |
| OECS | F2 01 1D | 389 | JNE | SEQCHK | 451 | | CLI | NWRTFG,X'FF' | IS NO WRITE FLAG SET? |
| OECA | 2D 03 2AED 5F | 390 | CLC | LSTDCD(4),95(,XR2) | 452 | | BE | PASWR | THEN WRITE IT IN PAS AREA |
| OECP | CO 01 OEE7 | 391 | BNE | SEQCHK | 453 | | | | |
| OECS | 3D OF 2AAD | 392 | CLI | PFLAG,X'OF' | 454 | RTRN1 | MVC | VTIMB+14(5),NAS | MOVE IN DISK LOCATION |
| OECS | CO 01 OF33 | 393 | BNE | LWRITE | 455 | | MVC | NAS(5),DDCFM | UPDATE NEXT AVAIL SECTOR |
| OECS | 3D 02 2ABF | 394 | CLI | CD1OR2,2 | 456 | | | | |
| OECS | CO 01 OF33 | 395 | BNE | LWRITE | 457 | | B | SETTO | SET DDDF FIELD TO 0 |
| OECS | 3A F0 2AAD | 396 | SBN | PFLAG,X'FO' | 458 | | | | |
| | | 397 | | | 459 | | CLC | VTOC#(2),ZERO | IS THIS FIRST ENTRY? |
| OECS | BD 03 5F 2B1E | 398 | SEQCHK | CLC 95(4,XR2),SEQCTR | 460 | | BE | NWRT | GO TO NEW RTN WRITE |
| OECS | CO 01 1541 | 399 | BNE | INVSEQ | 461 | | | | |
| OECS | BD 03 5B 2ADD | 400 | CLC | 91(4,XR2),SAVEID | 461 | | | | |
| OECS | CO 01 1572 | 401 | BNE | INVID | 462 | | MVC | PRGID2(3),SAVEID-1 | MOVE IN PROGRAM ID |
| | | 402 | | | 463 | | B | SCNVTC | SCAN VTOC |
| OECS | 06 30 2B1E 2AEE | 403 | AZ | SEQCTR(4),D1(1) | 464 | FLAG2 | DC | IL1'0' | FLAG |
| | | 404 | | | 465 | PRGID2 | DC | CL3'XXX' | PROGRAM TO SCAN FOR |
| OECS | 3D 00 2AB2 | 405 | CLI | DFLAG,0 | 466 | | | | |
| OECS | F2 81 07 | 406 | JE | NOTDAT | 467 | | CLI | FLAG2,0 | IF THERE IS NOT A SCAN HIT, GO TO |
| OECS | 38 0F 2AAD | 407 | TBN | PFLAG,X'OF' | 468 | | JE | NWRT | NWRT |
| OECS | F2 90 0C | 408 | JF | LOOP4 | 469 | | MVI | DDCF,0 | SET TO 1 RECORD |
| OECS | CO 87 1F59 | 409 | B | CMPRS1 | 470 | | MVC | DDDF+6(3),OLD | OVERWRITE WITH 'OLD' |
| OECS | 3D FF 2AAD | 410 | CLI | PFLAG,X'FF' | 471 | | B | WINRW | WRITE ON DISK |
| OECS | CO 81 OF33 | 411 | BE | LWRITE | 472 | | DC | XL1'40' | WRITE FLAG |
| | | 412 | | | 473 | | DC | AL2(DDDF) | @ OF DDDF |
| OECS | 6C 5F 5F 5F | 413 | LOOP4 | MVC 95(96,XR1),95(,XR2) | 474 | | DC | AL2(DDCFB) | @ OF DDCF |
| OECS | 3D 2F 2B20 | 414 | CLI | RCTR,47 | 475 | | | | |
| OECS | CO 81 OF44 | 415 | BE | WRITE | 476 | NWRT | B | SCNVTC | SCAN VTOC TO END |
| OECS | OE 00 2B20 OA03 | 416 | ALC | RCTR(1),ONE | 477 | FLAG3 | DC | IL1'0' | FLAG |
| OECS | 36 01 2B8A | 417 | A | X256,XR1 | 478 | | DC | CL3'***' | ADDRESS OF NO PROGRAMS (SCAN TO |
| OECS | CO 87 OE32 | 418 | B | LOOP1 | 479 | * | | | THE END) |
| | | 419 | | | | | | | |

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-----------------|------|------------|--------------------------|--|
| OFB3 | 3D 00 | 480 | CLI | FLAG3,0 | IS IT SCAN HIT? |
| OFB3 | CO 81 15CD | 481 | BE | SCNERR | GO TO ERROR RTN |
| | | 482 | | | |
| OPC7 | OC 02 2B9C 0A6F | 483 | MVC | VTIMB+6(3),IDLOC | SET ID IN VTOC |
| OPCD | OC 00 2B9E 0A70 | 484 | MVC | VTIMB+8(1),IDLOC+1 | SET LEVEL IN VTOC |
| OPD3 | 3D 00 2AB0 | 485 | CLI | SCDFG,0 | SYS TEST MODULE? |
| OPD7 | F2 81 09 | 486 | JE | CONTC5 | JUMP IF NOT |
| | | 487 | | | |
| OFDA | CO 87 0226 | 488 | B | PACK | TO DCP PACK RTN: SET SYS TEST FLAG |
| OFDE | 02 | 489 | DC | IL1'40' | LENGTH |
| OFDF | 0A6E | 490 | DC | AL2(IDLOC-1) | SOURCE |
| OFE1 | 2BAD | 491 | DC | AL2(VTIM-5) | LENGTH |
| | | 492 | | | |
| OFE3 | OC 1C 481C 2BB2 | 493 | CONTC5 MVC | DDDF+28(29),VTIM | MOVE VTOC IMAGE |
| OFE9 | OC 5F 48DF 0A74 | 494 | MVC | DDDF+223(96),SAVID | MOVE HEADER CARD IMAGE |
| | | 495 | | | |
| OFEF | 3C 01 2BC2 | 496 | WRTVTC MVI | DDCF,1 | WRITE 2 RECORDS |
| OFF3 | 3C 00 49FF | 497 | MVI | DDDF1+255,0 | SET 2ND DDDF FIELD TO 0 |
| OFF7 | OC FE 49FE 49FF | 498 | MVC | DDDF1+254(255),DDDF1+255 | |
| | | 499 | | | |
| OFFD | CO 87 239C | 500 | B | WINRW | WRITE 2 RECORDS ON DISK |
| 1001 | 40 | 1001 | DC | XL1'40' | WRITE FLAG |
| 1002 | 4800 | 1003 | DC | AL2(DDDF) | @ OF DDDF |
| 1004 | 2BB9 | 1005 | DC | AL2(DDCFB) | @ OF DDCF |
| | | 504 | | | |
| 1006 | OE 01 2AC3 0A03 | 505 | ALC | VTOC#(2),ONE | INCREMENT # OF VTOC ENTRIES |
| 100C | OC 01 2272 2AC3 | 506 | MVC | FASINF(2),VTOC# | MOVE IN # OF VTOC ENTRIES IN FAS |
| 1012 | OC 04 226F 2BB8 | 507 | MVC | FASINF-3(5),NAS | MOVE IN NEW NAS IN FAS |
| 1018 | CO 87 2242 | 508 | B | WRPAS | |
| 101C | CO 87 12AA | 509 | B | CONTC9 | PRINT A MESSAGE |
| | | 510 | | | |
| 511 | | | | | ***** |
| 512 | | | * | | RECORD SPECIAL MODULES IN VTOC FORMAT IN FAS * |
| 513 | | | | | ***** |
| 514 | | | | | |
| 515 | | | | | |
| 1020 | 3D FF 2AB3 | 515 | FASWR CLI | DCPFG,X'FF' | IS IT DCP MODULE? |
| 1024 | F2 81 2C | 516 | JE | QDCP | |
| 1027 | 38 0F 2ABD | 517 | TBN | CPUPG,X'0P' | IS IT CPU DATA MODULE |
| 102B | F2 10 70 | 518 | JT | QCPU | THEN GO HANDLE IT |
| 102E | OD 02 0A6F 2B29 | 519 | CLC | IDLOC(3),PFA | IS IT PFA MODULE? |
| 1034 | F2 81 BB | 520 | JE | QFFA | |
| 1037 | OD 02 0A6F 2B2C | 521 | CLC | IDLOC(3),FFB | IS IT LOADER MODULE? |
| 103D | F2 81 04 | 522 | JE | QFFB | |
| 1040 | CO 87 0F75 | 523 | B | RTRN1 | IF NONE OF THE ABOVE, RETURN |
| | | 524 | | | |
| 1044 | OC 04 2BA4 2B38 | 525 | QFPB MVC | VTIMB+14(5),C3H12 | SET UP VTOC IMAGE |
| 104A | OC 04 2BBE 2B47 | 526 | MVC | DDCFM(5),C3H163 | |
| 1050 | F2 87 AB | 527 | J | CONTC3 | |
| | | 528 | | | |
| 1053 | 38 FF 2AAF | 529 | QDCP TBN | CPUDFG,X'FF' | HAVE BOTH A UDT AND CPU RECD BEEN |
| 1057 | CO 90 1599 | 530 | BF | DCPERR | ENTERED? IF NOT GO PRINT ERROR |
| | | 531 | | | |
| 105B | OC 03 20C6 2B65 | 532 | MVC | PNAS-1(4),C3H15 | SET UP SUBROUTINE PARAMETERS TO |
| 1061 | 3C 05 20C7 | 533 | MVI | PNAS,5 | MOVE THE SSW,UDT,// CHAIN AND |
| 1065 | OC 03 2BB7 2B65 | 534 | MVC | NAS-1(4),C3H15 | CPU RECORDS |
| 106B | 3C 01 2BB8 | 535 | MVI | NAS,1 | |
| 106F | OC 01 2BE2 2BEE | 536 | MVC | SECT#(2),X4 | SET # OF REC'DS TO MOVE |
| | | 537 | | | |
| 1075 | CO 87 20C8 | 538 | B | RWRN | TO SUBRTN TO MOVE REC'DS |
| | | 539 | | | |
| 1079 | OC 04 20C7 226F | 540 | MVC | PNAS(5),PASINB+8 | SET UP SUBRTN PAR'NS TO MOVE DCP |
| 107F | OC 04 2BB8 2B56 | 541 | MVC | NAS(5),C3H0 | PROGRAM TO FINAL RESTING PLACE |
| 1085 | OC 01 2BE2 2BAB | 542 | MVC | SECT#(2),SCTR | |
| | | 543 | | | |
| 108B | CO 67 20C8 | 544 | B | RWRN | TO SUBRTN TO MOVE REC'DS |
| | | 545 | | | |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-----------------|------|------------|----------------------|--|
| 108F | OC 04 2BA4 2B56 | 546 | MVC | VTIMB+14(5),C3H0 | SET UP VTOC IMAGE |
| 1095 | OC 04 2BBE 2B4C | 547 | MVC | DDCFM(5),C3H164 | |
| 109B | F2 87 60 | 548 | J | CONTC3 | |
| | | 549 | | | |
| 109E | C2 01 4800 | 550 | QCPU EQU | * | |
| 10A2 | OC 04 2BBE 2B51 | 551 | LA | DDDF,XR1 | LOAD XR1 |
| 10A8 | 3C 00 2BC2 | 552 | MVC | DDCFM(5),C3H165 | PREPARE DDCF TO READ CPU VTOC |
| | | 553 | MVI | DDCF,0 | |
| | | 554 | | | |
| 10AC | CO 87 239C | 555 | B | WINRW | READ CPU VTOC |
| 10B0 | 80 | 556 | DC | XL1'80' | READ FLAG |
| 10B1 | 4800 | 557 | DC | AL2(DDDF) | |
| 10B3 | 2BB9 | 558 | DC | AL2(DDCFB) | |
| | | 559 | | | |
| 10B5 | 39 0F 2ABE | 560 | TBF | FSTCPU,X'0P' | HAS CPU ALREADY BEEN WRITTEN? |
| 10B9 | F2 10 2A | 561 | JT | CONTD9 | IF SO, JUMP |
| | | 562 | | | |
| 10BC | CO 87 0B8A | 563 | B | SETO | SET DDDF TO 0 |
| 10C0 | 4C 01 15 0A03 | 564 | MVC | 21(2,XR1),ONE | INITIALIZE SECTOR # |
| 10C5 | 4C 03 03 2B93 | 565 | MVC | 3(4,XR1),ACTO | INITIALIZE CPU VTOC TO WHAT IT |
| 10CA | 4C 02 06 2B00 | 566 | MVC | 6(3,XR1),CPUIDZ-1 | SHOULD BE |
| 10CF | 4C 00 08 2ADD | 567 | MVC | 8(1,XR1),SAVEID | PUT IN LEVEL |
| 10D4 | 4C 04 0E 2B7E | 568 | MVC | 14(5,XR1),COH048 | PUT IN CCHRR |
| 10D9 | 4C 14 9F 3123 | 569 | MVC | 159(21,XR1),ADMSG+38 | INSERT PN & EC FIELD |
| 10DE | 4C 1F BF 314B | 570 | MVC | 191(32,XR1),ADMSG+78 | INSERT COMMENT FIELD |
| 10E3 | F2 87 05 | 571 | J | WCPUVT | SKIP TO PREPARE TO WRITE |
| | | 572 | | | |
| 10E6 | 4E 01 15 0A03 | 573 | CONTD9 ALC | 21(2,XR1),ONE | UPDATE # OF SECTORS |
| | | 574 | | | |
| 10EB | 3C 00 2BC2 | 575 | WCPUVT MVI | DDCF,0 | WRITE 1 RECORD |
| 10EF | F2 87 2C | 576 | J | WRT3 | GO WRITE RECORD |
| 10F2 | OC 04 2BA4 2B74 | 577 | QFFA MVC | VTIMB+14(5),PFALOC | SET UP VTOC IMAGE |
| 10F8 | OC 04 2BBE 2B42 | 578 | MVC | DDCFM(5),C3H162 | |
| | | 579 | | | |
| 10FE | 3C 00 2BC2 | 580 | CONTC3 MVI | DDCF,0 | SET UP REST OF DDCF FLD |
| 1102 | OC 02 2B9C 2ADC | 581 | MVC | VTIMB+6(3),SAVEID-1 | FILL IN ID |
| 1108 | OC 00 2B9E 2ADD | 582 | MVC | VTIMB+8(1),SAVEID | FILL IN LEVEL |
| | | 583 | | | |
| 110E | CO 87 0B78 | 584 | B | SETO | SET DDDF TO ZERO |
| 1112 | OC 1C 481C 2BB2 | 585 | MVC | DDDF+28(29),VTIM | MOVE IMAGE IN DDDF FIELD |
| 1118 | OC 5F 4CDF 0A74 | 586 | MVC | DDDF+223(96),SAVID | MOVE IN HEADER CARD IMAGE |
| | | 587 | | | |
| 111E | CO 87 239C | 588 | WRT3 B | WINRW | WRITE VTOC INFO |
| 1122 | 40 | 589 | DC | XL1'40' | WRITE FLAG |
| 1123 | 4800 | 590 | DC | AL2(DDDF) | @ OF DDDF |
| 1125 | 2BB9 | 591 | DC | AL2(DDCFB) | @ OF DDCF |
| 1127 | CO 87 12AA | 592 | B | CONTC9 | PRINT A MESSAGE |
| | | 593 | | | |
| | | 593 | | | |
| | | 593 | | | |
| | | 593 | | | |
| | | 594 | | | ***** |
| | | 595 | * | | ADD THE FIRST PROGRAM TO A VIRGIN PACK * |
| | | 596 | | | ***** |
| | | 597 | | | |
| | | 597 | | | |
| 112B | OC 02 2B9C 0A6F | 598 | NWRT MVC | VTIMB+6(3),IDLOC | SET UP ID FOR 1ST VTOC RECORD |
| 1131 | OC 00 2B9E 0A70 | 599 | MVC | VTIMB+8(1),IDLOC+1 | PUT IN LEVEL |
| 1137 | OC 04 2BA4 2B5B | 600 | MVC | VTIMB+14(5),C4HOR1 | PUT DISK ADDRESS IN |
| 113D | OC 04 2BBE 2B60 | 601 | MVC | DDCFM(5),C2HOR1 | SET UP DDCF FIELD |
| 1143 | OC 1C 481C 2BB2 | 602 | MVC | DDDF+28(29),VTIM | SET UP VTOC FIELD |
| 1149 | OC 5F 48DF 0A74 | 603 | MVC | DDDF+223(96),SAVID | |
| 114F | CO 87 0PEF | 604 | B | WRTVTC | |
| | | 605 | | | |
| | | 605 | | | |
| | | 605 | | | |
| | | 605 | | | |
| | | 606 | | | ***** |

DD63 3340 CE DISK EDITOR MOD 12

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
        607 *          REP CARD ERROR HANDLING ROUTINE *
        608 *****
        609
        610
1153 C0 87 021A      610 REPERR B   PRINT          PRINT 'ERROR IN REP CARD'
1157 C2              611          DC          XL1'C2'          FLAG
1158 22              612          DC          AL1(ERR5-ERR5B)  LENGTH
1159 2ECD            115A 613          DC          AL2(ERR5)      ADDRESS OF MESSAGE
115B PFE5            115C 614          DC          XL2'PFE5'      ID
        615
115D C0 87 2A8A      616          B          PRINT2         PRINT CARD IMAGE
        617
1161 C0 87 0222      618          B          HALT           TO DCP HALT
1165 PFE5            1166 619          DC          XL2'PFE5'      ID
        620
1167 C0 87 0E32      621          B          LOOP1
        622
        622
        622
        622
        622
        622
        622
        622
        622
        622
        622
        623 *****
        624 *          ADD CPU-MEMORY OR PFA CARD DECKS *
        625 *****
        626
116B 3A P0 2ABD      116B 627 ADDPFA EQU *
        628          SBN          CPUFG,X'FO'          SET FLAG FOR PFA MODE
        629
116F 60 2ABD        116F 630 ADDCPU EQU *
        631
        632          LA          DDDF,XR1          LOAD XR1
116F C2 01 480G      633          ZAZ          SEQCTR(4),D1(1)  INITIALIZE SEQUENCE COUNTER
1173 04 30 2B1E 2AEE 634          HVC          TEMP3(2),ZERO  ZERO OUT POINTER
1179 0C 01 2277 2B5A 635
        636 GZT5 B          RECORD         READ A RECORD
117F C0 87 2749      637
        638          CLI          0(,XR2),C'E'        IS IT AN END CARD?
1183 BD C5 00        639          JE          END2
1186 F2 81 4B        640          CLI          0(,XR2),C'T'        IS IT A TEXT CARD?
1189 BD E3 00        641          BNE          INVCD          GO TO INVALID CARD RTN
118C C0 01 1521      642
        643          CLC          95(4,XR2),SEQCTR  DOES SEQUENCE # MATCH THE EXPECTED
1190 8D 03 5F 2B1E 644          BNE          INVSEQ          SEQUENCE #?
1195 C0 01 1541      645          CLC          91(4,XR2),SAVEID  DOES ID MATCH EXPECTED ID?
1199 8D 03 5B 2ADD 646          BNE          INVID
119E C0 01 1572      647
        648          AZ          SEQCTR(4),D1(1)  INCREMENT SEQUENCE COUNTER
11A2 06 30 2B1E 2AEE 649          B          CHPRS1          COMPRESS DATA
11A8 C0 87 1F59      650
        651          MVI          READIN,0        ZERO OUT HIGH ORDER BYTE
11AC 3C 00 0A80      652
        653          ALC          TEMP3(2),READIN+1  INCREMENT POINTER
11B0 0E 01 2277 0A81 654          ALC          TEMP3(2),ONE          ADJUST IT
11B6 0E 01 2277 0A03 655          CLC          TEMP3(2),X256        IS POINTER TOO HIGH
11BC 0D 01 2277 2B8A 656          JH          STP2           IF IT IS PRINT ERROR
11C2 F2 84 44        657
        658          MVC          65(66,XR1),69(,XR2)  STRIP OFF LENGTH AND ADDRESS AND
11C5 6C 41 41 45      659 *          ADD TO CONTENTS OF SECTOR
        660          A          READIN+1,XR1      INCREMENT FIELD POINTER
11C9 36 01 0A81      661          LA          1(,XR1),XR1        ADJUST IT
11CD D2 01 01        662
        663          B          GET5           IF NOT READ MORE
11D0 C0 87 117F      664
        664

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
11D4 38 0F 2ABD      665 END2      EQU          *
11D8 F2 10 11        666          TBM          CPUFG,X'OP'        IS IT A CPU-MEM  MODULE?
        667          JT          CONTG4          THEN PUT IN CPU DDCP
        668
11DB 0C 04 2BBE 2B74 669          HVC          DDCPH(5),PFALOC  LOAD DDCP
11E1 3C 00 2BC2      670          MVI          DDCF,0
11E5 3B P0 2ABD      671          SBF          CPUFG,X'FO'        TURN OFF PFA MODE IF IT IS ON
11E9 F2 87 0A        672          J          WRT2
        673
11EC 0C 04 2BBE 2B79 674 CONTG4 HVC  DDCPH(5),CHIDL  MOVE IN DDCP FIELD TO WRITE DATA
11F2 3C 00 2BC2      675          MVI          DDCF,0          IN NEXT CPU LOCATION
        676
11F6 C0 87 239C      677 WRT2 B          WINRW          WRITE RECORD ON DISK
11FA 40              11FA 678          DC          XL1'40'        FLAG
11FB 4800            11FC 679          DC          AL2(DDDF)        @ OF DDDF
11FD 2BB9            11FE 680          DC          AL2(DDCFB)       @ OF DDCP
        681
11FF C0 87 219B      682          B          STPFLD          INCREMENT CONTROL FIELD
1203 2B79            1204 683          DC          AL2(CHIDL)
        684
1205 C0 87 1020      685          B          FASWR          ENTER VTOC LIKE RECORD
        686
        686
        686
        686
1209 C0 87 021A      687 STP2 B          PRINT          PRINT 'TOO MANY CARDS'
120D C6              120D 688          DC          XL1'C6'        FLAG
120E 2F              120E 689          DC          AL1(ERR8-ERR8B)  LENGTH
120F 2D99            1210 690          DC          AL2(ERR8)        ADDRESS
1211 PFE8            1212 691          DC          XL2'PFE8'        ID
        692
1213 C0 87 0222      693          B          HALT           TO DCP HALT RTN
1217 PFE8            1218 694          DC          XL2'PFE8'        FLAG
        695
1219 C0 87 0C8F      696          B          LINKH
        697
        697
        697
        698 *****
        699 *          CPU & MEMORY SECTION *
        700 *          THIS SECTION PREPARES THE MODULE TO BE ADDED *
        701 *          TO THE PACK. *
        702 *****
        703
121D 34 08 12A9      121D 704 CPUPG EQU *
        705          ST          CPUPGR+3,ARR  SAVE RETURN ADDRESS IN CASE NOT
        706 *          CPU-MEM MODULE
        707          CLI          88(,XR2),C'0'  IF HIGH ORDER BYTE OF MODULE NOT
        708          JNE          END3          ZERO THEN NOT CPU MODULE
        709
1221 BD P0 58        710          MVI          FADD,C'0'        RESET 3741 FORCED ADD FLAG
1224 F2 01 7B        711          TBM          FSTCPU,X'OP'        IS THIS THE SECOND MODULE?
        712          SBF          FSTCPU,X'OP'        TURN OFF FLAG
1227 3C P0 2AB6      713          JF          CONTG1          IF NOT SECOND MODULE, THEN JUMP
122B 38 0F 2AEE      714
        715          MVC          CHIDL(5),C1HOR1  SET TO WRITE REST OF MODULES
122F 3B 0F 2ABE      716
        717 CONTG1 CLC  12(2,XR2),PN  IS IT A HEADER CARD?
1233 F2 90 06        718          JE          CONTG2          IF NOT DON'T RESET SEQ # COUNTER
        719
1236 0C 04 2B79 2B83 720          MVC          TEMP3(2),ZERO  ZERO OUT BYTE COUNTER
123C 8D 01 0C 2AP9 721          AZ          SEQCTR(4),D1(1)  INCREMENT CARD SEQ # CTR
1241 F2 81 14        722          LA          DDDF,XR1        RESET POINTER
        723          B          GET5+4        ENTER CARD READ MODE, SKIPPING READ-
        724 *          ING THE FIRST CARD.
1258 C0 87 0226      725 CONTG2 B          PACK

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DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-----------------|------|------|------------|---|
| 125C | 02 | 125C | 726 | DC | IL1'2' |
| 125D | 0ADA | 125E | 727 | DC | AL2(READIN+90) |
| 125F | 2BE8 | 1260 | 728 | DC | AL2(CHID) |
| | | | 729 | | |
| 1261 | 3D D0 2BE8 | | 730 | CLI | CMID,X'D0' |
| 1265 | F2 82 3A | | 731 | JL | END3 |
| 1268 | 3D F5 2BE8 | | 732 | CLI | CMID,X'F5' |
| 126C | F2 84 33 | | 733 | JH | END3 |
| | | | 734 | | |
| 126F | 3A 0F 2ABD | | 735 | SBN | CPUPFG,X'0F' |
| | | | 736 | | |
| 1273 | 04 30 2B1E 2AE7 | | 737 | ZAZ | SEQCTR(4),D0(1) |
| 1279 | 8D 03 5F 2B1E | | 738 | CLC | 95(4,XR2),SEQCTR |
| 127E | C0 01 1541 | | 739 | BNE | INVSEQ |
| 1282 | 2C 5F 0A74 5F | | 740 | MVC | SAVID(96),95(,XR2) |
| 1287 | 2C 03 2ADD 5B | | 741 | MVC | SAVEID(4),91(,XR2) |
| | | | 742 | | |
| 128C | 8D 01 5A 2AE9 | | 743 | CLC | 90(2,XR2),DD0 |
| 1291 | F2 01 0A | | 744 | JNE | CONTG3 |
| 1294 | 3A 0F 2ABE | | 745 | SBN | FSTCPU,X'0F' |
| 1298 | 0C 04 2B79 2B7E | | 746 | MVC | CHIDLC(5),COH048 |
| | | | 747 | * | |
| | | | 748 | | |
| 129E | C0 87 116F | | 749 | CONTG3 B | ADDCPU |
| | | | 750 | | |
| 12A2 | 3B 0F 2ABD | | 751 | END3 SBF | CPUPFG,X'0F' |
| 12A6 | C0 87 0000 | | 752 | CPUPGR B | ** |
| | | | 753 | | |
| | | | 753 | | |
| | | | 753 | | |
| | | | 753 | | |
| | | | 753 | | |
| | | | 753 | | |
| | | | 753 | | |
| | | | 754 | * | ***** |
| | | | 755 | * | PRINT INFO ON PROGRAM ADDED AND QUIT OR * |
| | | | 756 | * | GET READY TO ADD ANOTHER PROGRAM * |
| | | | 757 | * | ***** |
| | | | 758 | | |
| | | | 758 | | |
| 12AA | 0D 01 3110 2AF9 | | 759 | CONTG9 CLC | ADMSG+19(2),PN |
| 12B0 | F2 01 18 | | 760 | JNE | GET3-4 |
| | | | 761 | | |
| 12B3 | 0C 02 3107 2ADC | | 762 | MVC | ADMSG+10(3),SAVEID-1 |
| 12B9 | 3C 60 3108 | | 763 | MVI | ADMSG+11,C'-' |
| 12BD | 0C 00 3109 2ADD | | 764 | MVC | ADMSG+12(1),SAVEID |
| 12C3 | C0 87 021A | | 765 | B | PRINT |
| 12C7 | 02 | 12C7 | 766 | DC | XL1'02' |
| 12C8 | 4F | 12C8 | 767 | DC | AL1(ADMSG-ADMSG) |
| 12C9 | 314B | 12CA | 768 | DC | AL2(ADMSG-1) |
| | | | 769 | | |
| 12CB | C2 01 4800 | | 770 | LA | DDDF,XR1 |
| 12CF | C0 87 2749 | | 771 | GET3 B | RECORD |
| 12D3 | AD 5F 5F 60 | | 772 | CLC | 95(96,XR2),96(,XR2) |
| 12D7 | C0 81 12CF | | 773 | BE | GET3 |
| | | | 774 | | |
| 12DB | 3E 0F 2AC0 | | 775 | SBF | ADDPLG,X'0F' |
| 12DF | BD 61 00 | | 776 | CLI | 0(,XR2),C'/' |
| 12E2 | C0 81 0C4E | | 777 | BE | RTRN |
| 12E6 | BD 5B 00 | | 778 | CLI | 0(,XR2),C'\$' |
| 12E9 | C0 81 0C4E | | 779 | BE | RTRN |
| 12ED | C0 87 0D2F | | 780 | B | RTRN2 |
| | | | 781 | * | |
| | | | 782 | | |
| | | | 782 | | |
| | | | 782 | | |
| | | | 782 | | |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-----------------|------|------|------------|--|
| | | | 783 | * | ***** |
| | | | 784 | * | THIS SECTION HANDLES COMMENT AND DCP CARDS * |
| | | | 785 | * | * |
| | | | 786 | * | ***** |
| | | | 787 | | |
| | | | 788 | | |
| 12F1 | ASTRK EQU | | * | | |
| 12F1 | 8D 03 5F 0B09 | | 789 | CLC | 95(4,XR2),BLNK |
| 12F6 | F2 81 18 | | 790 | JE | CONTA9 |
| 12F9 | 8D 03 5B 2ADD | | 791 | CLC | 91(4,XR2),SAVEID |
| 12FE | C0 01 4572 | | 792 | BNE | INVID |
| 1302 | 8D 03 5F 2B1E | | 793 | CLC | 95(4,XR2),SEQCTR |
| 1307 | C0 01 1541 | | 794 | BNE | INVSEQ |
| 130B | 06 30 2B1E 2AE2 | | 795 | AZ | SEQCTR(4),D1(1) |
| | | | 796 | | |
| 1311 | 6C 5F 5F 5F | | 797 | CONTA9 MVC | 95(96,XR1),95(,XR2) |
| 1315 | C0 87 0F19 | | 798 | B | LOOP4 |
| | | | 799 | | |
| 1319 | 3C 08 2BD2 | | 800 | DCPCD1 MVI | DDCFPM,8 |
| 131D | 38 F0 2AB3 | | 801 | TBN | DDCFPM,X'F0' |
| 1321 | F2 10 08 | | 802 | JT | PRWR |
| 1324 | 8D 01 05 0B09 | | 803 | CLC | 5(2,XR2),BLNK |
| 1329 | F2 01 07 | | 804 | JNE | NBLNK |
| 132C | 6C 5F 5F 5F | | 805 | PRWR MVC | 95(96,XR1),95(,XR2) |
| 1330 | F2 87 F6 | | 806 | J | WRT1 |
| | | | 807 | | |
| 1333 | 34 01 1347 | | 808 | NBLNK ST | THADR,XR1 |
| 1337 | 0C 03 2BD1 2B65 | | 809 | MVC | DDCFPM-1(4),C3H15 |
| 133D | 3C 00 2BD6 | | 810 | MVI | DDCFPM,0 |
| 1341 | C0 87 239C | | 811 | B | WINRW |
| 1345 | 80 | 1345 | 812 | DC | XL1'80' |
| 1346 | 0000 | 1347 | 813 | THADR DC | AL2(**) |
| 1348 | 2BCD | 1349 | 814 | DC | AL2(DDCFPM) |
| | | | 815 | | |
| 134A | 4D 02 02 2B0D | | 816 | CLC | 2(3,XR1),SSWID |
| 134F | C0 01 132C | | 817 | BNE | PRWR |
| 1353 | C2 02 0A82 | | 818 | LA | READIN+2,XR2 |
| 1357 | D2 01 02 | | 819 | LA | 2(,XR1),XR1 |
| 135A | D2 01 01 | | 820 | LA | 1(,XR1),XR1 |
| 135D | 7D 40 01 | | 821 | CLI | 1(,XR1),C' ' |
| 1360 | C0 01 135A | | 822 | BNE | *-6 |
| 1364 | 7C 6B 01 | | 823 | LOOP9 MVI | 1(,XR1),C' ' |
| 1367 | D2 01 03 | | 824 | LA | 3(,XR1),XR1 |
| 136A | E2 02 03 | | 825 | LA | 3(,XR2),XR2 |
| 136D | 6C 01 00 00 | | 826 | MVC | 0(2,XR1),0(,XR2) |
| 1371 | BD 6B 01 | | 827 | CLI | 1(,XR2),C' ' |
| 1374 | C0 81 1364 | | 828 | BE | LOOP9 |
| | | | 829 | | |
| 1378 | 35 01 1347 | | 830 | L | THADR,XR1 |
| 137C | C2 02 0A80 | | 831 | LA | READIN,XR2 |
| 1380 | F2 87 A6 | | 832 | J | WRT1 |
| | | | 833 | | |
| 1383 | 3C 07 2BD2 | | 834 | DCPCD2 MVI | DDCFPM,7 |
| 1387 | 7C 40 FF | | 835 | MVI | 255(,XR1),C' ' |
| 138A | 5C FE FE FF | | 836 | MVC | 254(255,XR1),255(,XR1) |
| 138E | BD E2 09 | | 837 | CLI | 9(,XR2),C'S' |
| 1391 | F2 81 95 | | 838 | JE | WRT1 |
| | | | 839 | | |
| 1394 | 6C 0B 0B 0B | | 840 | MVC | 11(12,XR1),11(,XR2) |
| 1398 | 34 01 143D | | 841 | ST | THADR,XR1 |
| 139C | 3C 02 2BFD | | 842 | MVI | ICTR,2 |
| | | | 843 | | |
| 13A0 | 4D 02 0B 2AF1 | | 844 | CLC | 11(3,XR1),D48 |
| 13A5 | F2 81 0D | | 845 | JE | GET7 |
| 13A8 | 4D 02 0B 2AF4 | | 846 | CLC | 11(3,XR1),D120 |
| 13AD | C0 01 15AD | | 847 | BNE | CHNERR |
| | | | 848 | | |
| | | | 849 | MVI | ICTR,5 |

DD63 3340 CE DISK EDITOR MOD 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-----------------|----------|--------|--------|---------------------------------------|
| 13B5 | C0 87 2A42 | 850 | GET7 | B | PRINT1 |
| 13B9 | 06 | 13B9 851 | | DC | XL1'06' |
| 13BA | 26 | 13BA 852 | | DC | AL1(MENU4-MENU4B) |
| 13BB | 3448 | 13BC 853 | | DC | AL2(MENU4) |
| 13BD | C0 87 2749 | 854 | | B | READ A RECORD |
| | | 855 | | | |
| 13C1 | 3C 30 2BFE | 856 | | MVI | LCTR,48 |
| 13C5 | BD 40 00 | 857 | LOOP30 | CLI | 0(,XR2),C' |
| 13C8 | C0 81 15AD | 856 | | BE | CHNER |
| 13CC | E2 02 01 | 859 | | LA | 1(,XR2),XR2 |
| 13CP | 0F 00 2BFE 0A03 | 860 | | SLC | LCTR(1),ONE |
| 13D5 | C0 01 13C5 | 861 | | BNZ | LOOP30 |
| 13D9 | C2 02 0A80 | 862 | | LA | READIN,XR2 |
| | | 863 | | | |
| 13DD | 6C 2F 3B 2F | 864 | | MVC | 59(48,XR1),47(,XR2) |
| 13E1 | D2 01 30 | 865 | | LA | 48(,XR1),XR1 |
| 13E4 | 0F 00 2BFD 0A03 | 866 | | SLC | ICTR(1),ONE |
| 13EA | C0 01 13B5 | 867 | | BNZ | GET7 |
| | | 868 | | | |
| 13EE | 35 01 143D | 869 | | L | TEMADR,XR1 |
| 13F2 | F2 87 34 | 870 | | J | WRT1 |
| | | 871 | | | |
| 13F5 | BD 40 03 | 872 | DCPCD3 | CLI | 3(,XR2),C' |
| 13F8 | F2 81 0B | 873 | | JE | DCPCN4 |
| 13FB | 38 F0 2AAF | 874 | | TBN | CPUDFG,X'F0' |
| 13FF | C0 10 1E1D | 875 | | BT | UDTIP |
| 1403 | F2 87 3A | 876 | | J | DCPCN2 |
| | | 877 | | | |
| 1406 | 8D 01 05 2B1A | 878 | DCPCN4 | CLC | 5(2,XR2),WINID |
| 140B | F2 01 32 | 879 | | JNE | DCPCN2 |
| 140E | 6C 5F 5F 5F | 880 | | MVC | 95(96,XR1),95(,XR2) |
| 1412 | 3C 06 2BD2 | 881 | | MVI | DDCFM,6 |
| 1416 | 3A F0 2AAF | 882 | | SBN | CPUDFG,X'F0' |
| 141A | F2 87 0C | 883 | | J | WRT1 |
| | | 884 | | | |
| 141D | 6C 5F 5F 5F | 885 | DCPCD4 | MVC | 95(96,XR1),95(,XR2) |
| 1421 | 3C 05 2BD2 | 886 | | MVI | DDCFM,5 |
| 1425 | 3A 0F 2AAF | 887 | | SBN | CPUDFG,X'F0' |
| | | 888 | | | |
| 1429 | 0C 03 2BD1 2B65 | 889 | WRT1 | MVC | DDCFM-1(4),C3H15 |
| 142F | 3C 00 2BD6 | 890 | | MVI | DDCFM,0 |
| | | 891 | | | |
| 1433 | 34 01 143D | 892 | | ST | TEMADR,XR1 |
| | | 893 | | | |
| 1437 | C0 87 239C | 894 | | B | WINRW |
| 143B | 40 | 143B 895 | | DC | XL1'40' |
| 143C | 0000 | 143D 896 | TEMADR | DC | AL2(*-*) |
| 143E | 2BCD | 143F 897 | | DC | AL2(DDCFM) |
| | | 898 | | | |
| 1440 | 38 0F 2AC1 | 899 | DCPCN2 | TBN | CFIGFG,X'F0' |
| 1444 | C0 10 1F00 | 900 | | BT | CFRTR |
| 1448 | 38 F0 2AB3 | 901 | | TBN | DCPFG,X'F0' |
| 144C | C0 90 1707 | 902 | | BF | RTRN3A |
| 1450 | C0 87 0E32 | 903 | | B | LOOP1 |
| | | 904 | * | | |
| | | 905 | | | |
| | | 905 | | | |
| | | 905 | | | |
| | | 905 | | | |
| | | 906 | ***** | | |
| | | 907 | * | | THIS SECTION TESTS TO SEE IF THIS IS |
| | | 908 | * | | A DCP DECK, AND IF IT IS, IT PREPARES |
| | | 909 | * | | IT TO BE ADDED. |
| | | 910 | * | | |
| | | 911 | ***** | | |
| | | 912 | | | |
| | | 912 | | | |
| 1454 | 8D 02 3E 2B2F | 913 | TSTDCP | CLC | 62(3,XR2),DCPID |
| | | | | | IS IT A DCP MODULE? |

DD63 3340 CE DISK EDITOR MOD 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-----------------|----------|--------|--------|--------------------------------------|
| 1459 | F2 81 12 | 914 | | JE | HDRDCP |
| | | 915 | | | |
| 145C | 38 01 020A | 916 | | TBN | SWITCH,SSW17 |
| 1460 | F2 90 96 | 917 | | JF | INVHDR |
| 1463 | 3D F0 2AB6 | 918 | | CLI | FADD,C'0' |
| 1467 | C0 01 0C67 | 919 | | BNE | FLAGS |
| 146B | F2 81 8B | 920 | | JE | INVHDR |
| 146E | 3C F0 2AB6 | 921 | HDRDCP | MVI | FADD,C'0' |
| 1472 | 2C 02 2ADC 3E | 922 | | MVC | SAVEID-1(3),62(,XR2) |
| 1477 | 2C 00 2ADD 3B | 923 | | MVC | SAVEID(1),59(,XR2) |
| 147C | 3C FF 2AB3 | 924 | | MVI | DCPFG,X'FF' |
| 1480 | 2C 14 0A34 34 | 925 | | MVC | SAVIDE+31(21),52(,XR2) |
| 1485 | 0C 1F 0A54 3172 | 926 | | MVC | SAVIDE+63(32),DCPP |
| 148B | 2C 14 3123 34 | 927 | | MVC | ADMSG+38(21),52(,XR2) |
| 1490 | 0C 1F 314B 3172 | 928 | | MVC | ADMSG+78(32),DCPP |
| | | 929 | | | |
| 1496 | 3C 04 2BFD | 930 | | MVI | ICTR,4 |
| 149A | C0 87 0B8A | 931 | LOOP19 | B | SET0 |
| 149E | 36 01 2B8A | 932 | | A | X256,XR1 |
| 14A2 | 0F 00 2BFD 0A03 | 933 | | SLC | ICTR(1),ONE |
| 14A8 | C0 01 149A | 934 | | BNZ | LOOP19 |
| | | 935 | | | |
| 14AC | 0C 03 2BBD 2B65 | 936 | | MVC | DDCFM-1(4),C3H15 |
| 14B2 | 3C 05 2BBE | 937 | | MVI | DDCFM,5 |
| 14B6 | 3C 03 2BC2 | 938 | | MVI | DDCF,3 |
| | | 939 | | | |
| 14BA | C0 87 239C | 940 | | B | WINRW |
| 14BE | 40 | 14BE 941 | | DC | XL1'40' |
| 14BF | 4800 | 14C0 942 | | DC | AL2(DDDF) |
| 14C1 | 2BB9 | 14C2 943 | | DC | AL2(DDCFM) |
| | | 944 | | | |
| 14C3 | 3C 05 2BFD | 945 | | MVI | ICTR,5 |
| 14C7 | C2 01 4800 | 946 | | LA | DDDF,XR1 |
| 14CB | C0 87 2749 | 947 | LOOP3 | B | RECORD |
| 14CF | 0F 00 2BFD 0A03 | 948 | | SLC | ICTR(1),ONE |
| 14D5 | C0 01 14CB | 949 | | BNZ | LOOP3 |
| 14D9 | 3C FF 2AB3 | 950 | | MVI | DCPFG,X'FF' |
| 14DD | C0 87 2749 | 951 | GET4 | B | RECORD |
| 14E1 | C0 87 1F59 | 952 | | B | CMPS1 |
| 14E5 | BD 02 02 | 953 | | CLI | 2(,XR2),2 |
| 14E8 | C0 01 14DD | 954 | | BNE | GET4 |
| 14EC | 24 03 2B1E 5F | 955 | | ZAZ | SEQCTR(4),95(4,XR2) |
| | | 956 | | | |
| 14F1 | 3C FF 2AAE | 957 | | MVI | NWRTFG,X'FF' |
| 14F5 | C0 87 0DF1 | 958 | | B | DCPCT1 |
| | | 959 | | | |
| | | 959 | | | |
| | | 959 | | | |
| | | 959 | | | |
| | | 960 | ***** | | |
| | | 961 | * | | THIS SECTION HANDLES ERRORS IN CARDS |
| | | 962 | ***** | | |
| | | 963 | | | |
| | | 963 | | | |
| 14F9 | C0 87 021A | 964 | INVHDR | B | PRINT |
| 14FD | C6 | 14FD 965 | | DC | XL1'C6' |
| 14FE | 32 | 14FE 966 | | DC | AL1(ERR3-ERR3B) |
| 14FF | 2D6A | 1500 967 | | DC | AL2(ERR3) |
| 1501 | FFE3 | 1502 968 | | DC | XL2'FFE3' |
| 1503 | C0 87 0222 | 969 | | B | HALT |
| 1507 | FFE3 | 1508 970 | | DC | XL2'FFE3' |
| 1509 | C0 87 0BCB | 971 | | B | EDITAA |
| | | 972 | | | |
| 150D | C0 87 021A | 973 | INVSCD | B | PRINT |
| 1511 | C6 | 1511 974 | | DC | XL1'C6' |
| 1512 | 1F | 1512 975 | | DC | AL1(ERR4-ERR4B) |
| 1513 | 2F69 | 1514 976 | | DC | AL2(ERR4) |
| 1515 | FFE4 | 1516 977 | | DC | XL2'FFE4' |
| | | | | | FLAG |

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

1094 *****
1095 *****
1096 ** $REP
1097 **
1098 ** THIS PART OF THE PROGRAM ADDS REP, SSW, AND COMMENT RECORDS
1099 ** TO ANY PROGRAM ALREADY ON THE 3340 CE DATA MODULE.
1100 **
1101 *****
1102 *****
1103
1103
1103
1103
1103
1614 1104 REPPGM EQU *
1105 MVI LWRT,0 ZERO LAST WRITE FLAG
1618 3A 0F 2AC0 1106 SBN ADDPLG,X'0F' SET FLAG TO RECORD CARD IMAGE IN
1107 * DISK FIELD
1108 LA DDDF,XR1 LOAD XR1
1109 MVC REPWHO(7),6(,XR2) AND SAVE AREA
1110 MVC REPWH1(7),6(,XR2) MOVE IN REP PROGRAM ID
1111 MVC PRGID(3),6(,XR2) MOVE PROGRAM ID INTO DISPLAY AREA
1112 TBN DELFG,X'0F' IN $DEL MODE?
1113 BT RPCNT7 IF SO, THEN SKIP
1114
1115 CLC 6(3,XR2),DCPID IS ID 'FFF'?
1637 8D 02 06 2B2F 1116 JNE RPCNT1 IF NOT SKIP NEXT SECTION
163C F2 01 23 1117
1118 MVC DDCPH(5),C3H164 SET CONTROL FIELD FOR DCP VTOC
163F 0C 04 2BBE 2B4C 1119 MVI DDCF,0 FOR 1 RECORD
1645 3C 00 2BC2 1120 B WINRW READ DCP VTOC
1649 C0 87 239C 1121 DC XL1'80' READ FLAG
164D 80 164D 1122 DC AL2(DDDF)
164E #800 164F 1123 DC AL2(DDCFB)
1650 2BB9 1651 1124
1125 CLC 6(3,XR1),DCPID IS DCP ON THIS DATA MODULE?
1652 4D 02 06 2B2F 1126 BNE PGNTF IF NOT PRINT SO.
1657 C0 01 1820 1127 MVI DCPFG,X'0F' SET DCP FLAG
165B 3C 0F 2AB3 1128 J RPCNT2
165F F2 87 10 1129
1130 RPCNT1 B SCNVT C SCAN VTOC FOR PROGRAM TO REP
1662 C0 87 227A 1131 FLAG DC IL1'0' BYTE TO TELL RESULTS OF SCAN
1666 00 1666 1132 PRGID DC CL3'PID' PROGRAM ID
1667 D7C9C4 1133
1134 CLI FLAG,0 IF SCAN HIT, DON'T TAKE BRANCH
166A 3D 00 1666 1135 BE PGNTF
166E C0 81 1820 1136
1137 RPCNT2 MVC SAVTD(96),223(,XR1) SAVE HEADER CARD IMAGE
1672 1C 5F 0A74 DF 1138 MVC VTIM(29),28(,XR1)
1677 1C 1C 2BB2 1C 1139 MVC SECT#(2),VTIMB+21 STOR # OF SECTORS
167C 0C 01 2BE2 2BAB 1140 CLI DCFPG,X'0F' IS DCP FLAG SET?
1682 3D 0F 2AB3 1141 JNE RPCNT3 SKIP NEXT SECTION IF IT IS NOT
1686 F2 01 29 1142
1143 MVC TEMP1(2),SECT# SET NUMBER OF REC'DS TO SKIP
1689 0C 01 20BB 2BE2 1144 SLC TEMP1(2),ONE ADJUST IT
168F 0F 01 20BB 0A03 1145 MVC DDCPTH(5),C3H0 PUT CONTROL FIELD TO DCP ADDRESS
1695 0C 04 2BDC 2B56 1146 MVI DDCPT,0
169B 3C 00 2BE0 1147
1148 LOOP6 B STPFLD INCREMENT CONTROL FIELD
169F C0 87 219B 16A4 1149 DC AL2(DDCPTH) CONTROL FIELD ADDRESS
16A3 2BDC 1150 SLC TEMP1(2),ONE DECREMENT COUNTER
16A5 0F 01 20BB 0A03 1151 BNZ LOOP6 IF NOT ZERO DO IT AGAIN
16AB C0 01 169F 1152 J RPCNT4
16AF F2 87 15 1153
1153
1153
1154 *****
1155 * MOVE PROGRAM TO END OF PACK AND STRIP OFF END CARD *
1156 *****

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1157
1157
1158 RPCNT3 MVC PNAS(5),14(,XR1) SET UP TWO DDCF FIELDS TO TRANSFER
16B2 1C 04 20C7 0E 1159 MVC NAS(5),FASINB+8
16B7 0C 04 2BB8 226F 1160 SLC SECT#(2),ONE
16BD 0F 01 2BE2 0A03 1161
1162 B RWRTN MOVE PROGRAM TO END OF PACK
1163
1163
1163
1164 *****
1165 * HANDLE REP ENTRIES *
1166 *****
1167
1167
1168 RPCNT4 MVI WRT#,0 SET NN FIELD TO 0
15CB C2 01 4800 1169 LA DDDF,XR1 LOAD XR1
1170
1171 RTRN3 EQU *
16CF C0 87 2A42 1172 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
16D3 01 16D3 1173 DC XL1'01' FLAG
16D4 26 16D4 1174 DC AL1(MENU51-MENU5B) LENGTH
16D5 346E 16D6 1175 DC AL2(MENU51) MESSAGE ADDRESS
16D7 C0 87 2A42 1176 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
16DB 01 16DB 1177 DC XL1'01' FLAG
16DC 28 16DC 1178 DC AL1(MENU53-MENU5D) LENGTH
16DD 3496 16DE 1179 DC AL2(MENU53) MESSAGE ADDRESS
16DF C0 87 2A42 1180 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
16E3 01 16E3 1181 DC XL1'01' FLAG
16E4 28 16E4 1182 DC AL1(MENU54-MENU5E) LENGTH
16E5 34BE 16E6 1183 DC AL2(MENU54) MESSAGE ADDRESS
16E7 C0 87 2A42 1184 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
16EB 01 16EB 1185 DC XL1'01' FLAG
16EC 28 16EC 1186 DC AL1(MENU55-MENU5F) LENGTH
16ED 34E6 16EE 1187 DC AL2(MENU55) MESSAGE ADDRESS
16EF C0 87 2A42 1188 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
16F3 01 16F3 1189 DC XL1'01' FLAG
16F4 28 16F4 1190 DC AL1(MENU56-MENU5G) LENGTH
16F5 350E 16F6 1191 DC AL2(MENU56) MESSAGE ADDRESS
16F7 C0 87 2A42 1192 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
16FB 01 16FB 1193 DC XL1'01' FLAG
16FC 28 16FC 1194 DC AL1(MENU57-MENU5H) LENGTH
16FD 3536 16FE 1195 DC AL2(MENU57) MESSAGE ADDRESS
16FF C0 87 2A42 1196 B PRINT1 DISPLAY MESSAGE 'ENTER REPS'
1703 06 1703 1197 DC XL1'06' FLAG
1704 28 1704 1198 DC AL1(MENU58-MENU5I) LENGTH
1705 355E 1706 1199 DC AL2(MENU58) MESSAGE ADDRESS
1200
1707 C0 87 2749 1201 RTRN3A B RECORD READ A RECORD
1202
1203 CLI 0(,XR2),C'X' HAS AN X BEEN ENTERED?
170B BD E7 00 1204 BE EDITAA IF SO, DON'T REP PROGRAM
1205
1206 CLI 0(,XR2),C'E' IS IT AN END RECORD?
1715 F2 81 5E 1207 JE ENDRP
1718 BD 5C 00 1208 CLI 0(,XR2),C'*** IS IT A COMMENT CARD?
171B F2 81 3E 1209 JE CONTF3
171E 8D 03 03 2B0D 1210 CLC 3(4,XR2),SSWID IS IT A SSW CARD?
1723 F2 01 0F 1211 JNE NSSW JUMP IF NOT
1726 38 0F 2AB3 1212 TBN DCFPG,X'0F' IF REP-ING DCP, THEN ADD IT TO
172A F2 90 2F 1213 JF CONTF3 SPECIAL RECORD
172D 3C 04 2BD2 1214 MVI DDCPSH,4
1731 C0 87 131D 1215 B DCPCD1+4
1216
1735 BD D9 00 1217 NSSW CLI 0(,XR2),C'R' IS IT A REP CARD?
1738 C0 01 1850 1218 BNE INVCDD1 CONVERT REP CARD TO TEXT CARD
173C BD 40 01 1219 CLI 1(,XR2),C' ' COLUMN 2 BLANK?

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DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT | |
|---------|-----------------|-----------|------------|--|-------------------------------------|
| 173F | CO 01 1850 | 1220 | BNE | INVCD1 | IF NOT, GO TO INVALID CARD |
| 1743 | BD 40 06 | 1221 | CLI | 6(,XR2),C' | COLUMN 6 BLANK? |
| 1746 | CO 01 1850 | 1222 | BNE | INVCD1 | IF NOT GO TO INVALID CARD |
| | | 1223 | | | |
| 174A | BD 40 02 | 1224 | CLI | 2(,XR2),C' | IF COL'S. 3 OR 8 ARE BLANK, |
| 174D | CO 81 1850 | 1225 | BE | INVCD1 | THEN IT IS AN INVALID CARD |
| 1751 | BD 40 07 | 1226 | CLI | 7(,XR2),C' | |
| 1754 | CO 81 1850 | 1227 | BE | INVCD1 | |
| | | 1228 | | | |
| 1758 | CO 87 202E | 1229 | B | CONVRT | CONVERT REP CARD TO TEXT CARD |
| 175C | 6C 5F 5F 5F | 1230 | CONTP3 MVC | 95(96,XR1),95(,XR2) | MOVE IN CARD IMAGE |
| | | 1231 | | | |
| 1760 | OE 00 2BE0 0A03 | 1232 | ALC | WRT*(1),ONE | INCREMENT WRITE# |
| 1766 | 36 01 2B8A | 1233 | A | X256,XR1 | INCREMENT TO NEXT REC'D |
| 176A | CO 87 2A42 | 1234 | B | PRINT1 | PRINT MSG |
| 176E | 06 | 176E 1235 | DC | XL1'06' | FLAG |
| 176F | 27 | 176F 1236 | DC | AL1(REPWH1-MENU5C) | LENGTH |
| 1770 | 3657 | 1771 1237 | DC | AL2(REPWH1) | MSG 'ENTER NEXT REP' |
| 1772 | CO 87 1707 | 1238 | B | RTRN3A | READ ANOTHER RECORD |
| | | 1239 | | | |
| | | 1239 | | | |
| | | 1240 | | | |
| 1241 | * | | | ***** | ***** |
| | | | | PUT IN END CARD AND UPDATE VTOC | * |
| | | | | ***** | ***** |
| | | | | | |
| 1776 | 7C C5 00 | 1244 | ENDRP MVI | 0(,XR1),C'E' | CREATE END RECORD |
| 1779 | 4C 7F FF 3739 | 1245 | MVC | MSGBGN+LENGTH-ENDROU(LENGTH-ENDRCU,XR1),LENGTH-1 | |
| 177E | OE 01 2BAB 2BE0 | 1246 | ALC | VTIMB+21(2),WRT# | UPDATE # OF VTOC ENTRIES |
| | | 1247 | | | |
| | | 1248 | * | MOVE IN END CARD ROUTINE FOR DCF | |
| 1784 | CO 87 239C | 1249 | B | WINRW | WRITE END RECORD ON DISK |
| 1788 | 40 | 1788 1250 | DC | XL1'40' | WRITE FLAG |
| 1789 | 4800 | 178A 1251 | DC | AL2(DDDF) | |
| 178B | 2BD7 | 178C 1252 | DC | AL2(DDCFB) | |
| | | 1253 | | | |
| 178D | CO 87 219B | 1254 | B | STPFLD | INCREMENT WRITE DDCF |
| 1791 | 2BDC | 1792 1255 | DC | AL2(DDCFB) | |
| | | 1256 | | | |
| 1793 | 3D 0F 2AB3 | 1257 | CLI | DCPFG,X'0F' | IS DCP FLAG SET? |
| 1797 | F2 01 0B | 1258 | JNE | RPCNT5 | JUMP IF NOT |
| 179A | 3C 00 2BC2 | 1259 | MVI | DDCF,0 | SET TO WRITE ONE RECORD |
| 179E | 3C 00 2AB3 | 1260 | MVI | DCPFG,0 | RESET DCP FLAG |
| 17A2 | F2 87 58 | 1261 | J | RPCNT6 | GO WRITE VTOC RECORD |
| | | 1262 | | | |
| 17A5 | OE 01 2272 0A03 | 1263 | RPCNT5 | ALC | FASINF(2),ONE |
| 17AB | OC 04 2BA4 226F | 1264 | MVC | VTIMB+14(5),FASINB+8 | UPDATE ADDRESS OF FIRST ENTRY |
| 17B1 | OC 04 226F 2BDC | 1265 | MVC | FASINB+8(5),DDCFM | UPDATE NEXT AVAIL ADDR IN FAS |
| 17B7 | CO 87 2242 | 1266 | B | WRFAS | WRITE FAS SECTOR |
| | | 1267 | | | |
| 17BB | OC 02 17C8 346E | 1268 | RPCNT7 | MVC | PRGID1(3),REPWHO |
| 17C1 | CO 87 227A | 1269 | B | SCNVTC | TO SCAN VTOC SUBRT |
| 17C5 | 00 | 17C5 1270 | DC | IL1'0' | |
| 17C6 | 404040 | 17C8 1271 | PRGID1 | DC | CL3' |
| 17C9 | OC 04 3109 4808 | 1272 | MVC | ADMSG+12(5),DDDF+8 | ID OF PROGRAM TO SCAN FOR |
| 17CF | 3D 00 17C5 | 1273 | CLI | FLAG1,0 | MOVE IN ID AND LEVEL INTO PRINT FLD |
| 17D3 | F2 81 4A | 1274 | JE | PGNTF | IF FLAG =0 THEN PROGRAM NOT FOUND |
| 17D6 | OC 02 4806 2B14 | 1275 | MVC | DDDF+6(3),OLD | OVERWRITE VTOC ENTRY WITH 'OLD' |
| | | 1276 | | | |
| 17DC | 3C 00 2BC2 | 1277 | MVI | DDCF,0 | ZERO NN FIELD |
| 17E0 | CO 87 239C | 1278 | B | WINRW | WRITE OLD VTOC ENTRY |
| 17E4 | 40 | 17E4 1279 | DC | XL1'40' | WRITE FLAG |
| 17E5 | 4800 | 17E6 1280 | DC | AL2(DDDF) | @ OF DDDF |
| 17E7 | 2DB9 | 17E8 1281 | DC | AL2(DDCFB) | @ OF DDCF |
| | | 1282 | | | |
| 17E9 | 38 0F 2C03 | 1283 | TBN | DELFG,X'0F' | IS THIS \$DEL PROGRAM? |
| 17EP | CO 10 15E1 | 1284 | BT | DEL1 | IF SO, RETURN TO DELETE OPTION |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT | | | | |
|---------|-----------------|-----------|------|-------------------|------------------------------------|---|----------------------------------|---------------------------------|
| | | | | 1285 | | | | |
| 17F1 | CO 87 227A | | | 1286 | B | SCNVTC | GO TO END OF VTOC RECORD | |
| 17F5 | 00 | 17F5 1287 | DC | XL1'0' | FLAG (NOT USED) | | | |
| 17F6 | 5C5C5C | 17F8 1288 | DC | CL3'**** | SPECIAL CHARACTER SIGNALLING GO TO | | | |
| | | | | 1289 | * | | END OF VTOC | |
| 17F9 | 3C 01 2BC2 | | | 1290 | MVI | DDCF,1 | SET NN FIELD TO WRITE TWO REC'DS | |
| | | | | 1291 | | | | |
| 17FD | CO 87 0B78 | | | 1292 | RPCNT6 | B | SETTO | SET FIELD TO X'00' |
| 1801 | OC FF 49FF 48FF | | | 1293 | MVC | DDDF1+255(256),DDDF+255 | ZERO OUT SECOND WRITE FIELD | |
| 1807 | OC 1C 481C 2BB2 | | | 1294 | MVC | DDDF+28(29),VTIM | SET UP VTOC RECORD | |
| 180D | OC 5F 48DF 0A74 | | | 1295 | MVC | DDDF+223(96),SAVID | | |
| | | | | 1296 | | | | |
| 1813 | CO 87 239C | | | 1297 | B | WINRW | WRITE NEW VTOC | |
| 1817 | 40 | 1817 1298 | DC | XL1'40' | WRITE FLAG | | | |
| 1818 | 4800 | 1819 1299 | DC | AL2(DDDF) | | | | |
| 181A | 2BB9 | 181B 1300 | DC | AL2(DDCFB) | | | | |
| | | | | 1301 | | | | |
| 181C | CO 87 0BCB | | | 1302 | B | EDITAA | RETURN TO MAIN OPTION MENU | |
| | | | | 1303 | | | | |
| | | | | 1303 | | | | |
| | | | | 1304 | | | | |
| | | | | 1305 | * | HANDLE PROGRAM NOT FOUND, X ENTRY, AND INVALID CARD | * | |
| | | | | 1306 | | ***** | ***** | |
| | | | | 1307 | | | | |
| | | | | 1307 | | | | |
| 1820 | OC 02 31BA 1669 | | | 1308 | PGNTF | MVC | HSG02-12(3),PRGID | MOVE IN JD OF PROGRAM NOT FOUND |
| 1826 | CO 87 021A | | | 1309 | B | PRINT | PRINT 'PROGRAM NOT FOUND' | |
| 182A | 06 | 182A 1310 | DC | XL1'06' | FLAG | | | |
| 182B | 17 | 182B 1311 | DC | IL1'23' | LENGTH | | | |
| 182C | 31C6 | 182D 1312 | DC | AL2(HSG02) | | | | |
| | | | | 1313 | | | | |
| 182E | 38 0F 2C03 | | | 1314 | TBN | DELFG,X'0F' | IS IT IN THE DELETE MODE? | |
| 1832 | CO 10 1601 | | | 1315 | BT | DEL2 | IF YES, THEN CHECK IF ANOTHER | |
| | | | | 1316 | * | | PROGRAM TO DELETE | |
| 1836 | CO 87 0BCB | | | 1317 | B | EDITAA | | |
| | | | | 1318 | | | | |
| | | | | 1318 | | | | |
| 183A | 3C 00 2BE0 | | | 1319 | XHANDL | MVI | WRT#,0 | ONLY WRITE THE END CARD |
| 183E | C2 01 4800 | | | 1320 | LA | DDDF,XR1 | LOAD XR1 | |
| 1842 | CO 87 0B8A | | | 1321 | B | SETO | SET DDDF TO 0 | |
| 1846 | OC 04 2BDC 2BE7 | | | 1322 | MVC | DDCFM(5),XLOC | LOAD DDCF FIELD WITH NEXT SECTOR | |
| 184C | CO 87 1776 | | | 1323 | B | ENDRP | | |
| | | | | 1324 | | | | |
| 1850 | CO 87 2A42 | | | 1325 | INVCD1 | B | PRINT1 | DISPLAY INVALID CARD ENTERED |
| 1854 | 06 | 1854 1326 | DC | XL1'06' | FLAG | | | |
| 1855 | 26 | 1855 1327 | DC | AL1(ERMS7-ERMS7B) | MESSAGE LENGTH | | | |
| 1856 | 2EAB | 1857 1328 | DC | AL2(ERMS7) | | | | |
| | | | | 1329 | | | | |
| 1858 | 38 F0 27F5 | | | 1330 | TBN | USECRT,X'F0' | IF 5471 IN USE THEN DON'T PRINT | |
| 185C | F2 10 14 | | | 1331 | JT | BB1 | MESSAGE | |
| | | | | 1332 | | | | |
| 185F | CO 87 021A | | | 1333 | B | PRINT | PRINT INVALID CARD IN \$REP | |
| 1863 | C2 | 1863 1334 | DC | XL1'C2' | FLAG | | | |
| 1864 | 22 | 1864 1335 | BC | AL1(ERMS5-ERMS5B) | LENGTH | | | |
| 1866 | 2ECD | 1866 1336 | DC | AL2(ERMS5) | MESSAGE ADDRESS | | | |
| 1867 | PF5 | 1868 1337 | DC | XL2'PF5' | ID | | | |
| | | | | 1338 | | | | |
| 1869 | CO 87 2A8A | | | 1339 | B | PRINT2 | PRINT RECORD IMAGE | |
| | | | | 1340 | | | | |
| 186D | CO 87 0222 | | | 1341 | B | HALT | TO DCP HALT RTN | |
| 1871 | PF5 | 1872 1342 | DC | XL2'PF5' | ID | | | |
| | | | | 1343 | | | | |
| 1873 | CO 87 1707 | | | 1344 | BB1 | B | RTRN3A | GO READ A RECORD |

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
19EC C0 01 19E0          1477      BNZ     MULT40
                          1478
19FO 0E 01 2AC9 2ACD    1479      ALC     WORK(2),HL3      NOW ADD 2(HL3) TO CL3
19F6 0E 01 2AC9 2ACD    1480      ALC     WORK(2),HL3
                          1481 *
                          1482 *      DIVIDE ABOVE BY 12
                          1483 *
19FC 0C 01 2AD9 2B5A    1484      MVC     COUNT(2),ZERO
1A02 0D 01 2AC9 2BF6    1485      CLC     WORK(2),X12      IF LESS THAN 12, DON'T DIVIDE
1A08 F2 02 03          1486      JNL     DIV12
1A0B F2 87 16          1487      J       SKD12
1A0E 0F 01 2AC9 2BF6    1488 DIV12  SLC     WORK(2),X12
1A14 0E 01 2AD9 0A03    1489      ALC     COUNT(2),ONE
1A1A 0D 01 2AC9 2BF6    1490      CLC     WORK(2),X12
1A20 C0 02 1A0E        1491      BNL     DIV12
1A24 0C 01 2ACF 2AD9    1492 SKD12  MVC     CLW(2),COUNT    INTEGER PART IS 3340 LOGICAL CYL
1A2A 0C 01 2AD1 2AC9    1493      MVC     HLW(2),WORK      REMAINDER IS 3340 LOGICAL HEAD
                          1494 *
                          1495 *      NOW CALCULATE 3340 PHYSICAL FROM 3340 LOGICAL
                          1496 *
                          1497 *      FIRST, DIVIDE CLW BY 2
1A30 0C 01 2AD9 2B5A    1498      MVC     COUNT(2),ZERO
1A36 0C 01 2AC9 2ACF    1499      MVC     WORK(2),CLW
1A3C 0D 01 2AC9 2BEA    1500      CLC     WORK(2),X2      IF LESS THAN 2 DON'T DIVIDE
1A42 F2 02 03          1501      JNL     DIVC2
1A45 F2 87 16          1502      J       SKD02
1A48 0F 01 2AC9 2BEA    1503 DIV02  SLC     WORK(2),X2
1A4E JE 01 2AD9 0A03    1504      ALC     COUNT(2),ONE
1A54 0D 01 2AC9 2BEA    1505      CLC     WORK(2),X2
1A5A C0 02 1A48        1506      BNL     DIV02
                          1507
1A5E 0C 01 2AD3 2AD9    1508 SKD02  MVC     CPW(2),COUNT    3340 PHYSICAL CYL IS INTEGER
                          1509 *      PART OF ABOVE CALCULATION
                          1510 *
                          1511 *      REMAINDER OF ABOVE CALCULATION IS NOW MULTIPLIED BY 12
                          1512 *
1A64 3C 0C 2AD9        1513      MVI     COUNT,12
1A68 0C 01 2AD5 2B5A    1514      MVC     HPW(2),ZERO
1A6E 0E 01 2AD5 2AC9    1515 MULT12 ALC     HPW(2),WORK
1A74 0F 00 2AD9 0A03    1516      SLC     COUNT(1),ONE
1A7A C0 01 1A6E        1517      BNZ     MULT12
                          1518 *
                          1519 *      ADD HLW TO ABOVE TO GET 3340 PHYSICAL HEAD VALUE
                          1520 *
1A7E 0E 01 2AD5 2AD1    1521      ALC     HPW(2),HLW
1A84 F2 87 69          1522      J       FINCAL
                          1523 *
                          1524 *      FOLLOWING IS USED TO CALCULATE PHYSICAL HEAD AND CYL
                          1525 *      FOR 12 MBYTE CE DATA MODULES
                          1526 *
1A87 0C 01 2AC9 2B5A    1A87 1527 CAL12  EQU     *
1A8D 0C 01 2ACB 2397    1528      MVC     WORK(2),ZERO
1A93 0C 01 2ACD 2399    1529      MVC     CL3(2),OUTREC+2    GET SYS/3 LOGICAL CYL
1A99 3C 0A 2AD9        1530      MVC     HL3(2),OUTREC+4    GET SYS/3 LOGICLA HEAD
1A9D 0E 01 2AC9 2ACB    1531      MVI     COUNT,10
1AA3 0F 00 2AD9 0A03    1532 MULT10 ALC     WORK(2),CL3      MULTIPLY BY 10
1AA9 C0 01 1A9D        1533      SLC     COUNT(1),ONE
                          1534
                          1535 *
                          1536 *      DIVIDE SYS/3 LOGICAL HEAD VALUE BY 2
                          1537 *
1AAD 0C 01 2AD9 2B5A    1538      MVC     COUNT(2),ZERO
1AB3 0D 01 2ACD 2BEA    1539      CLC     HL3(2),X2
1AB9 F2 02 03          1540      JNL     DV02
1ABC F2 87 16          1541      J       SKDV02
1ABF 0F 01 2ACD 2BEA    1542 DV02  SLC     HL3(2),X2
1AC5 0E 01 2AD9 0A03    1543      ALC     COUNT(2),ONE
1ACB 0D 01 2ACD 2BEA    1544      CLC     HL3(2),X2
  
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1AD1 C0 02 1ABF        1545      BNL     DV02
1AD5 0E 01 2AC9 2AD9    1546 SKDV02 ALC     WORK(2),COUNT    ADD QUOTIENT TO CL3*10
1ADB 0C 01 2AD3 2AC9    1547      MVC     CPW(2),WORK      SAVE 3340 PHYSICAL CYLINDER
                          1548 *
                          1549 *      IF REMAINDER OF ABOVE DIVISION IS 0, HPW = 0;
                          1550 *      IF REMAINDER IS 1, HPW = 2.
                          1551 *
1AE1 3C 00 2AD5        1552      MVI     HPW,0
1AE5 3D 00 2ACD        1553      CLI     HL3,0
1AE9 F2 81 04          1554      JE      *+7
1AEC 3C 02 2AD5        1555      MVI     HPW,2
                          1556 *
                          1557 *      HOW CYLINDER VALUE MUST BE CONVERTED TO ONE BYTE FORMAT
                          1558 *      FORMAT IS AS FOLLOWS:
                          1559 *
1AFA 0D 01 2AD3 2AD7    1560 *      CARSAV---CONTAINS CYLINDERS 00-PF
1AF0 0C 00 2AC6 2AD3    1561 *      HARSAV--BITS 0 1 2 3 4 5 6 7
1AF6 3B 40 2AC7        1562 *      0 1 0 {<-HEAD VALUES->|
1AFA 0D 01 2AD3 2AD7    1563 *
1B00 F2 84 03          1564 *      BITS 0 AND 2 ARE ALWAYS 0
1B03 F2 87 04          1565 *      BIT 1 IS 1 ONLY WHEN CYL IS GREATER THAN X'PF'
1B06 3A 40 2AC7        1566 PINCAL  MVC     CARSAV(1),CPW
1B0A 08 03 2AC7 2AD5    1567      SBP     HARSAV,X'40'
1B10 3B 10 2AC7        1568      CLC     CPW(2),CKER      IS CYL GREATER THAN X'00PF'
1B14 3D 0F 2AD5        1569      JH      HERE
1B18 F2 84 03          1570      J       *+7
1B1B F2 87 04          1571 HERE  SBN     HARSAV,X'40'      IF SO, SET BIT 1 ON
1B1E 3A 10 2AC7        1572
1B0A 08 03 2AC7 2AD5    1573      MNN     HARSAV,HPW
1B10 3B 10 2AC7        1574      SBP     HARSAV,X'10'
1B14 3D 0F 2AD5        1575      CLI     HPW,X'0F'      IS 3340 HD GREATER THAN '0F' ?
1B18 F2 84 03          1576      JH      HERE1
1B1B F2 87 04          1577      J       *+7
1B1E 3A 10 2AC7        1578 HERE1  SBN     HARSAV,X'10'      IF SO, SET BIT 3 ON
1B22 0C 00 4820 2AC6    1579
1B28 0C 00 4822 2AC7    1580      MVC     DDDF+32(1),CARSAV  UPDATE MICROCODE WITH ALT CYL
1B2E C0 87 1984        1581      MVC     DDDF+34(1),HARSAV  AND HEAD
                          1582      B       WRTREC           GO WRITE THE RECORD ON DATA MODULE
                          1583 *
                          1584 *
                          1585 *      ROUTINE HANDLING WRONG DATA MODULE SIZE
                          1586 *
1B32 00                1B32 1587 NOT12  DC      IL1'0'
1B33 3C FF 1B32        1588      SIZER  HVI     NOT12,X'FF'
1B37 34 08 1B4E        1589      ST      SIZERR+3,ARR      STORE RETURN ADDRESS
1B3B C0 87 021A        1590      B       PRINT             PRINT 'DATA MODULE SIZE NOT 12 ...'
1B3F C6                1B3F 1591  DC      XL1'C6'
1B40 59                1B40 1592  DC      AL1(SZERR-SZERRB)
1B41 2FF0              1B42 1593  DC      AL2(SZERR)
1B43 FFEP              1B44 1594  DC      XL2'FFEP'
                          1595
1B45 C0 87 0222        1596      B       HALT             HALT -EF-
1B49 FFEP              1B4A 1597  DC      XL2'FFEP'
1B4B C0 87 0000        1598      SIZER  B      *- *
                          1599
                          1599
                          1599
                          1599
                          1599
                          1599
                          1600 *****
                          .601 *****
                          1602 **      $LST
                          1603 **      THIS OPTION LISTS THE PROGRAMS ON THE 3340 CE
                          1604 **      DATA MODULE.
                          1605 **
  
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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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1606 *****
1607 *****
1608 *****
1608 *****
1B4F 1609 LSTPGH EQU *
1610 TBN X5203,X'02' IS PRINTER 132 PRINT POSITION
1611 JT LSPGM1 JUMP IF YES
1612 TBN X1403-1,X'20' IS IT THE 1403 PRINTER
1613 JT LSPGM1 JUMP IF YES
1614 MVI LOP12A+1,X'01' SET COUNTER TO 1 IF NOT
1615 MVI LSCNT2+1,X'01' SET COUNT TO 1
1616 MVI LSPG1A+1,X'40' SET TO BLANK
1617 MVI LSPG1B+1,X'40' SET TO BLANK
1618 LSPGM1 MVI PRTBF+126,C' ' BLANK OUT PRINT
1619 MVC PRTBF+125(126),PRTBF+126 BUFFER
1620 MVI PRTBF+3,C'-' INSERT
1621 LSPG1A MVI PRTBF+69,C'-' DASHES
1622 * MVC PRTBF+64(3),AST INSERT DIVIDER
1623 LSPG1B MVI PRTBF+63,C'-'
1624
1625 MVI MCTR,1 USE NEW DDCP FIELD IN SUBRT 'LSTRD'
1626 ZAZ TEMP5(3),MAXPGM(3) SET TEMP VTOC# TO MAX # OF ENTRIES
1627 MVC DDCPH(5),C2HOR1 SET DDCP TO READ VTOC
1628 LSPGM2 MVI KCTR,2 INITIALIZE COUNTER
1629
1630 LOOP12 LA PRTBF,XR2 INITIALIZE ADDRESS POINTER
1631 LOP12A MVI LCTR,2 INITIALIZE COUNTER
1632
1633 LSCNT1 B LSTRD READ NEXT RECORD IN VTOC
1634 CLC 2(3,XR1),ACT0-1 ARE COL'S 1-3 'ACT'?
1635 JNE LSCNT2 IF NOT, QUIT LISTING PROGRAMS
1636
1637 SZ TEMP5(3),D1(1) DECREMENT # OF VTOC ENTRIES LEFT
1638
1639 CLC 6(3,XR1),OLD IS IT AN OLD ENTRY?
1640 BE LSCNT1 READ ANOTHER ENTRY IF IT IS
1641
1642 MVC 2(3,XR2),6(,XR1) PUT IN ID FIELD
1643 MVC 4(1,XR2),8(,XR1) PUT LEVEL INTO PRINT FIELD
1644 MVC 26(21,XR2),159(,XR1) MOVE PN & EC INTO PRINT FIELD
1645 MVC 60(32,XR2),191(,XR1) MOVE COMMENT AREA INTO PRINT FIELD
1646
1647 SLC LCTR(1),ONE DECREMENT COUNTER
1648 JZ LSCNT3 GO PRINT IF READ 2 RECORDS
1649 LA 66(,XR2),XR2 INCREMENT XR2
1650 B LSCNT1 READ 2ND RECORD
1651
1652 LSCNT2 CLI LCTR,2 LCTR=2
1653 JE LSTCON THEN DON'T PRINT AT ALL
1654 MVI PRTBF+126,C' ' IF ONE RECORD HAS BEEN READ BEFORE
1655 MVC PRTBF+125(61),PRTBF+126 REACHING END OF VTOC, THEN PRINT
1656 MVI LWRT,X'0F' IT
1657
1658 LSCNT3 B PRINT PRINT LIST FIELD
1659 DC XL1'01' FLAG
1660 DC IL1'127' LENGTH
1661 DC AL2(PRTBF+126) MESSAGE ADDRESS
1662
1663 CLI LWRT,X'0F' IS THIS THE LAST RECORD?
1664 MVI LWRT,0
1665 BNE LOOP12 IF NOT, THEN READ SOME MORE
1666
1667 LSTCON B PRINT SPACE 2 LINES
1668 DC XL1'12'
1669
1670 TBN LCTR,X'02' 02
1671 JT **7 02
1672 MVI PRTBF+69,C' ' 02

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1673
1674 SLC KCTR(1),ONE IS THIS THE SECOND TIME?
1675 MVC VTOC1#(3),TEMP5 SAVE # OF VTOC ENTRIES LEFT
1676 BZ STCNT IF SO, THEN BRANCH
1677
1678 MVI MCTR,1 FORCE SUBRT 'LSTRD' TO USE NEW DDCP
1679 MVC DDCPH(5),C3H162 SET UP DDCP FOR FAS VTOC
1680 MVI PRTBF+69,C'-' INSERT DASH IN CASE IT WAS DESTROYED
1681 B LOOP12 GO READ THE RECORDS
1682
1682 *
1683 *
1684 * SUBROUTINE TO READ 48 RECORDS OF VTOC AT A TIME AND
1685 * ADJUST THE ADDRESS POINTER FOR THE MAIN PROGRAM
1686 *
1687
1688 LSTRD ST LSTRDR+3,ABR SAVE RETURN ADDRESS
1689 SLC MCTR(1),ONE DECREMENT COUNTER
1690 JZ LSTRDR+4
1691 A X256,XR1 INCR XR1 IF NOT READING NEW TRACK
1692 LSTRDR B ** RETURN TO CALLER
1693
1694 MVI MCTR,48 RESTORE COUNTER
1695 MVI DDCP,47 SET NN FIELD TO READ 48 RECORDS
1696 LA DDDP,XR1 REINITIALIZE XR1
1697
1698 B WINRW READ 48 RECORDS OF VTOC
1699 DC XL1'80' READ FLAG
1700 DC AL2(DDDF)
1701 DC AL2(DDCFB)
1702
1703 B STPFLD INCREMENT DDCP
1704 DC AL2(DDCFM)
1705 B LSTRDR
1706
1706
1706
1707 *****
1708 *****
1709 ** SCMP **
1710 ** THIS OPTION REMOVES ALL 'OLD' ENTRIES FROM THE VTOC **
1711 ** AND THEIR CORRESPONDING PROGRAM AREAS. **
1712 ** **
1713 *****
1714 *****
1715
1715
1716
1717 CHPPGM EQU *
1718 LA DDDP,XR1
1719 MVC VTOC#(2),ZERO PREPARE BUFFER FOR FAS SECTOR
1720 ZAZ VTOC1#(3),MAXPGM(3) PREPARE PRINT BUFFER
1721 MVC DDCPH(5),C2HOR1 SET UP DDCP TO SCAN FOR FIRST
1722
1723 LOOP5 MVI DDCP,0 OPERATE ON ONE RECORD
1724 B WINRW READ A VTOC RECORD
1725 DC XL1'80' READ FLAG
1726 DC AL2(DDDF)
1727 DC AL2(DDCFB)
1728
1729 CLC 6(3,XR1),OLD IS THIS AN 'OLD' ENTRY?

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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2064 MVI 0(,XR2),C'T'   INSERT T
2065 MVC 88(1,XR2),TEMP9  REPLACE DESTROYED BYTE
2066
2067 CPCNT1 CLI  SCDFG,X'0F'   IS THIS A SYSTEM TEST MODULE?
2068 JE  COMPXT           IF SO, DON'T PAD WITH ZEROS
2069 TBN  PFLAG,X'0F'     IS THIS PROG DATA DECK
2070 JF  ZOUT             NO, ZERO OUT THE FIELD
2071 SEQNV MVC 79(8,XR2),95(,XR2)  ELSE MOVE ID/SEQ TO COMP POSITION
2072 J  COMPXT           YES, THEN DON'T PAD WITH ZEROS
2073
2074 ZOUT  MVC  MVI3+2(1),READIN+1  ZERO OUT UNUSED PORTION OF FIELD
2075 ALC  MVI3+2(1),X5  PRECEDED BY A X'FF' DELIMITER
2076 MVI3  MVI  *-*(,XR2),X'FF'
2077 ALC  MVI3+2(1),X2
2078 MVC  MVC8+1(1),X87
2079 SLC  MVC8+1(1),MVI3+2
2080 MVI  87(,XR2),0  ZERO OUT RIGHTMOST BYTE
2081 MVC8  MVC  86(*-*,XR2),87(,XR2)  ZERO OUT REST OF FIELD
2082
2083 COMPXT B  *--*  RETURN TO CALLER
2084
2084
2084
2084
2084
2084
2084
2084
2084
2085 *****
2086 * CONVRT *
2087 *****
2088 * THIS SUBRT CONVERTS REP CARDS INTO TEXT CARDS *
2089 *
2090 *****
2091
2091
2092
2092 2092 READ4 DC  AL2(READIN+4)
2093
2093
2094 CONVRT ST  CONVTR+3,ARR  SAVE RETURN ADDRESS
2095 ST  TEMP4,XR1  SAVE REGISTER
2096 B  PACK  CONVERT FROM EBCDIC TO HEX
2097 DC  IL1'4*  SOURCE LENGTH
2098 DC  AL2(READIN+5)  SOURCE
2099 DC  AL2(READIN+1)  DESTINATION
2100 MVC  READIN+3(2),READIN+1  PUT ADDRESS IN RIGHT PLACE
2101 MVI  DEST(2),READ4  INITIALIZE DESTINATION FIELD
2102 LA  READIN+8,XR1  LOAD IR1
2103 MVI  READIN,C'T'  CONVERT TO TEXT CARD
2104 MVI  READIN+1,0  INITIALIZE LENGTH TO 'ONE'
2105 NEXT ST  SRCE,XR1  UPDATE SOURCE ADDRESS
2106 B  PACK  CONVERT DATA FROM EBCDIC TO HEX
2107 DC  IL1'2*  LENGTH
2108 SRCE DC  AL2(*-*)  SOURCE
2109 DEST DC  AL2(*-*)  DESTINATION
2110 CLI  1(,XR1),C' '  IS NEXT COLUMN BLANK?
2111 JE  CONTA5  CONTINUE PROCESS
2112 ALC  READIN+3(2),ONE  INCREMENT RIGHT ADDR POINTER
2113 CLI  1(,XR1),C' '  IS NEXT COLUMN A COMHA?
2114 JNE *+6  SKIP IF NOT
2115 LA  1(,XR1),XR1  INCREMENT POINTER
2116 LA  2(,XR1),XR1
2117 ALC  DEST(2),ONE  INCREMENT DESTINATION FIELD
2118 ALC  READIN+1(1),ONE  INCREMENT LENGTH
2119 B  NEXT  CONTINUE
2120 *
2121 * SET REST OF FIELD TO X'00'.
2122 *
  
```

```

208C 3C 00 0ADF    2123 CONTA5 MVI READIN+95,0  CLEAR OUT ID FIELD
2090 0C 06 0ADE 0ADF 2124 MVC  READIN+94(7),READIN+95
2096 C2 01 0AD7    2125 LA  READIN+87,XR1
209A 34 01 20BB    2126 CONTA4 ST  TEMP1,XR1
209E 0D 01 2063 20BB 2127 CLC  DEST(2),TEMP1
20A4 F2 02 0B     2128 JNL  CONTA6
20A7 7C 00 00     2129 MVI  0(,XR1),0
20AA 36 01 0B9C   2130 A  MINUS1,XR1
20AE C0 87 209A   2131 B  CONTA4
20B2 35 01 219A   2132 CONTA6 L  TEMP4,XR1  RELOAD REGISTER
2133
2133 2133 CONVTR B  *--*  RETURN TO CALLER
2134
2135
2135
2135
2135
2135
2135
2135
2135
2136 *****
2137 * RWRTN *
2138 *****
2139 * THIS SUBROUTINE READS DATA IN FROM C C H H R FIELD IN FIELD *
2140 * PNAS, AND WRITES IT ON THE SAME MODULE AT LOCATION C C H H R *
2141 * IN THE FIELD 'NAS'. *
2142 *
2143 *****
2144
2144
2144
20BA 0000    20BB 2145 TEMP3 DC  IL2'0'
20BC 0000000000000000 20C1 2146 VTNAS DC  6IL1'0'
20C2 0000000000000000 20C7 2147 PNAS  DC  6IL1'0'
2148
2148
20C8 34 08 2137    20C8 2149 RWRTN  EQU  *
20CC 0C 01 20BB 2BE2 2150 ST  RWRTR+3,ARR
2151 MVC  TEMP1(2),SECT#  MOVE # OF SECTORS TO BE MOVED INTO
2152 *  A BUFFER
2153 MVI  NWRTPG,0  RESET FLAG
2154 MVC  DDCFSH(5),PNAS  SET UP DUAL CONTROL FIELD FOR MOVING
2155 MVC  DDCPTH(5),NAS  PROGRAM
2156
2157 LOOP17 CLC  TEMP1(2),X48  IS # OF SECTORS < 48?
2158 JNH  CMCNT2  THEN JUMP
2159 MVI  DDCFS,47  SET CONTROL FIELD TO MOVE 48 REC'S
2160 SLC  TEMP1(2),X48  DECREMENT COUNTER
2161 J  CMCNT3  JUMP
2162 CMCNT2 MVC  DDCFS(1),TEMP1  SET # OF RECORDS TO MOVE
2163 SLC  DDCFS(1),ONE  ADJUST IT
2164 MVI  NWRTPG,X'0F'  SET FLAG TO QUIT
2165
2166 CMCNT3 MVC  DDCPT(1),DDCFS  SET BOTH FIELDS
2167
2168 B  WJNRW  READ IN RECORDS TO MOVE
2112 80 2112 2169 DC  XL1'80'  READ FLAG
2113 4800 2114 2170 DC  AL2(DDDF)
2115 2BCD 2116 2171 DC  AL2(DDCFSB)
2172
2117 C0 87 239C    2173 B  WJNRW  WRITE RECORDS TO MOVE
2118 40 2118 2174 DC  XL1'40'  WRITE FLAG
211C 4800 211D 2175 DC  AL2(DDDF)
211E 2BD7 211F 2176 DC  AL2(DDCFSTB)
2177
2120 C0 87 219B    2178 B  STPFID  STEP CONTROL FIELD
2124 2BD2 2125 2179 DC  AL2(DDCFSH)
2126 C0 87 219B    2180 B  STPFID  STEP CONTROL FIELD
212A 2BDC    212B 2181 DC  AL2(DDCFTH)
  
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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
2213 80              2213 2292      DC   XL1'80'      READ
2214 4800            2215 2293      DC   AL2(DDDF)   @ OF DDDR CONTENTS
2216 2BC3            2217 2294      DC   AL2(DDCFRB) @ OF DDCR CONTENTS
                               2295
2218 0D 02 4802 2269 2296      CLC  DDDF+2(3),FAS IS THIS A VIRGIN PACK?
221E F2 01 09        2297      JNE  **12        JUMP IF IT IS.
2221 0C 08 2272 480B 2298      MVC  FASINF(9),DDDF+11 MOVE INFO TO DESIRED PLACE
2227 F2 87 14        2299      J    RDPASR
                               2300
222A 0C 01 2272 2B5A 2301      MVC  FASINF(2),ZERO ZERO VTOC ENTRIES
2230 0C 04 226F 2B5B 2302      MVC  FASINB+8(5),C4HOR1 PUT IN SECTOR OF FIRST FIELD
2236 3C 00 2270      2303      MVI  FASINB+9,0 ZERO FIELD DELIMITERS
223A 3C 00 226A      2304      MVI  FASINB+3,0
                               2305
223E C0 87 0000     2306 RDPASR B   **   RETURN TO CALLER
                               2307
                               2307
                               2307
                               2307
                               2307
                               2307
                               2307
                               2307
                               2307
                               2308 *****
2309 * WRPAS *
2310 *****
2311 * THIS SUBROUTINE WRITES INFO IN THE FAS REGION *
2312 *
2313 * FORMAT FOLLOWS:
2314 *
2315 * B WRPAS DATA STORED IN THE 12 BYTE FIELD:
2316 * 'FASINF' IS WRITTEN IN THE FAS THE
2317 * FAS REGION OF THE DISK.
2318 *
2319 *****
2320
2320
2321 WRPAS ST WRPASR+3,ARR SAVE RETURN ADDRESS
2322
2323 MVC DDCFRM(5),C3H161 SET UP DDCF FIELD
2324 MVI DDCFR,0
2325 B SETTO SET FIELD TO X'FF' S
2326 MVC DDDF+11(12),FASINF SET UP DDDF FIELD TO PROPER INFO
2327
2328 B WINRW WRITE INFO ON MODULE
225E 40 225E 2329 DC XL1'40' WRITE
225F 4800 2260 2330 DC AL2(DDDF) @ OF DDDR CONTENTS
2261 2BC3 2262 2331 DC AL2(DDCFRB) @ OF DDCR CONTENTS
                               2332
2263 C0 87 0000     2333 WRPASR B   **   RETURN TO CALLER
2334
2334
2334
2334
2334
2334
2334 *****
2336 * SCHVTC *
2337 *****
2338 * THIS SUBROUTINE SCANS VTOC FOR THE ID IN THE PARAMETER
2339 * LIST. IT THEN SETS A FLAG INDICATING SCAN HIT OR NOT.
2340 * THE ADDRESS OF THE HIT AND ITS CONTENTS ARE SAVED.
2341 *
2342 * FORMAT FOLLOWS:
2343 *
2344 * B SCHVTC

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ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
2345 * DS XL1 FLAG DEPOSITED BY SUBROUTINE *
2346 * DC CL3'PID' PROGRAM ID TO SCAN FOR IN VTOC *
2347 *
2348 * FLAG BYTE: X'00'= NO SCAN HIT THROUGH ENTIRE *
2349 * CONTENTS OF VTOC *
2350 * X'0F'= SCAN HIT *
2351 * NOTE: ON NO SCAN HIT THE ADDRES LEFT IN THE DDCP FIELD IS *
2352 * THE NEXT AVAILABLE RECORD FOR VTOC. *
2353 *
2354 * NOTE: TO SCAN TO END OF VTOC, PUT '***' IN PRGID *
2355 *
2356 *****
2357
2267 2358 FASINB EQU *
2269 2359 FAS DC CL3'FAS'
2272 2360 FASINF DC 9IL1'0'
2360
226F 2361 FASINH EQU FASINB+8
2275 2362 AST DC CL3'***'
2277 2363 TEMP3 DC IL2'0'
2279 2364 X255 DC IL2'255'
2365
2365
2365
2366 SCNVTC ST SCNVTR+3,ARR SAVE RETURN ADDRESS
2367 ST TEMP3,IR1 SAVE XR1
2368 L SCNVTR+3,XR1 LOAD XR1
2369
2370 ALC SCNVTR+3(2),X4 INCREMENT TO RETURN ADDRESS
2371
2372 B RDPAS GO READ FAS
2373 MVC DDCFRM(5),C2HOR1 SET DDCF
2374 MVI DDCF,0
2375
2376 CLC FASINF(2),ZERO SEE IF VIRGIN PACK
2377 JE END1 GO HANDLE IT
2378
2379 LA 3(,XR1),XR1 INCREMENT XR1
2380 ST MVC1+5,XR1 OVERLAY MOVE INSTRUCTION
2381 A NEG3,XR1 DECREMENT XR1 BY 3
2382
2383 MVI DDDF+255,X'FF' FILL DDDF WITH X'FF'
2384 MVC DDDF+254(255),DDDF+255
2385
2386 MVC DDDF+3(4),ACT0 PUT IN SCAN PARAMETERS
2387 MVC DDDF+6(3),**
2388
2389 CLC DDDF+6(3),AST IF PID DOESN'T = '***'
2390 JNE **13 THEN JUMP
2391 MVI DDDF+127,0 OTHERWISE ZERO OUT HALF OF SCAN FLD
2392 MVC DDDF+126(127),DDDF+127
2393
2394 MVI LSTSCN,0
2395 MVC TIO18+1(1),DRIVE# OVERLAY TIO INST
2396 SBN TIO18+1,X'03'
2397 MVC TEMP2(2),FASINF KEEP HEAD OF VTOC #
2398
2399 LOOP8 CLC TEMP2(2),X255 IS # OF RECORDS TO SCAN >255?
2400 JNH **16 SKIP IF NOT
2401 SLC TEMP2(2),X255 DECREMENT COUNTER
2402 MVI DDCF,254 SET DDCF
2403 J **13 SKIP
2404
2405 MVC DDCF(1),TEMP2 SET LAST SCAN FLAG
2406 MVI LSTSCN,X'FF'
2407
2408 B WINRW SCAN READ

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|------|----------|--------------------------|--|
| 230F | 20 | 230F | 2409 | DC | IL1'20' |
| 2310 | 4800 | 2311 | 2410 | DC | AL2(DDDF) @ OF DDDF |
| 2312 | 2BB9 | 2313 | 2411 | LC | AL2(DDCFB) @ OF DDCF |
| | | | 2412 | | |
| 2314 | C1 00 2331 | 2413 | TIO18 | TIO | CONTE5,*-- IS IT SCAN HIT? |
| | | | 2414 | | |
| 2318 | C0 87 219B | 2415 | B | STPFLD | INCREMENT SCAN DDCF FIELD |
| 231C | 2BBE | 231D | 2416 | DC | AL2(DDCFB) |
| | | | 2417 | | |
| 231E | 3D FF 2AB4 | 2418 | CLI | LSTSCN,X'FF' | IS LAST SCAN FLAG SET? |
| 2322 | C0 04 22EB | 2419 | BNE | LOOP8 | RETURN IF NOT |
| | | | 2420 | | |
| 2326 | 34 01 232D | 2421 | ST | MVI1+3,XR1 | OVERLAY MVI INST |
| | | | 2422 | | |
| 232A | 3C 00 0000 | 232A | 2423 | END1 | EQU * |
| 232E | F2 87 15 | | 2424 | MVI1 | MVI *--*,0 |
| | | | 2425 | J | SCNVTE |
| | | | 2426 | | |
| 2331 | 34 01 2338 | 2427 | CONTE5 | ST | MVI2+3,XR1 |
| 2335 | 3C 0F 0000 | 2428 | MVI2 | MVI | *--*,X'0F' |
| 2339 | 3C 00 2BC2 | 2429 | MVI | DDCF,0 | SET SCAN HIT FLAG |
| 233D | C0 87 239C | 2430 | B | WINRW | READ IN 1 RECORD |
| 2341 | 80 | 2341 | 2431 | DC | IL1'80' |
| 2342 | 4800 | 2343 | 2432 | DC | AL2(DDDF) |
| 2344 | 2BB9 | 2345 | 2433 | DC | AL2(LDCFB) |
| | | | 2434 | | |
| 2346 | 35 01 2277 | 2435 | SCNVTE L | TEMP3,XR1 | RELOAD XR1 |
| 234A | C0 87 0000 | 2436 | SCNVTR B | *--* | RETURN TO CALLER |
| | | | 2437 | | |
| | | | 2437 | | |
| | | | 2437 | | |
| | | | 2437 | | |
| | | | 2437 | | |
| | | | 2437 | | |
| | | | 2437 | | |
| | | | 2437 | | |
| | | | 2437 | | |
| | | | 2437 | | |
| | | | 2437 | | |
| | | | 2438 | ***** | |
| | | | 2439 | * SELDRV * | |
| | | | 2440 | ***** | |
| | | | 2441 | * | |
| | | | 2442 | * | SUBROUTINE TO TEST SENSE SWITCHES AND SELECT |
| | | | 2443 | * | WHICH DISK DRIVE TO USE |
| | | | 2444 | * | |
| | | | 2445 | ***** | |
| | | | 2446 | | |
| | | | 2446 | | |
| 234E | 00 | 234E | 2447 | DRIVE# DC | IL1'0' |
| | | | 2448 | | |
| 234F | 34 08 2374 | 2449 | SELDV ST | SLDRVR+3,ARR | SAVE RETURN ADDRESS |
| 2353 | 39 38 020C | 2450 | TBF | SBYTE4,SSW22+SSW23+SSW24 | TEST FOR DRIVE 1 |
| 2357 | F2 90 08 | 2451 | JF | *+11 | |
| 235A | 3C C0 234E | 2452 | MVI | DRIVE#,DR1 | |
| 235E | 3C F1 303C | 2453 | MVI | KBRDY,C'1' | |
| 2362 | 38 20 020C | 2454 | TBN | SBYTE4,SSW22 | SSW10 ON? |
| 2366 | F2 90 08 | 2455 | JF | SLDRVR | IF NOT RETURN |
| 2369 | 3C C8 234E | 2456 | MVI | DRIVE#,DR2 | |
| 236D | 3C F2 303C | 2457 | MVI | KBRDY,C'2' | |
| | | | 2458 | * | TBN SBYTE4,SSW23 |
| | | | 2459 | * | JF *+11 |
| | | | 2460 | * | MVI DRIVE#,DR3 |
| | | | 2461 | * | MVI KBRDY,C'3' |
| | | | 2462 | * | TBN SBYTE4,SSW24 |
| | | | 2463 | * | JF *+11 |
| | | | 2464 | * | MVI DRIVE#,DR4 |
| | | | 2465 | * | MVI KBRDY,C'4' |
| 2371 | C0 07 0000 | 2466 | SLDRVR B | *--* | RETURN TO CALLER |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|---|------|--------------------|------------|--|
| 2468 | ***** | | | | |
| 2469 | * WINRW * | | | | |
| 2470 | ***** | | | | |
| 2471 | * SUBROUTINE: READ, WRITE OR SCAN N RECORDS ON 3340 | | | | |
| 2472 | * | | | | ACCESS FORMAT: |
| 2473 | * | B | WINRW | | BRANCH TO SUBROUTINE |
| 2474 | * | DC | XL1 | | FLAG |
| 2475 | * | DC | AL2(*--*) | | @ OF DISK DRIVE DATA FIELD |
| 2476 | * | DC | AL2(*--*) | | @ OF DISK DRIVE CONTROL FIELD |
| 2477 | * | | | | |
| 2478 | * | | | | FLAG BITS (NO MORE THAN ONE BIT ON AT A TIME) |
| 2479 | * | | | | BIT |
| 2480 | * | 0- | SEEK AND READ | | |
| 2481 | * | 1- | SEEK AND WRITE | | |
| 2482 | * | 2- | SEEK AND SCAN READ | | |
| 2483 | * | | | | |
| 2484 | * | | | | VALUES OF BYTE 'DRIVE#: |
| 2485 | * | | DRIVE 1 | | 'DRIVE#'= X'CO' |
| 2486 | * | | DRIVE 2 | | 'DRIVE#'= X'CB' |
| 2487 | * | | DRIVE 3 | | 'DRIVE#'= X'D0' |
| 2488 | * | | DRIVE 4 | | 'DRIVE#'= X'D8' |
| 2489 | * | | | | |
| 2490 | ***** | | | | |
| 2491 | | | | | |
| 2491 | | | | | |
| 2375 | 0000000000000000 | 237E | 2492 | DDCFE DC | 10IL1'0' |
| 237D | 0000 | | 2492 | | |
| 237F | 0000 | 2380 | 2493 | TDDDR DC | IL2'0' |
| | | 2381 | 2494 | QUITPG EQU | * |
| 2381 | 0000 | 2382 | 2495 | TDDCR DC | IL2'0' |
| | | 2383 | 2496 | TDDDF EQU | * |
| 2383 | 0000000000000000 | 238B | 2497 | DC | 9IL1'0' |
| 238B | 00 | | 2497 | | |
| | | 238C | 2498 | TDDCF EQU | * |
| 238C | 0000000000 | 2390 | 2499 | DC | 5IL1'0' |
| 2391 | 238C | 2392 | 2500 | TDDCF@ DC | AL2(TDDCF) |
| 2393 | 2383 | 2394 | 2501 | TDDDF@ DC | AL2(TDDDF) |
| | | 2395 | 2502 | OUTREC EQU | * |
| 2395 | 0000000000 | 2399 | 2503 | DC | 5IL1'0' |
| 239A | 0C8F | 239B | 2504 | LINK@ DC | AL2(LINK@) |
| | | | 2505 | | |
| | | | 2505 | | |
| | | | 2505 | | |
| | | | 2505 | | |
| | | | 2505 | | |
| | | | 2506 | WINRW ST | WINRWR+3,ARR |
| 239C | 34 08 2522 | | 2506 | ST | SAVE ADDRESS |
| 23A0 | 34 01 2AC5 | | 2507 | L | ADDR,XR1 |
| 23A4 | 35 01 2522 | | 2508 | ALC | WINRWR+3,XR1 |
| 23A8 | 0E 01 2522 2BF0 | | 2509 | | LOAD POINTER REGISTER |
| | | | 2510 | | SET RETURN ADDRESS TO NEXT INST |
| | | | 2511 | | |
| 23AE | 3C 0A 2BFD | | 2511 | MVI | ICTR,10 |
| 23B2 | 1C 01 23E0 04 | | 2512 | MVC | MOV1+5(2),4(,XR1) |
| 23B7 | 0C 01 251E 23E0 | | 2513 | MVC | MOV1+5(2),MOV1+5 |
| 23BD | 0E 01 23E0 2BF0 | | 2514 | ALC | MOV1+5(2),X5 |
| 23C3 | 0E 01 23E0 2BEC | | 2515 | ALC | MOV1+5(2),X3 |
| 23C9 | 0C 01 23D8 23E0 | | 2516 | MVC | HVC10+3(2),MOV1+5 |
| 23CF | 0E 01 23E0 0A03 | | 2517 | ALC | MOV1+5(2),ONE |
| 23D5 | 0C 02 0000 2B8A | | 2518 | MVC10 | MVC *--*(3),X256 |
| 23DB | 0C 09 237E 0000 | | 2519 | MOV1 | MVC DDCF(10),*--* |
| 23E1 | 0C 01 24B8 23E0 | | 2520 | MVC | MOV2+3(2),MOV1+5 |
| 23E7 | 0D 03 2379 2B87 | | 2521 | CLC | DDCF-5(4),C33H18 |
| 23ED | C0 84 2735 | | 2522 | BH | TOOPAR |
| | | | 2523 | | |
| 23F1 | 78 20 00 | | 2524 | TBN | 0(,XR1),X'20' |
| 23F4 | C0 10 24D9 | | 2525 | BT | SCANRD |
| | | | 2526 | | |
| | | | 2527 | * | |
| | | | 2528 | * | |
| | | | 2529 | * | |
| | | | | | THIS SECTION OVERLAYS I/O INSTRUCTIONS FOR CORRECT DRIVE * |
| | | | | | * |

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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23F8 OC 00 246F 234E 2530
23FE OC 00 246C 234E 2531   MVC SIO1+1(1),DRIVE# OVERLAY SIO INSTRUCTION
2404 OC 00 2472 234E 2532   MVC SIO5+1(1),DRIVE# OVERLAY SIO INST
240A 3A 02 2472 2533   MVC TIO4+1(1),DRIVE# OVERLAY TIO INST
240E OC 00 24AF 234E 2534   SBN TIO4+1,X'02'
2414 OC 00 24B2 234E 2535   MVC SIO7+1(1),DRIVE# OVERLAY SIO INST
241A 3A 01 24B2 2536   MVC TIO5+1(1),DRIVE# OVERLAY TIO INST
241E OC 00 2468 234E 2537   SBN TIO5+1,X'01'
2424 OC 00 2476 234E 2538   MVC TIO1+1(1),DRIVE# OVERLAY TIO INST
2539   MVC TIO7+1(1),DRIVE# OVERLAY TIO INST
2540
242A 78 40 00 2541   TBM 0(,XR1),X'40' SEE IF READ OR WRITE REQUEST
242D F2 10 07 2542   JT **10
2430 3A 01 246F 2543   SBN SIO1+1,X'01' OVERLAY FOR READ
2434 F2 87 2A 2544   J RTRY1 JUMP IF WRITE
2437 3A 02 246F 2545   SBN SIO1+1,X'02' OVERLAY FOR WRITE
243B OC 01 24A0 23E0 2546   MVC CLI1+3(2),MOV1+5 OVERLAY CLI INST
2441 OC 01 2489 23E0 2547   MVC MOV3+3(2),MOV1+5 OVERLAY MVC INST
2447 OC 00 2490 246C 2548   MVC SIO8+1(1),SIO5+1 OVERLAY SIO INST
244D OC 00 2493 246C 2549   MVC SIO9+1(1),SIO5+1 OVERLAY SIO INST
2453 3A 01 2493 2550   SBN SIO9+1,X'01' FURTHER OVERLAY SIO INST
2457 OC 00 2496 234E 2551   MVC TIO8+1(1),DRIVE# OVERLAY TIO INST
245D 3A 02 2496 2552   SBN TIO8+1,X'02'
2553
2461 2554 RTRY1 EQU *
2555
2461 71 C4 02 2556   LIO 2(,XR1),DDDR LOAD DISK DRIVE DATA REGISTER
2464 71 C6 04 2557   LIO 4(,XR1),DDCR LOAD DISK DRIVE CONTROL REGISTER
2558
2467 C1 00 26B1 2559 TIO1 TIO HALT1,*** TEST FOR DEVICE NOT READY
246B F3 00 00 2560 SIO5 SIO X'00',*** SEEK
2561
246E 2562 DRTRN2 EQU *
2563
246E F3 00 00 2564 SIO1 SIO X'00',*** READ OR WRITE N RECORDS
2471 C1 00 2471 2565 TIO4 TIO *,*** TEST FOR ADAPTER NOT BUSY
2475 C1 00 2703 2566 TIO7 TIO HALT2,*** TEST FOR NOT READY DURING INST
2567
2479 38 02 246F 2568   TBM SIO1+1,X'02' IS IT WRITE INST?
247D F2 90 97 2569   JF WINRWT IF NOT, RETURN TO CALLER
2570
2480 OC 00 249A 234E 2571   MVC TIO19+1(1),DRIVE# OVERLAY TIO
2486 OC 09 0000 237E 2572 MOV3 MVC *-*(10),DDCFE
248C 71 C4 02 2573   LIO 2(,XR1),DDDR RELOAD DDDR
248F F3 00 00 2574 SIO8 SIO 0,*** SEEK
2492 2575 DRTRN3 EQU *
2576 SIO9 SIO 3,*** READ VERIFY
2495 C1 00 2495 2577 TIO8 TIO *,*** WAIT TILL DRIVE NOT BUSY
2499 C1 00 24D1 2578 TIO19 TIO CHK1,*** UNIT CHECK?
249D 3D FF 0000 2579 CLI1 CLI **-,X'FF' SUCCESSFUL READ VERIFY?
24A1 F2 81 73 2580   JE WINRWT
2581
24A4 0F 00 2BFD 0A03 2582 BRTRY1 SLC ICTR(1),ONE IS THIS THE 10TH TIME?
24AA C0 81 2699 2583   BZ EE2 IF YES GO TO END ROUTINE
24AE F3 00 01 2584 SIO7 SIO X'01',*** RECALIBRATE
24B1 C1 00 24B1 2585 TIO5 TIO *,*** WAIT FOR SEEK NOT BUSY
24B5 0C 09 0000 237E 2586 MOV2 MVC **-(10),DDCFE RELOAD DDCF FIELD
2587
24BB 7D 20 00 2588   CLI 0(,XR1),X'20' IS IT A SCAN READ?
24BE F2 81 3E 2589   JE TIO9-6 IF SO, RETURN TO THAT SECTION
24C1 38 FF 25E1 2590   TBM WRTVPY,X'FF' IS IT WRITE VERIFY?
24C5 3B FF 25E1 2591   SBF WRTVPY,X'FF'
24C9 C0 10 2486 2592   BT MOV3 IF SO, THAN RETURN TO THAT SECTION
24CD C0 87 2461 2593   B RTRY1 RETRY DISK OPERATION
2594
24D1 3C FF 25E1 2595 CHK1 MVI WRTVPY,X'FF'
24D5 C0 87 2703 2596   B HALT2

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2597
2597
2597
24D9 OC 00 250D 234E 2598 SCANED MVC SIO10+1(1),DRIVE# OVERLAY SIO INSTR
24DF 3A 03 250D 2599   SBN SIO10+1,X'03'
24E3 OC 00 250A 234E 2600   MVC SIO11+1(1),DRIVE# OVERLAY SIO INST
24E9 OC 00 2506 234E 2601   MVC TIO9+1(1),DRIVE# OVERLAY TIO INSTR
24EF OC 00 2510 234E 2602   MVC TIO10+1(1),DRIVE# OVERLAY TIO INSTR
24F5 3A 02 2510 2603   SBN TIO10+1,X'02'
24F9 OC 00 2514 234E 2604   MVC TIO11+1(1),DRIVE# OVERLAY TIO INSTR
24FF 71 C4 02 2605   LIO 2(,XR1),DDDR LOAD DDDR
2502 71 C6 04 2606   LIO 4(,XR1),DDCR LOAD DDCR
2505 C1 00 26B1 2607 TIO9 TIO HALT1,*** TEST FOR DEVICE NOT READY
2509 F3 00 00 2608 SIO11 SIO X'00',*** SEEK
2609
250C 2610 DRTRN1 EQU *
2611 SIO10 SIO X'0C',*** EXECUTE SCAN READ
250F C1 00 250F 2612 TIO10 TIO *,*** WAIT UNTIL DONE
2513 C1 00 2703 2613 TIO11 TIO HALT2,*** TEST FOR UNIT CHECK
2614
2517 35 01 2AC5 2615 WINRWT L ADDR,XR1
251B 3C 00 0000 2616 MVI4 MVI **-,0 ZER OUT FLAG BYTE BEFORE RETURNING
251F C0 87 0000 2617 WINRWR B *** RETURN TO CALLER
2618
2618
2619 *
2620 * THIS SECTION FINDS THE ALTERNATE TRACK ADDRESS SEEKS TO IT *
2621 * AND RETURNS CONTROL; OR, WHEN COMING OFF AN ALTERNATE TRACK, *
2622 * IT GETS THE PROGRAM BACK TO THE RIGHT TRACK. *
2623 *
2624
2523 34 08 254C 2625 DEPTRK ST DEPTRK+3,ARR SAVE ADDRESS
2527 0F 00 2BFD 0A03 2626   SLC ICTR(1),ONE DECREMENT LOOP COUNTER
252D C0 81 2699 2627   BZ EE2 QUIT IF 10 TIMES
2531 3D 0D 0B67 2628   CLI DBYTE7,X'0D' COMPARE BYTE 7
2535 F2 81 15 2629   JE TODTRK IF='0D' THEN SEEK TO ALTERNATE
2630
2538 0C 01 2541 251E 2631   MVC MVI5+3(2),MVI4+3 OVERLAY INTSTRUCTION TO ZERO DDCR
253E 3C 00 0000 2632 MVI5 MVI **-,0 FLAG BYTE.
2633
2542 3D 0E 0B67 2634   CLI DBYTE7,X'0E'
2546 F2 81 7D 2635   JE FBDTRK
2549 C0 87 0000 2636 DEPTRK B *** RETURN TO CALLER
2637
254D 0C 00 2584 234E 2638 TODTRK MVC TIO15+1(1),DRIVE# OVERLAY TOP ONST
2553 0C 00 2588 234E 2639   MVC SIO2+1(1),DRIVE# OVERLAY SIO INST
2559 3A 01 2588 2640   SBN SIO2+1,X'01'
255D 0C 00 25A0 2588 2641   MVC SIO4+1(1),SIO2+1
2563 0C 00 258F 234E 2642   MVC SIO3+1(1),DRIVE# OVERLAY SIO INST
2569 0C 01 25AC 23E0 2643   MVC MVC2+3(2),MOV1+5 PUT DDCF ADDRESS IN MOVE INST
256F 0F 01 25AC 2BFD 2644   SLC MVC2+3(2),X5 ADJUST ADDRESS
2575 0C 00 259C 2584 2645   MVC TIO2+1(1),TIO15+1
2646
2646
2647   SNS TDDDR,DDDR SAVE CONTENTS OF DDDR
257B 30 C4 2380 2648   LIO TDDDFa,DDDR LOAD DDDR WITH TEMPORARY VALUE
257F 31 C4 2394 2649 TIO15 TIO HALT1,*** SEE IF DEVICE IS READY
2583 C1 00 26B1 2650 SIO2 SIO X'01',*** READ HA AND R0 FIELDS
2587 F3 00 01 2651   LIO TDDDFa,DDCR CHANGE THE DDCF FOR SEEK
258A 31 C6 2394 2652 SIO3 SIO X'00',*** SEEK TO ALTERNATE TRACK
258E F3 00 00 2653   MVC OUTREC+4(5),TDDDF+4
2591 0C 04 2399 2387 2654   LIO TDDDFa,DDDR
2597 31 C4 2394 2655 TIO2 TIO HALT1,***
259B C1 00 26B1 2656 SIO4 SIO X'01',*** READ HA & R0 OF ALT TRACK
259F F3 00 01 2657   LIO 4(,XR1),DDCR RELOAD DDCR
25A2 71 C6 04 2658   LIO TDDDR,DDDR RELOAD DDDR
25A5 31 C4 2380

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| ERR | LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|-----|------|-----------------|------|--------|------------------|--|
| | 25A9 | OC 04 0000 2387 | 2659 | MVC2 | MVC | ** (5), TDDDF+4 MOVE CORRECT HIGH ORDER 5 BYTES INTO DDCP FIELD |
| | | | 2660 | * | | |
| | | | 2661 | | | |
| | 25AF | 7D 20 00 | 2662 | CLI | 0(,XR1),X'20' | |
| | 25B2 | C0 81 250C | 2663 | BE | DRTRN1 | RETURN TO SEEK IN SCANRD SECTION |
| | 25B6 | 38 FF 25E1 | 2664 | TBN | WRTVPY,X'FF' | FROM WRITE VERIFY? |
| | 25BA | 3B FF 25E1 | 2665 | SBF | WRTVPY,X'FF' | RESET FLAG |
| | 25BE | C0 10 2492 | 2666 | BT | DRTRN3 | |
| | 25C2 | C0 87 246E | 2667 | B | DRTRN2 | RETURN TO SEEK IN RD,WRT,OR SK SCT |
| | | | 2668 | | | |
| | 25C6 | 7D 20 00 | 25C6 | 2669 | FRDTRK | EQU * |
| | 25C9 | C0 81 2505 | 2670 | CLI | 0(,XR1),X'20' | IS IT A SCAN READ? |
| | 25CD | 38 FF 25E1 | 2671 | BE | TIO9 | IF SO, RETURN TO THAT SECTION |
| | 25D1 | 3B FF 25E1 | 2672 | TBN | WRTVPY,X'FF' | IS IT A WRITE VERIFY? |
| | 25D5 | C0 10 248F | 2673 | SBF | WRTVPY,X'FF' | |
| | 25D9 | C0 87 2467 | 2674 | BT | SIO8 | IF SO, RETURN TO THAT SECTION |
| | | | 2675 | B | TIO1 | RETURN TO READ OR WRITE SECTION |
| | | | 2676 | * | | |
| | | | 2677 | * | | |
| | | | 2678 | * | | |
| | | | 2679 | * | | SENSE DIAGNOSTIC 24 BYTES SUBROUTINE |
| | 25DD | 0B60 | 25DE | 2680 | DGSNS@ | DC AL2(DGSNSB) |
| | 25DF | 0000 | 25E0 | 2681 | TEM1 | DC IL2'0' |
| | 25E1 | 00 | 25E1 | 2682 | WRTVPY | DC IL1'0' |
| | | | 2683 | | | |
| | 25E2 | 34 08 2606 | 2684 | SNS24 | ST | SNS24R+3,ARR |
| | 25E6 | 30 C5 0A14 | 2685 | SNS | STATE,X'C5' | SAVE ADDRESS |
| | 25EA | 30 C4 25E0 | 2686 | SNS | TEM1,DDDR | DIAGNOSTIC SENSE |
| | 25EE | 31 C4 25DE | 2687 | LIO | DGSNS@,DDDR | SAVE DDDR |
| | 25F2 | 0C 00 25FD 234E | 2688 | MVC | SIO6+1(1),DRIVE# | LOAD DDDR |
| | 25F8 | 3A 01 25FD | 2689 | SBN | SIO6+1,X'01' | OVERLAY INST |
| | 25FC | F3 00 07 | 2690 | SIO6 | SIO | CONTINUE OVERLAY |
| | | | 2691 | | X'07',*-- | SENSE DIAGNOSTIC 24 BYTES |
| | 25FF | 31 C4 25E0 | 2692 | | | |
| | 2603 | C0 87 0000 | 2693 | SNS24R | B | TEM1,DDDR |
| | | | 2694 | | | ** |
| | | | 2695 | | | RELOAD DDDR |
| | | | 2696 | | | RETURN TO CALLEP |
| | 2607 | 34 08 267C | 2695 | SNSAP | ST | SNSAPR+3,ARR |
| | 260B | 34 01 2AE1 | 2696 | ST | TEMP6,XR1 | SAVE RETURN ADDRESS |
| | 260P | 34 02 219A | 2697 | ST | TEMP4,XR2 | SAVE INDEX REGISTERS |
| | 2613 | C2 01 0B60 | 2698 | LA | DGSNSB,XR1 | |
| | 2617 | C2 02 0B0B | 2699 | LA | DGS2B+2,XR2 | INITIALIZE ADDRESS POINTERS |
| | | | 2700 | * | | |
| | | | 2701 | * | | |
| | | | 2702 | * | | |
| | | | 2703 | * | | FOLLOWING ROUTINE UNPACKS THE 24 BYTE DIAGNOSTIC READ TO BE PRINTED |
| | | | 2704 | | | |
| | 261B | 3C 06 2B21 | 2704 | MVI | CTR1,6 | INITIALIZE DO LOOP COUNTERS |
| | 261F | 3C 04 2B22 | 2705 | MVI | CTR2,4 | |
| | 2623 | 34 01 2631 | 2706 | LOOP13 | ST | UP1,XR1 |
| | 2627 | 34 02 2633 | 2707 | LOOP14 | ST | UP2,XR2 |
| | 2625 | C0 87 021E | 2708 | B | UNPACK | SET UNPACK ADDRESSES |
| | 262F | 01 | 262F | 2709 | DC | IL1'1' |
| | 2630 | 0000 | 2631 | 2710 | UP1 | DC AL2(*--) |
| | 2632 | 0000 | 2633 | 2711 | UP2 | DC AL2(*--) |
| | 2634 | BC 40 01 | 2712 | | | |
| | 2637 | D2 01 01 | 2713 | MVI | 1(,XR2),C' | INSERT BLANK BETWEEN BYTES |
| | 263A | E2 02 03 | 2714 | LA | 1(,XR1),XR1 | INCREMENT ADDRESS POINTERS |
| | 263D | 0F 00 2B22 0A03 | 2715 | LA | 3(,XR2),XR2 | |
| | 2643 | C0 01 2623 | 2716 | SLC | CTR2(1),ONE | DECREMENT LOOP COUNT'R |
| | 2647 | 8C 02 01 0BC9 | 2717 | BNZ | LOOP14 | |
| | | | 2718 | MVC | 1(3,XR2),BLNK | INSERT 4 BLANKS BETWEEN EVERY 4 BYTES |
| | | | 2719 | * | | |
| | 264C | E2 02 03 | 2719 | LA | 3(,XR2),XR2 | |
| | 264F | 0F 00 2B21 0A03 | 2720 | SLC | CTR1(1),ONE | DECREMENT LOOP COUNTER |
| | 2655 | C0 01 261F | 2721 | BNZ | LOOP13 | |
| | | | 2722 | | | |
| | 2659 | C0 87 021A | 2723 | B | PRINT | TO DCP PRINT RTN |
| | 265D | 02 | 265D | 2724 | DC | XL1'02' |
| | 265E | 2D | 265E | 2725 | DC | AL1(EDMS2-EDMS2B) |

| ERR | LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|-----|------|-------------|------|------|--------|---|
| | 265F | 2D38 | 2660 | 2726 | DC | AL2(EDMS2) |
| | | | 2661 | 2727 | | PRINT ADDRESS |
| | | | 2661 | 2728 | B | PRINT |
| | 2665 | 02 | 2665 | 2729 | DC | XL1'02' |
| | 2666 | 56 | 2666 | 2730 | DC | AL1(HDG1-HDG1B) |
| | 2667 | 2CE6 | 2668 | 2731 | DC | AL2(HDG1) |
| | | | 2669 | 2732 | | ADDRESS |
| | 2669 | C0 87 021A | 2669 | 2733 | B | PRINT |
| | 266D | 06 | 266D | 2734 | DC | XL1'06' |
| | 266E | 56 | 266E | 2735 | DC | AL1(DGSNS2-DGS2B) |
| | 266F | 0B5F | 2670 | 2736 | DGPRT@ | DC AL2(DGSNS2) |
| | | | 2671 | 2737 | | ADDRESS |
| | 2671 | 35 01 2AE1 | 2671 | 2738 | L | TEMP6,XR1 |
| | 2675 | 35 02 219A | 2675 | 2739 | L | TEMP4,XR2 |
| | 2679 | C0 87 0000 | 2679 | 2740 | SNSAPR | B ** |
| | | | 267D | 2741 | | RETURN TO CALL'E |
| | | | 2681 | 2742 | EE1 | B |
| | | | 2681 | 2743 | DC | PRINT |
| | | | 2682 | 2744 | DC | XL1'C2' |
| | | | 2683 | 2745 | DC | AL1(ERMS1-ERMS1B) |
| | | | 2685 | 2746 | DC | AL2(ERMS1) |
| | | | 2687 | 2747 | B | XL2'FFFF' |
| | | | 2688 | 2748 | B | SNS24 |
| | | | 268B | 2749 | B | SNSAP |
| | | | 268P | 2750 | B | HALT |
| | | | 2693 | 2751 | DC | XL2'FFFF' |
| | | | 2695 | 2752 | B | LINKH |
| | | | 2699 | 2753 | EE2 | B |
| | | | 269D | 2754 | DC | PRINT |
| | | | 269E | 2755 | DC | XL1'C2' |
| | | | 269F | 2756 | DC | AL1(EDMS1-EDMS1B) |
| | | | 26A1 | 2757 | DC | AL2(EDMS1) |
| | | | 26A3 | 2758 | DC | XL2'FFFE' |
| | | | 26A7 | 2759 | B | SNSAP |
| | | | 26AB | 2760 | B | HALT |
| | | | 26AD | 2761 | DC | XL2'FFFE' |
| | | | 26B1 | 2762 | B | LINKH |
| | | | 26B1 | 2763 | * | |
| | | | 26B5 | 2764 | * | |
| | | | 26B5 | 2765 | * | |
| | | | 26B5 | 2766 | * | DEVICE NOT READY OR ERROR SCBROUTINE |
| | | | 26B1 | 2767 | HALT1 | EQU * |
| | | | 26B5 | 2768 | ST | HALT1R+3,ARR |
| | | | 26BB | 2769 | SLC | HALT1R+3(2),X4 |
| | | | 26BB | 2770 | * | STORE RETURN ADDRESS |
| | | | 26BF | 2771 | B | RETURN TO TIO INSTRUCTION THAT CALLED IT |
| | | | 26C3 | 2772 | HALT1A | TBN |
| | | | 26C6 | 2773 | JF | SNS24 |
| | | | 26CA | 2774 | MVI | STATE-1,X'10' |
| | | | 26CE | 2775 | TBN | **7 |
| | | | 26D1 | 2776 | JF | ERMSG-24,C'4' |
| | | | 26D5 | 2777 | MVI | STATE-1,X'20' |
| | | | 26D9 | 2778 | JF | **7 |
| | | | 26DC | 2779 | MVI | ERMSG-24,C'3' |
| | | | 26E0 | 2780 | TBN | STATE-1,X'40' |
| | | | 26E4 | 2781 | JF | **7 |
| | | | 26E7 | 2782 | MVI | ERMSG-24,C'2' |
| | | | 26EB | 2783 | TBN | STATE-1,X'80' |
| | | | 26EF | 2784 | JF | **7 |
| | | | 26F0 | 2785 | MVI | ERMSG-24,C'1' |
| | | | 26F1 | 2786 | B | PRINT |
| | | | 26F3 | 2787 | DC | XL1'C6' |
| | | | 26F5 | 2788 | DC | AL1(ERMSG-ERMSGB) |
| | | | 26F5 | 2789 | DC | AL2(ERMSG) |
| | | | 26F5 | 2790 | B | XL2'FFFC' |
| | | | 26F5 | 2791 | B | SNSAP |
| | | | | | | PRINT WHAT YOU HAVE SENSED |

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-----------------|-----------|-----------|--------------------|
| 26F9 | C0 87 0222 | 2792 | B | HALT |
| 26FD | FFFC | 26FE 2793 | DC | XL2'FFFC' |
| 26FF | C0 87 0000 | 2794 | | |
| | | 2795 | HALT1R B | *--* |
| | | 2796 | | |
| | | 2796 | | |
| | | 2796 | | |
| | | 2796 | | |
| 2703 | C0 87 25E2 | 2797 | HALT2 EQU | * |
| 2707 | 38 01 0A14 | 2798 | B | SNS24 |
| 270B | C0 10 267D | 2799 | TBN | STATE,X'01' |
| | | 2800 | BT | EE1 |
| | | 2801 | | |
| 270F | 39 02 0B60 | 2802 | TBF | DBYTE0,TRKCC |
| 2713 | 39 01 0B61 | 2803 | TBF | DBYTE1,OPINCP |
| 2717 | C0 90 2523 | 2804 | BF | DEFTRK |
| | | 2805 | * | |
| | | 2806 | | |
| 271B | 39 25 0B60 | 2807 | TBF | DBYTE0,X'25' |
| 271F | 39 1C 0B61 | 2808 | TBF | DBYTE1,X'1C' |
| 2723 | 39 78 0B62 | 2809 | TBF | DBYTE2,X'78' |
| 2727 | C0 90 24A4 | 2810 | BF | BRTRY1 |
| | | 2811 | | |
| 272B | 0C 01 2702 239B | 2812 | MVC | HALT1R+3(2),LINKH0 |
| 2731 | C0 87 26BF | 2813 | B | HALT1A |
| | | 2814 | | |
| | | 2814 | | |
| | | 2814 | | |
| 2735 | C0 87 021A | 2815 | TOOPAR B | PRINT |
| 2739 | C6 | 2739 2816 | DC | XL1'C6' |
| 273A | 4E | 273A 2817 | DC | AL1(ERR14-ERR14B) |
| 273B | 2E85 | 273C 2818 | DC | AL2(ERR14) |
| 273D | FFEE | 273E 2819 | DC | XL2'FFEE' |
| 273F | C0 87 0222 | 2820 | B | HALT |
| 2743 | FFEE | 2744 2821 | DC | XL2'FFEE' |
| 2745 | C0 87 0BCB | 2822 | B | EDITAA |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-------------|------|----------------------|--------------------------------------|
| 2824 | * | | | ***** |
| 2825 | * | | | INPUT ROUTINES |
| 2826 | * | | | |
| 2827 | * | | | THE FOLLOWING ROUTINES WILL ALLOW |
| 2828 | * | | | INPUT RECORDS TO BE READ. |
| 2829 | * | | | |
| 2830 | * | | | SSW18 = 1442 AS INPUT DEVICE |
| 2831 | * | | | SSW17 = 3741 AS INPUT DEVICE |
| 2832 | * | | | SSW1A = MFCU AS INPUT DEVICE |
| 2833 | * | | | NO SETTING = 5471 AS INPUT DEVICE |
| 2834 | * | | | ***** |
| 2835 | | | | |
| 2836 | RECORD ST | | XEXITR+3,ARR | SAVE RETURN ADDRESS |
| 2837 | TRYAGN LA | | READIN,XR2 | SET XR2 TO POINT TO READIN |
| 2838 | NVI | | 95(,XR2),C' | BLANK INPUT BUFFER |
| 2839 | NVC | | 94(95,XR2),95(,XR2) | |
| 2840 | | | | |
| 2841 | SBF | | USECRT,X'F0' | RESET USECRT FLAG |
| 2842 | NVI | | CD10R2,2 | SET FLAG FOR READING UNCOMPRESS DATA |
| 2843 | | | | |
| 2844 | TBN | | SWITCH+3,SSW2F | IF SSW 2F ON, DO FE7 PROCEDURE |
| 2845 | JF | | CK18 | IF OFF, NORMAL PROCESSING |
| 2846 | ST | | ADDR,XR1 | SAVE XR1 |
| 2847 | NVC | | GOOUT+3(2),X3PFF | SET UP LINKAGE TO FE7 ROUTINE |
| 2848 | GOOUT B | | *--* | GO TO OUT IN FE7 |
| 2849 | L | | ADDR,XR1 | RESTORE REGISTERS |
| 2850 | LA | | READIN,XR2 | |
| 2851 | B | | XEXIT | RETURN TO CALLER |
| 2852 | | | | |
| 2853 | CK18 TBN | | SWITCH+1,SSW18 | TEST SSW 18 |
| 2854 | BT | | LD1442 | IF ON, USE THE 1442 AS INPUT. |
| 2855 | TBN | | SWITCH,SSW17 | TEST SSW 17 |
| 2856 | JT | | LD3741 | IF ON, USE THE 3741 AS INPUT. |
| 2857 | TBN | | SWITCH+1,SSW1A | TEST SSW 1A, |
| 2858 | BT | | MFCU | IF ON, USE THE MFCU AS INPUT. |
| 2859 | TBN | | SWITCH+1,SSW1B | IS SSW1B ON |
| 2860 | JT | | CLE55 | IF SO USE PROGRAM E55 AS INPUT |
| 2861 | SBN | | USECRT,X'F0' | USE THE 5471 FOR INPUT |
| 2862 | B | | LD5471 | IF NO SWITCHES ON USE 5471 FOR INPUT |
| 2863 | | | | |
| 2864 | CLE55 ST | | ADDR,XR1 | SAVE ADDRESS IN XR1 |
| 2865 | NVC | | BE55+3(2),X'7001' | GO TO 7001 AND GET ADDRESS TO BRANCH |
| 2866 | BE55 B | | *--* | BRANCH TO E55 |
| 2867 | LA | | READIN,XR2 | RESTORE XR2 |
| 2868 | L | | ADDR,XR1 | RESTORE XR1 |
| 2869 | NVI | | CD10R2,2 | SET FLAG FOR UNCOMPRESSED FORHAT |
| 2870 | | | | |
| 2871 | XEXIT TBN | | ADDPLG,X'OF' | ADD MODE SWITCH ON? |
| 2872 | JF | | XEXITR | IF NOT RETURN TO CALLER |
| 2873 | B | | SET0 | SET DDDF FIELD TO ZERO |
| 2874 | NVC | | 223(96,XR1),95(,XR2) | PUT CARD IMAGE IN TO DISK FIELD |
| 2875 | CLI | | CD10R2,2 | IS IT IN UNCOMPRESSED FORHAT? |
| 2876 | JE | | XEXITR | IF YES, RETURN TO CALLER |
| 2877 | TBN | | SWITCH+3,SSW2F | SKIP IF CALLED BY FE7 OR CCC |
| 2878 | JT | | XEXITR | |
| 2879 | TBN | | SWITCH,SSW17 | USING 3741 THEN RECORDS IN |
| 2880 | JT | | XEXITR | COMPRESS FORM |
| 2881 | | | | |
| 2882 | MVC | | 95(8,XR2),79(,XR2) | ADJUST ID AND SEQ # FIELDS |
| 2883 | XEXITR B | | *--* | RETURN TO CALLER |
| 2884 | | | | |
| 2884 | | | | |
| 2884 | | | | |
| 2884 | | | | |
| 27ED | 5050 | 27EE | 2885 X80 DC | XL2'5050' |
| 27EF | 0A80 | 27FO | 2886 CARD10 DC | AL2(READIN) |
| 27F1 | 3900 | 27F2 | 2887 BU114 DC | XL2'3900' |
| | | 27F2 | 2888 CARD20 EQU | BUF14 |

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
27F3 0000 27F4 2889 STATUX DC XL2'0'
27F5 00 27F5 2890 USECRT DC IL1'0' SWITCH FOR NOT PRINTING ON 5471
2891
2891
2891
2891
2892 *****
2893 * 5471 INPUT ROUTINE *
2894 * *
2895 * CODE TO READ RECORD FROM THE 5471 PRINTER/KEYBOARD *
2896 *****
2897
27F6 2898 LD5471 EQU *
2899 B SELDRV SET DRIVE # IN DISPLAY
2900 RTRY L XEXT1+3, XR2 LOAD THE @ OF READ BUFFER
2901 MVC 131(132, XR2), 132(, XR2) CLEAR BUFFER
2902 SIO X'41', X'18' START CARRIAGE RETURN + RESET PRT
2903 NXTCHR SIO X'11', X'10' PROCEED IND ON + RESET REG KEY
2904 RESNS SNS DAT, X'11' CHARACTER KEYED
2905 TBN DAT, X'40' END OR CANCEL KEYED
2906 JF TSTDAT NO
2907 TBN DAT, X'20' CANCEL KEYED
2908 BT RTRY YES
2909 SIO 1, X'10' RESET REQUEST KEY
2910 XEXT1 LA READIN, XR2 LOAD @ OF BUFFER
2911 B DORD CHECK FOR INPUT
2912 TSTDAT TBN DAT, X'08' DATA KEYED
2913 BF RESNS NO
2914 TBN DAT, X'04' RETURN KEY PRESSED
2915 BT RTRY YES
2916 MVC 0(1, XR2), DAT-1
2917 LIO DAT, X'18' MOVE CHARACTER TO BE PRINTED
2918 SIO X'81', X'18' PRINT CHARACTER
2919 LA 1(, XR2), XR2 MOVE TO NEXT CHARACTER
2920 ST TSTN, XR2 STORE CONTENTS OF REG
2921 CLI TSTN, X'E0'
2922 BE XEXT1
2923 B NXTCHR
2924 DORD SIO X'40', X'18' RETURN CARRIAGE
2925 DOREAD CLI READIN+131, C' CHECK FOR BLANK INPUT
2926 JNE NOTBLK
2927 C=C READIN+130(131), READIN+131
2928 BE RTRY
2929 NOTBLK B XEXIT
2930
2930
2930
2930
2931 *****
2932 *
2933 * 3741 INPUT ROUTINE *
2934 * *
2935 *****
286D 2936 LD3741 EQU *
2937 TBN F3741, X'10' HAVE WE READ THE LAST RECORD
2938 JF DOSIO JUMP IF NOT
2939 MVC 1(2, XR2), SLAMP MOVE IN A 1/E
2940 SBF F3741, X'PP' TURN OFF ALL FLAGS
2941 B EOJ1 GO END IT
2942 DOSIO LIO FUNBT1, X'41' LOAD THE FUNCTION BYTE
2943 SNS SNBYT2, X'43' SENSE I/O TRANSFER LINES
2944 TBN SNBYT2-1, X'04' ARE WE READY
2945 JF ERR11 NO ERROR
2946 TBN SNBYT2-1, X'02' TEST FOR READ BIT ON
2947 JT CONTI1 LOOP UNTIL READ BIT IS ON
2948 B PRINT PRINT MSG 3741 NOT IN READ MODE
289B 2949 DC XL1'C1' SPACE
289C 2950 DC IL1'29' LENGTH

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
289D 3674 289E 2951 DC AL2(RDMD) MSG @
289F FFF1 28A0 2952 DC XL2'FFF1' HALT INDICATOR
28A1 C0 87 021A 2953 B PRINT PRINT INFO MSG
28A5 06 28A5 2954 DC XL1'06' SPACE
28A6 45 28A6 2955 DC IL1'69' LENGTH
28A7 36B9 28A8 2956 DC AL2(SETUP) MSG @
28A9 C0 87 0222 2957 B HALT INDICATE 'P1' ON STIK LIT
28AD FFF1 28AE 2958 DC XL2'FFF1'
28AF C0 87 2881 2959 B DOSIO RETURN
28B3 F3 43 08 2960 CONTI1 SIO X'08', X'43' NORMAL RESPONSE TO 3741
28B6 3C 01 2ABF 2961 MVI CD1OR2, 1 SET FOR COMPRESS
28BA 31 44 27F0 2962 LIO CARD2@, X'44' PUT READ @ IN DSAR
28BE 31 42 2992 2963 LIO LENCT2, X'42' PUT 255-LENGTH IN LC REG
28C2 F3 41 00 2964 SIO 0, X'41' READ NEXT RECORD
28C5 C1 42 28C5 2965 TIO *, X'42' TEST UNTIL 3741 NOT BUSY
28C9 30 42 2994 2966 SNS SNBYT2, X'42' GET THE STATUS BYTE
28CD 39 0A 2993 2967 TBF SNBYT2-1, X'0A' PARITY READ ERROR OR LCR CVFLW
28D1 C0 90 297D 2968 BF ERR11 HALT IF EITHER CONDITION EXIST
28D5 F3 43 08 2969 SIO X'08', X'43' NORMAL RESPONSE TO 3741
28D8 38 01 2AB5 2970 TBN F3741, X'01' ADD FLAG ON
28DC F2 10 40 2971 JT EOJCHK
28DF BD 5B 00 2972 CLI 0(, XR2), C'S' CONTROL CARD READ
28E2 F2 01 04 2973 JNE **7 JUMP IF NOT
28E5 3A 08 2AB5 2974 SBN F3741, X'08' SET CONTROL FLAG ON
28E9 BD 61 00 2975 CLI 0(, XR2), C'/' CONTROL CARD READ
28EC F2 01 0A 2976 JNE CTLREC ASSUME A CONTROL RECORD
28EF BD 50 01 2977 CLI 1(, XR2), C'E' TERMINATOR RECORD?
28F2 F2 81 4C 2978 JE FIN GO FINISH READING
28F5 3A 08 2AB5 2979 SBN F3741, X'08' SET CONTROL RECORD BIT
28F9 38 08 2AB5 2980 CTLREC TBN F3741, X'08' SET CONTROL FLAG ON
28FD F2 10 1F 2981 JT EOJCHK
2900 3A 01 2AB5 2982 SBN F3741, X'01' SET THE ADD AND REPLACE FLAGS ON
2904 3C F1 2AB6 2983 MVI FADD, C'1' SET FORCED ADD FLAG
2908 30 43 2994 2984 WAIT SNS SNBYT2, X'43' SENSE I/O TRANSFER LINES
290C 38 02 2993 2985 TBN SNBYT2-1, X'02' READ BIT ON?
2910 C0 10 0D2F 2986 BT RTRN2 RETURN TO PROCESS 1ST RECORD
2914 38 08 2994 2987 TBN SNBYT2, X'08' END OF JOB?
2918 F2 10 17 2988 JT LSTRC CONTINUE
291B C0 87 2908 2989 B WAIT
291F 30 43 2994 2990 EOJCHK SNS SNBYT2, X'43' SENSE I/O TRANSFER LINES
2923 38 02 2993 2991 TBN SNBYT2-1, X'02' READ BIT ON
2927 F2 10 13 2992 JT CDEXIT RETURN
292A 38 08 2994 2993 TBN SNBYT2, X'08' END OF JOB
292E C0 90 291F 2994 BF EOJCHK
2932 3A 10 2AB5 2995 LSTRC SBN F3741, X'10' TURN ON LAST RECORD
2936 C0 87 27C1 2996 B XEXIT RETURN
293A F3 43 08 2997 EOJ1 SIO X'08', X'43' NORMAL RESPONSE TO 3741
293D C0 87 27C1 2998 CDEXIT B XEXIT RETURN TO CALLER
2941 30 43 2994 2999 FIN SNS SNBYT2, X'43' SENSE I/O TRANSFER LINES
2945 38 02 2993 3000 TBN SNBYT2-1, X'02' READ BIT ON
2949 F2 10 0C 3001 JT NXT RETURN
294C 38 08 2994 3002 TBN SNBYT2, X'08' END OF JOB
2950 C0 10 293A 3003 BT EOJ1
2954 C0 87 2941 3004 B FIN
2958 F3 43 08 3005 NXT SIO X'08', X'43' LOOP
295B 31 44 27F2 3006 LIO CARD2@, X'44' NORMAL RESPONSE TO 3741
295F 31 42 2992 3007 LIO LENCT2, X'42' PUT READ @ IN DSAR
2963 F3 41 00 3008 SIO 0, X'41' PUT 255-LENGTH IN LC REG
2966 C1 42 2966 3009 TIO *, X'42' READ NEXT RECORD
296A 30 42 2994 3010 SNS SNBYT2, X'42' TEST UNTIL 3741 NOT BUSY
296E 39 0A 2993 3011 TBF SNBYT2-1, X'0A' GET THE STATUS BYTE
2972 C0 90 297D 3012 BF ERR11 PARITY READ ERROR OR LCR OVFLW
2976 F3 43 08 3013 SIO X'08', X'43' HALT IF EITHER CONDITION EXIST
2979 C0 87 2941 3014 B FIN NORMAL RESPONSE TO 3741
297D C0 87 021A 3015 ERR11 B PRINT LOOP TO TEST
2981 46 3016 * BRANCH TO PRINT HFCU NOT READY OR
2982 23 2981 3017 DC XL1'46' ERROR.
2982 3018 DC IL1'35' FLAGS
LENGTH

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DATE 29AUG75 22DEC75 30APR76 25MAR77
 EC NO. 827804 827836 571872 571989

PROG ID DD6-3 DATE 29AUG75 22DEC75 30APR76 25MAR77
 PAGE 25 EC NO. 827804 827836 571872 571989

PROG ID DD6-3
 PAGE 25A

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|------------------|------|--------|----------------------|---|
| 2983 | 29FA | 2984 | 3019 | DC | AL2(ERRORC) ADDRESS OF LAST PRINT CHARACTER |
| 2985 | FFEC | 2986 | 3020 | DC | XL2'FFEC' MESSAGE IDENTIFICATION |
| 2987 | C0 87 0222 | 3021 | B | HALT | ISSUE HALT 'EC' |
| 2988 | FFEC | 298C | 3022 | DC | XL2'FFEC' |
| 298D | C0 87 2881 | 3023 | B | DOSIO | GO TRY START I/O |
| 2991 | 007F | 2992 | 3024 | LENCT2 DC | XL2'007F' |
| 2993 | 0000 | 2994 | 3025 | SNBYT2 DC | XL2'0' |
| 2995 | 4000 | 2996 | 3026 | FUNBT1 DC | XL2'4000' |
| 3027 | | | | | ***** |
| 3028 | * | | | MFCU INPUT ROUTINE | * |
| 3029 | | | | | ***** |
| 3030 | | | | | |
| 2997 | C1 F0 29BA | 3031 | MFCU | TIO | ERR,X'F0' TEST FOR NOT READY OR ERROR |
| 2998 | 31 F5 27F0 | 3032 | LIO | CARD10,X'F5' | LOAD DATA READIN ADDRESS |
| 2999 | F3 F1 00 | 3033 | SIO | X'00',X'F1' | READ CARD INTO I/O AREA |
| 29A2 | C1 F1 29A2 | 3034 | TIO | *,X'F1' | WAIT |
| 29A6 | 30 F3 27F4 | 3035 | SNS | STATUX,X'F3' | SENSE DEVICE STATUS |
| 29AA | 39 86 27F4 | 3036 | TBF | STATUX,X'86' | TEST FOR READ OR FEED CHECK |
| 29AE | 3C 02 2ABF | 3037 | MVI | CD1OR2,2 | SET FOR UNCOMPRESSED DATA |
| 29B2 | C0 10 2A1F | 3038 | BT | XEXT | |
| 29B6 | C0 87 2997 | 3039 | B | MFCU | |
| 3040 | | | | | |
| 29BA | 34 08 29D7 | 3041 | ERR | ST | ERR1+3,ARR STORE RETURN ADDRESS |
| 29BE | 0F 01 29D7 2BEE | 3042 | SIC | ERR1+3(2),X4 | AND ADJUST IT |
| 29C4 | C0 87 021A | 3043 | B | PRINT | BRANCH TO PRINT MFCU NOT READY OR ERROR. |
| 29C8 | 46 | 3044 | * | | |
| 29C9 | 23 | 3045 | DC | XL1'46' | FLAGS |
| 29CA | 29FA | 3046 | DC | IL1'35' | LENGTH |
| 29CC | FFEC | 29CB | 3047 | DC | AL2(ERRORC) ADDRESS OF LAST PRINT CHARACTER |
| 29CE | C0 87 0222 | 29CD | 3048 | DC | XL2'FFEC' MESSAGE IDENTIFICATION |
| 29D2 | FFEC | 3049 | B | HALT | BRANCH TO DCP HALT |
| 29D4 | C0 87 0000 | 29D3 | 3050 | DC | XL2'FFEC' HALT ID |
| 29D8 | C1D3E3C5D9D5C1E3 | 3051 | ERR1 | B | *-- RETURN TO TIO |
| 29E0 | C540D3D6C1C4C5D9 | 3052 | | | |
| 29E8 | 40D5D6E340D9C5C1 | 29FA | 3053 | ERRORC DC | CL35'ALTERNATE LOADER NOT READY OR ERROR' |
| 29F0 | C4E840D6D940C5D9 | 3053 | | | |
| 29F8 | D9D6D9 | 3053 | | | |
| 3054 | | | | | |
| 3054 | | | | | |
| 3054 | | | | | |
| 3054 | | | | | |
| 3055 | | | | | ***** |
| 3056 | * | | | 1442 INPUT ROUTINE | * |
| 3057 | | | | | ***** |
| 3058 | | | | | |
| 29FB | 31 54 27F0 | 3059 | LD1442 | LIO | CARD10,X'54' |
| 29FF | 3C 01 2ABF | 3060 | MVI | CD1OR2,1 | SET FLAG FOR COMPRESSED DATA |
| 2A03 | C0 87 2A23 | 3061 | B | RD1442 | |
| 2A07 | BD E7 4C | 3062 | CLI | 76(,XR2),C'X' | TEST FOR A 96 BYTE RECORD |
| 2A0A | C0 01 2A1F | 3063 | BNE | XEXT | |
| 2A0E | 31 54 27F2 | 3064 | LIO | BUF14,X'54' | IF SO THEN READ SECOND |
| 2A12 | 3C 02 2ABF | 3065 | MVI | CD1OR2,2 | SET FLAG FOR UNCOMPRESSED DATA |
| 2A16 | C0 87 2A23 | 3066 | B | RD1442 | CARD AND MOVE 20 BYTES |
| 2A1A | 8C 13 5F 3913 | 3067 | MVC | 95(20,XR2),CARD2A+19 | TO MAKE A 96 BYTE RECORD |
| 2A1F | C0 87 2858 | 3068 | XEXT | B | DORREAD CHECK INPUT |
| 2A23 | 34 08 2A3D | 3069 | | | |
| 2A27 | C1 50 29RA | 3070 | RD1442 | ST | X1442,ARR |
| 2A2B | F3 51 00 | 3071 | DX14 | TIO | ERR,X'50' TEST FOR NOT READY OR ERROR |
| 2A2E | C1 52 2A2E | 3072 | SIO | X'00',X'51' | READ CARD INTO I/O AREA |
| 2A32 | 30 53 27F4 | 3073 | TIO | *,X'52' | WAIT |
| 2A36 | 39 93 27F4 | 3074 | SNS | STATUX,X'53' | SENSE DEVICE STATUS |
| 2A3A | C0 10 0000 | 3075 | TBF | STATUX,X'93' | TEST FOR READ OR FEED CHECK |
| 2A3E | C0 87 2A27 | 3076 | BT | *-- | |
| | | 2A3D | 3077 | X1442 | EQU *-1 |
| | | | 3078 | B | DX14 |
| | | | 3079 | | |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|-----------------------|-----------------------|--------------------|---|
| 3080 | | | | | ***** |
| 3081 | * | | | 5471 PRINT ROUTINE | * |
| 3082 | | | | | ***** |
| 2A42 | 3083 | PRINT1 | EQU | * | |
| 3084 | ST | PRTEND+3,ARR | | | STORE THE RETURN @ |
| 3085 | SBF | USECRT,X'F1' | | | SET OFF USECRT |
| 3086 | ST | TEMP4,XR1 | | | SAVE THE CONTENTS OF XR1 |
| 3087 | L | PRTEND+3,XR1 | | | LOAD @ OF THE PRINTER PARM LIST |
| 3088 | TBF | SWITCH,SSW17 | | | ARE WE USING 3741 |
| 3089 | TBF | SWITCH+1,SSW18+SSW1A | | | ARE WE USING 5424 OR 1442 |
| 3090 | NODS | JT | D5471 | | NO, THEN JUMP |
| 3091 | J | PASPRM | | | YES, DON'T PRINT ON 5471 |
| 3092 | D5471 | SBN | USECRT,X'F0' | | SET BIT FOR 5471 |
| 3093 | MVC | PRTPRM(1),0(,XR1) | | | BUILD |
| 3094 | MVC | PRTPRM+1(1),1(,XR1) | | | PARM LIST |
| 3095 | MVC | PRTPRM+3(2),3(,XR1) | | | FOR 5471 OR PRINTER |
| 3096 | B | PRINT | | | GO PRINT |
| 2A77 | 3097 | PRTPRM | EQU | * | PRINTER PARM LIST |
| 2A7A | 3098 | DC | 4XL1'00' | | |
| 3099 | PASPRM | LA | 4(,XR1),XR1 | | POINT TO 1ST INSTRUCTION PASSED PARM |
| 3100 | ST | PRTEND+3,XR1 | | | STORE THAT @ INTO RETURN BRANCH |
| 3101 | L | TEMP4,XR1 | | | RESTORE XR1 TO ORIGINAL VALUE |
| 3102 | PRTEND | B | *-- | | RETURN TO CALLER |
| 3103 | | | | | ***** |
| 3104 | * | | | | * THIS ROUTINE WILL SET UP THE PRINTER SO THAT THE FIRST SIX POSITIONS* |
| 3105 | * | | | | * OF THE PRINT DATA IS NOT LOST WHEN PRINTING ON THE ALTERNATE PRINT* |
| 3106 | * | | | | * DEVICE. |
| 3107 | | | | | ***** |
| 2A8A | 3108 | PRINT2 | EQU | * | |
| 3109 | SI | RTRN6+3,ARR | | | STORE THE RETURN @ |
| 3110 | TBN | SWITCH-2,SSW05 | | | TEST FOR ALTERNATE PRINT DEVICE |
| 3111 | JT | PRT2 | | | YES, LOAD AT X'880' |
| 3112 | MVC | X87C+95(96),READIN+95 | | | MOVE IN DATA TO BE PRINTED |
| 3113 | J | PRT3 | | | JUMP AROUND |
| 3114 | PRT2 | MVC | X880+90(91),READIN+90 | | MOVE IN DATA TO BE PRINTED |
| 3115 | PRT3 | B | PRINT | | GO PRINT |
| 2A88 | 3116 | DC | XL1'26' | | FLAG |
| 3117 | RTRN6 | B | *-- | | RETURN TO CALLER |

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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3628 C6D6D940C9D5D7E4 3387
3630 E3 3387
3630 3388 MENU5C EQU *-1
3631 C5D5E3C5D940D5C5 3649 3389 DC CL25'ENTER NEXT REPLACE RECGRD'
3639 E7E340D9C5D7D3C1 3389
3641 C3C540D9C5C3D6D9 3389
3649 C4 3389
364A 4040404040404040 3657 3390 REPH1 DC CL14' ' $REPXXX IS INSERTED HERE
3652 404040404040 3390
3658 F3F7F4F140C9E240 3674 3391 RDMD DC CL29'3741 IS NOT IN THE READ MODE.'
3660 D5D6E340C9D54CE3 3391
3668 C8C540D9C5C1C440 3391
3670 D4D6C4C54B 3391
3675 D7E4E340F3F7F4F1 36A1 3392 DC CL45'PUT 3741 INTO READ MODE (SEE USERS GUIDE '
367D 40C9D5E3D640D9C5 3392
3685 C1C440D4D6C4C540 3392
368D 4DE2C5C540E4E2C5 3392
3695 D9E240C7E4C9C4C5 3392
369D 4040404040 3392
36A2 C2D3D6C3D240F1F0 36B9 3393 SETUP DC CL24'BLOCK 10) AND RESET HALT'
36AA 5D40C1D5C440D9C5 3393
36B2 E2C5E340C8C1D3E3 3393

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3395 *****
3396 * EQUATES *
3397 *****
3398
3398
007F 3399 MSGBGN EQU X'7F'
346E 3400 MENU51 EQU REPWHO
0008 3401 ARR EQU X'08'
0216 3402 LINK EQU X'216'
021A 3403 PRINT EQU X'21A'
0001 3404 XR1 EQU X'01'
0002 3405 XR2 EQU X'02'
0222 3406 HALT EQU X'222'
020A 3407 SBYTE2 EQU X'020A'
0B60 3408 DBYTE0 EQU DGSNSB
0B61 3409 DBYTE1 EQU DGSNSB+1
0B62 3410 DBYTE2 EQU DGSNSB+2
0B67 3411 DBYTE7 EQU DGSNSB+7
0002 3412 TRKCC EQU X'02'
0001 3413 OPINCP EQU X'01'
0212 3414 TEST EQU X'212'
021E 3415 UNPACK EQU X'21E'
0226 3416 PACK EQU X'226'
022A 3417 LOAD EQU X'22A'
00C4 3418 DDDR EQU X'C4'
00C6 3419 DDCR EQU X'C6'
020A 3420 SWITCH EQU X'020A'
3FFF 3421 I3FFF EQU X'3FFF'
3900 3422 CARD2A EQU X'3900'
00C0 3423 IAR EQU X'C0'
0018 3424 SIOI EQU X'18'
0879 3425 CRTPLG EQU X'879'
0004 3426 SSW07 EQU X'01'
0020 3427 SSW22 EQU X'20'
0010 3428 SSW23 EQU X'10'
0008 3429 SSW24 EQU X'08'
0080 3430 SSW18 EQU X'80'
0001 3431 SSW17 EQU X'01'
0020 3432 SSW1A EQU X'20'
0010 3433 SSW1B EQU X'10'
0001 3434 SSW2F EQU X'01'
00C0 3435 DR1 EQU X'C0'
00C8 3436 DR2 EQU X'C8'
0CD0 3437 DR3 EQU X'D0'
00D8 3438 DR4 EQU X'D8'
0020 3439 P1IAR EQU X'20'
0010 3440 IAR EQU 16
0080 3441 SNSDR1 EQU X'80'
0040 3442 SNSDR2 EQU X'40'
0020 3443 SNSDR3 EQU X'20'
0010 3444 SNSDR4 EQU X'10'
0A07 3445 QPUDT EQU X'A07'
022F 3446 QTAB EQU X'22F'
0232 3447 UTAB EQU X'232'
0211 3448 RPF1 EQU X'211'
0080 3449 BIT0 EQU X'80'
0040 3450 BIT1 EQU X'40'
0020 3451 BIT2 EQU X'20'
0010 3452 BIT3 EQU X'10'
0208 3453 SBYTE0 EQU X'208'
020C 3454 SBYTE4 EQU X'20C'
0A02 3455 SPFLGS EQU X'A02'
0003 3456 H1 EQU X'03'
003F 3457 HA EQU X'3F'
003B 3458 HH EQU X'3B'
0000 3459 L1 EQU 00
0028 3460 L2 EQU 40
0050 3461 L3 EQU 80

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SECTION PREFACE UNIT TABLE-3
FIRST BYTE OF UDT TABLE-3
FIRST BYTE OF UDT TABLE

SECTION PREFACE FLAGS
HALT DISPLAY 1
HALT DISPLAY A
HALT DISPLAY H

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|-------|------|---------|-----------|
| 0078 | 3462 | L4 | EQU | 120 | |
| 00A0 | 3463 | L5 | EQU | 160 | |
| 00C8 | 3464 | L6 | EQU | 200 | |
| 00F0 | 3465 | L7 | EQU | 240 | |
| 0118 | 3466 | L8 | EQU | 280 | |
| 0140 | 3467 | L9 | EQU | 320 | |
| 0168 | 3468 | L10 | EQU | 360 | |
| 0190 | 3469 | L11 | EQU | 400 | |
| 01B8 | 3470 | L12 | EQU | 440 | |
| 0A6F | 3471 | IDLOC | EQU | SAVID-5 | |
| 0900 | 3472 | X900 | EQU | X'900' | |
| 2BE0 | 3473 | WRT# | EQU | DDCFT | |
| 2C05 | 3474 | DAT | EQU | TSTN | |
| 087C | 3475 | X87C | EQU | X'87C' | |
| 0880 | 3476 | X880 | EQU | X'880' | |
| 0004 | 3477 | SSW05 | EQU | X'04' | |

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

| | | | | | |
|------|---------------|----|--|--------|--------------------------------------|
| | | | | | 3479 ***** |
| | | | | | 3480 * |
| | | | | | 3481 * END CARD ROUTINE |
| | | | | | 3482 * |
| | | | | | 3483 ***** |
| 36BA | 40 | | | 36BA | 3484 ENDROU DC CL1' |
| 36BB | 1C 16 0016 | FF | | 3485 | MVC 22(23),LENGTH-ENDROU+127(,XR1) |
| | | | | 3486 * | SET UP PROGRAM RESTART |
| 36C0 | 4C 01 D8 022F | | | 3487 | MVC LMA-ENDROU+128(2,XR1),X'22F' |
| | | | | 3488 * | SET MESSAGE ADDRESS IN PRINT LINKAGE |
| | | | | 3489 | TBN SPFLGS,BIT0 |
| | | | | 3490 | JT LDEND |
| | | | | 3491 | LA QPUDT,XR2 |
| | | | | 3492 | UPIND1 LA QTAB,XR1 |
| | | | | 3493 | LA 3(,XR2),XR2 |
| | | | | 3494 | UPIND2 LA 3(,XR1),XR1 |
| | | | | 3495 | CLC 0(1,XR1),0(,XR2) |
| | | | | 3496 | JNE UFIND4 |
| | | | | 3497 | MVC 2(1,XR2),2(,XR1) |
| | | | | 3498 | MNN 1(,XR2),1(,XR1) |
| | | | | 3499 | SBN 1(,XR2),BIT2 |
| | | | | 3500 | UPIND3 TBN 1(,XR2),BIT3 |
| | | | | 3501 | BF X900+UFIND1-ENDROU |
| | | | | 3502 | J LDEND |
| | | | | 3503 | UPIND4 TBN 1(,XR1),BIT3 |
| | | | | 3504 | BF X900+UFIND2-ENDROU |
| | | | | 3505 | TBF 1(,XR2),BIT1 |
| | | | | 3506 | BT X900+UFIND3-ENDROU |
| | | | | 3507 | HLT1 HPL H1,HH |
| | | | | 3508 | B X900+UFIND3-ENDROU |
| | | | | 3509 | LDEND B PRINT |
| | | | | 370F | 3510 DC XL1'47' |
| | | | | 3710 | 3511 DC IL1'14' |
| | | | | 3712 | 3512 LMA DC AL2(*-*) |
| | | | | 3714 | 3513 DC XL2'FF0J' |
| | | | | 3514 | TBF SBYTE0,SSW07 |
| | | | | 3515 | TBF X'1FD',X'08' |
| | | | | 3516 | JF **06 |
| | | | | 3517 | HLTA HPL HA,HH |
| | | | | 0A03 | 3518 USING RNUM,XR2 |
| | | | | 3519 | LA RNUM,XR2 |
| | | | | 3520 | L 4(,XR2),XR1 |
| | | | | 3521 | MVC RNUM(1,XR2),0(,XR1) |
| | | | | 3522 | MVC RPF(4),3(,XR1) |
| | | | | 3523 | B TEST |
| | | | | 3524 | B 4(,XR1) |
| | | | | 373A | 3525 LENGTH EQU * |

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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3527 *****
3528 * IF FLAG OCCURS ON THIS ORG YOU HAVE EXPANDED INTO X'3900'.
3529 * 3900-39FF IS THE BUFFER FOR SECOND CARD FOR 2560 AND 1442.
3530 * 3A00- 0H IS RESERVED FOR USE BY THE HLTA CONFIGURATOR PROGRAM
3531 * 'FE7'.
7E3A 3532 * ORG X'8000'-X'3900'+*
3533 *
3534 *
3535 *
3536 *
4800 3537 * ORG X'4800'
4800 3538 DDDF EQU * WORK FIELD
4800 77FF 3539 DS 48CL256
4900 3540 DDDF1 EQU DDDF+256

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3542 TREP
3543 TREP
3544 TREP
3545 TREP
3546 TREP
3547 TREP
3548 TREP
3549 TREP
3550 TREP
3551 TREP
3552 TREP
3553 TREP
3554 TREP
3555 * JEB
0B9D 3556 END SETDSK

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DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

CROSS-REFERENCE

Table with columns: SYMBOL, T, LEN, VALUE, DEFN, REFERENCES. Contains cross-reference data for DD63 3340 CE DISK EDITOR MOD 12.

Table with columns: SYMBOL, T, LEN, VALUE, DEFN, REFERENCES. Contains cross-reference data for DD63 3340 CE DISK EDITOR MOD 12.

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| FADD | A | 001 | 2AB6 | 3133 | 0176* 0275* 0710* 0918 0921* 2983* |
| FAS | A | 003 | 2269 | 2359 | 1792 2296 |
| FASINE | A | 001 | 2267 | 2358 | 0318 0540 1159 1264 1265* 1401* 1404 1407 1790* 1792* 2302* 2303* |
| FASINF | A | 001 | 2272 | 2360 | 2304* 2361 |
| FASINM | A | 001 | 226F | 2361 | 0317 0506* 0507* 1263* 1791* 2298* 2301* 2326 2376 2397 |
| FASWR | A | 004 | 1020 | 0515 | 1798 1801 1806 1810* 1814 1816 |
| FPA | A | 003 | 2B29 | 3183 | 0452 0685 |
| FFALOC | A | 005 | 2B74 | 3199 | 0298 0519 |
| FFB | A | 003 | 2B2C | 3184 | 0577 0669 |
| FIGCON | A | 002 | 2B16 | 3174 | 0300 0521 |
| FIN | A | 004 | 2941 | 2999 | 0206 |
| FINCAL | A | 006 | 1AF0 | 1566 | 2978 3004 3014 |
| FLAG | A | 001 | 1666 | 1131 | 1522 |
| FLAG1 | A | 001 | 0C67 | 0171 | 1134 |
| FLAG2 | A | 001 | 17C5 | 1270 | 0166 0919 |
| FLAG3 | A | 001 | 0F99 | 0464 | 1273 |
| FRDRV* | A | 001 | 2C01 | 3246 | 0467 |
| FRDTRK | A | 001 | 25C6 | 2669 | 0480 |
| FSTCPU | A | 001 | 2ABE | 3137 | 1357* 1382 1385 2211 |
| FUNBT1 | A | 002 | 2996 | 3026 | 2635 |
| F3741 | A | 001 | 2AB5 | 3132 | 0560 0711 0712* 0745* |
| GET1 | A | 004 | 0C42 | 0151 | 2942 |
| GET2 | A | 004 | 0D23 | 0257 | 0102* 0425* 2937 2940* 2970 2974* 2979* 2980 2982* 2995* |
| GET3 | A | 004 | 12CF | 0771 | 0153 0178 0225 0250 |
| GET4 | A | 004 | 14DD | 0951 | 0105 0259 1008 |
| GET5 | A | 004 | 117F | 0636 | 0760 0773 |
| GET7 | A | 004 | 13B5 | 0850 | 0954 |
| GOOUT | A | 004 | 2771 | 2848 | 0663 0723 0994 1012 1027 |
| HA | C | 001 | 003F | 3457 | 0845 0867 |
| HALT | C | 001 | 0222 | 3406 | 2847* |
| HALT1 | A | 001 | 26B1 | 2767 | 3517 |
| HALT1A | A | 004 | 26BF | 2772 | 0096 0184 0195 0231 0618 0693 0969 0978 0989 1004 1022 1035 |
| HALT1B | A | 004 | 26FF | 2795 | 1050 1059 1341 1596 2001 2749 2759 2792 2820 2957 3021 3049 |
| HALT2 | A | 001 | 2703 | 2797 | 255J 2607 2649 2655 |
| HARSAY | A | 001 | 2AC7 | 3144 | 2813 |
| HDG1 | A | 041 | 2CE6 | 3263 | 2768* 2769* 2812* |
| HDG1B | A | 001 | 2C90 | 3261 | 2566 2596 2613 |
| HDRDCP | A | 004 | 146E | 0921 | 1567* 1571* 1573* 1574* 1578* 1581 |
| HERE | A | 004 | 1B06 | 1571 | 2730 2731 |
| HERE1 | A | 004 | 1B1E | 1578 | 2730 |
| HH | C | 001 | 003B | 3458 | 0914 |
| HLTA | A | 003 | 3720 | 3517 | 1569 |
| HLT1 | A | 003 | 3704 | 3507 | 1576 |
| HLW | A | 002 | 2AD1 | 3149 | 3507 3517 |
| HL3 | A | 002 | 2ACD | 3147 | 1493* 1521 |
| HPW | A | 002 | 2AD5 | 3151 | 1473* 1479 1480 1530* 1539 1542* 1544 1553 |
| H1 | C | 001 | 0003 | 3456 | 1514* 1515* 1521* 1552* 1555* 1573 1575 |
| IAR | C | 001 | 0010 | 3440 | 3507 |
| IAR1 | C | 001 | 00C0 | 3423 | |
| ICTR | A | 001 | 2BFD | 3242 | 0842* 0849* 0866* 0930* 0933* 0945* 0948* 1355* 1376* 2511* 2582* 2626* |
| IDLOC | A | 096 | 0A6F | 3471 | 0483 0484 0490 0519 0521 0598 0599 |
| INCCCL | A | 006 | 21E1 | 2267 | 2262 |
| INCHD | A | 004 | 21CD | 2261 | 2257 |
| INVCD | A | 004 | 1521 | 0982 | 0381 0641 |
| INVCD1 | A | 004 | 1850 | 1325 | 1218 1220 1222 1225 1227 |
| INVHDR | A | 004 | 14F9 | 0964 | 0917 0920 |
| INVID | A | 005 | 1572 | 1014 | 0401 0646 0792 |
| INVSCD | A | 004 | 150D | 0973 | 0285 0290 |
| INVSEQ | A | 005 | 1541 | 0996 | 0277 0399 0644 0739 0794 |
| KBRDY | A | 020 | 303C | 3306 | 0149 0150 2453* 2457* |
| KBRDYB | A | 001 | 3028 | 3305 | 0149 |
| KCTR | A | 001 | 2BFF | 3244 | 1628* 1674* |
| LCTR | A | 001 | 2BFE | 3243 | 0856* 0860* 1631* 1647* 1652 1670 |

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| LDEND | A | 004 | 370B | 3509 | 3490 3502 |
| LD1442 | A | 004 | 29FB | 3059 | 2854 |
| LD3741 | A | 001 | 286D | 2936 | 2856 |
| LD5471 | A | 001 | 27F6 | 2898 | 2862 |
| LENCT2 | A | 002 | 2992 | 3024 | 2963 3007 |
| LENGTH | A | 001 | 373A | 3525 | 0427 0427 0427* 1245 1245 1245* 3485 |
| LINK | C | 001 | 0216 | 3402 | 0193 |
| LINKM | A | 001 | 0C8F | 0188 | 0168 0696 2504 2751 2761 |
| LINKM0 | A | 002 | 239B | 2504 | 2812 |
| LM0 | A | 002 | 3712 | 3512 | 3487* |
| LOAD | C | 001 | 022A | 3417 | |
| LOOP1 | A | 004 | 0E32 | 0341 | 0336 0344 0352 0418 0621 0903 0993 1011 1026 1052 |
| LOOP10 | A | 006 | 187B | 1357 | 1380 |
| LOOP11 | A | 004 | 2154 | 2208 | 2229 |
| LOOP12 | A | 004 | 1B97 | 1630 | 1665 1681 |
| LOOP13 | A | 004 | 261F | 2705 | 2721 |
| LOOP14 | A | 004 | 2623 | 2706 | 2716 |
| LOOP16 | A | 004 | 1CC1 | 1747 | 1760 1781 |
| LOOP17 | A | 006 | 20E2 | 2157 | 2184 |
| LOOP18 | A | 004 | 1D52 | 1798 | 1808 |
| LOOP19 | A | 004 | 149A | 0931 | 0934 |
| LOOP2 | A | 004 | 0E2A | 0338 | 0445 |
| LOOP21 | A | 003 | 1E60 | 1916 | 1911 1920 |
| LOOP22 | A | 003 | 1E7F | 1927 | 1929 |
| LOOP23 | A | 003 | 1E90 | 1933 | 1937 |
| LOOP24 | A | 003 | 1EB1 | 1944 | 1950 1966 |
| LOOP25 | A | 004 | 1E42 | 1906 | 1913 |
| LOOP3 | A | 004 | 14CB | 0947 | 0949 |
| LOOP30 | A | 003 | 13C5 | 0857 | 0861 |
| LOOP4 | A | 004 | 0F19 | 0413 | 0361 0369 0408 0798 |
| LOOP5 | A | 004 | 1C7F | 1723 | 1741 |
| LOOP6 | A | 004 | 169F | 1148 | 1151 |
| LOOP7 | A | 006 | 0D8F | 0288 | 0292 |
| LOOP8 | A | 006 | 22EB | 2399 | 2419 |
| LOOP9 | A | 003 | 1364 | 0823 | 0828 |
| LOP12A | A | 004 | 1B9B | 1631 | 1614* |
| LSCNT1 | A | 004 | 1B9F | 1633 | 1640 1650 |
| LSCNT2 | A | 004 | 1BDA | 1652 | 1615* 1635 |
| LSCNT3 | A | 004 | 1BEF | 1658 | 1648 |
| LSPGM1 | A | 004 | 1B6D | 1618 | 1611 1613 |
| LSPGM2 | A | 004 | 1B93 | 1628 | |
| LSPG1A | A | 004 | 1B7B | 1621 | 1616* |
| LSPG1B | A | 004 | 1B7F | 1623 | 1617* |
| LSTCON | A | 004 | 1C03 | 1667 | 1653 |
| LSTDOD | A | 004 | 2AED | 3161 | 0307* 0390 |
| LSTPGM | A | 001 | 1B4F | 1609 | 0213 |
| LSTRC | A | 004 | 2932 | 2995 | 2988 |
| LSTRD | A | 004 | 1C35 | 1688 | 1633 |
| LSTRDR | A | 004 | 1C46 | 1692 | 1688* 1690 1705 |
| LSTSCN | A | 001 | 2AB4 | 3131 | 2394* 2406* 2418 |
| LWRITE | A | 004 | 0F33 | 0424 | 0378 0386 0393 0395 0411 |
| LWRT | A | 001 | 2AB1 | 3127 | 0424* 0444 1105* 1656* 1663 1664* |
| L1 | C | 001 | 0000 | 3459 | |
| L10 | C | 001 | 0168 | 3468 | |
| L11 | C | 001 | 0190 | 3469 | |
| L12 | C | 001 | 01B8 | 3470 | |
| L2 | C | 001 | 0028 | 3460 | |
| L3 | C | 001 | 0050 | 3461 | |
| L4 | C | 001 | 0078 | 3462 | |
| L5 | C | 001 | 00A0 | 3463 | |
| L6 | C | 001 | 00C8 | 3464 | |
| L7 | C | 001 | 00F0 | 3465 | |
| L8 | C | 001 | 0118 | 3466 | |
| L9 | C | 001 | 0140 | 3467 | |
| MADD | A | 025 | 3630 | 3387 | 0247 0248 |
| MADDB | A | 001 | 360A | 3385 | 0247 |

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| HAIPGM | A | 003 | 2AF7 | 3165 | 1626 1720 |
| MCTLB | A | 033 | 360A | 3384 | 0174 0175 0222 0223 |
| MCTLB | A | 001 | 35E3 | 3382 | 0174 0222 |
| MCTR | A | 001 | 2C00 | 3245 | 1625* 1678* 1689* 1694* |
| ME | A | 002 | 2AFB | 3167 | 0385 |
| MENU1 | A | 038 | 31EC | 3330 | 0113 0114 |
| MENU1A | A | 001 | 31C6 | 3329 | 0113 |
| MENU1B | A | 001 | 31EC | 3331 | 0117 |
| MENU1C | A | 001 | 3214 | 3333 | 0121 |
| MENU1D | A | 001 | 323C | 3335 | 0125 |
| MENU1E | A | 001 | 3264 | 3337 | 0129 |
| MENU1F | A | 001 | 328C | 3339 | 0133 |
| MENU1G | A | 001 | 32B4 | 3341 | 0137 |
| MENU1H | A | 001 | 32DC | 3343 | 0141 |
| MENU1I | A | 001 | 3304 | 3345 | 0145 |
| MENU11 | A | 040 | 3214 | 3332 | 0117 0118 |
| MENU12 | A | 040 | 323C | 3334 | 0121 0122 |
| MENU13 | A | 040 | 3264 | 3336 | 0125 0126 |
| MENU14 | A | 040 | 328C | 3338 | 0129 0130 |
| MENU15 | A | 040 | 32B4 | 3340 | 0133 0134 |
| MENU16 | A | 040 | 32DC | 3342 | 0137 0138 |
| MENU17 | A | 040 | 3304 | 3344 | 0141 0142 |
| MENU18 | A | 040 | 332C | 3346 | 0145 0146 |
| MENU2 | A | 038 | 3352 | 3348 | 1850 1851 |
| MENU2B | A | 001 | 332C | 3347 | 1850 |
| MENU2C | A | 001 | 3352 | 3349 | 1854 |
| MENU2D | A | 001 | 337A | 3351 | 1858 |
| MENU2E | A | 001 | 33A2 | 3353 | 1862 |
| MENU2F | A | 001 | 33CA | 3355 | 1866 |
| MENU2H | A | 001 | 33FA | 3357 | 1870 |
| MENU4 | A | 038 | 3448 | 3360 | 0852 0853 |
| MENU4B | A | 001 | 3422 | 3359 | 0852 |
| MENU5B | A | 001 | 3448 | 3361 | 1174 |
| MENU5C | A | 001 | 3630 | 3388 | 1236 |
| MENU5D | A | 001 | 346E | 3364 | 1178 |
| MENU5E | A | 001 | 3496 | 3366 | 1182 |
| MENU5F | A | 001 | 34BE | 3368 | 1186 |
| MENU5G | A | 001 | 34E6 | 3370 | 1190 |
| MENU5H | A | 001 | 350E | 3372 | 1194 |
| MENU5I | A | 001 | 3536 | 3374 | 1198 |
| MENU51 | A | 014 | 346E | 3400 | 1174 1175 |
| MENU53 | A | 040 | 3496 | 3365 | 1178 1179 |
| MENU54 | A | 040 | 34BE | 3367 | 1182 1183 |
| MENU55 | A | 040 | 34E6 | 3369 | 1186 1187 |
| MENU56 | A | 040 | 350E | 3371 | 1190 1191 |
| MENU57 | A | 040 | 3536 | 3373 | 1194 1195 |
| MENU58 | A | 040 | 355E | 3375 | 1198 1199 |
| MEN22 | A | 040 | 337A | 3350 | 1854 1855 |
| MEN23 | A | 040 | 33A2 | 3352 | 1858 1859 |
| MEN24 | A | 040 | 33CA | 3354 | 1862 1863 |
| MEN25 | A | 048 | 33FA | 3356 | 1866 1867 |
| MEN27 | A | 040 | 3422 | 3358 | 1870 1871 |
| MFCU | A | 004 | 2997 | 3031 | 2858 3039 |
| MINUS1 | A | 002 | 0B9C | 0056 | 2040 2130 |
| MOV1 | A | 006 | 23DB | 2519 | 2512* 2513 2514* 2515* 2516 2517* 2520 2546 2547 2643 |
| MOV2 | A | 006 | 24B5 | 2586 | 2520* |
| MOV3 | A | 006 | 2486 | 2572 | 2547* 2592 |
| MSGBGM | C | 001 | 007F | 3399 | 0427* 1245* |
| MSG02 | A | 016 | 31C6 | 3328 | 1308* 1312 |
| MSP | A | 011 | 3047 | 3308 | |
| MSPD | A | 001 | 303C | 3307 | |
| MULT10 | A | 006 | 1A9D | 1532 | 1534 |
| MULT12 | A | 006 | 1A6E | 1515 | 1517 |
| MULT40 | A | 036 | 19E0 | 1475 | 1477 |
| MVC1 | A | 006 | 22BE | 2387 | 2380* |
| MVC10 | A | 006 | 23D5 | 2518 | 2516* |

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| MVC2 | A | 006 | 25A9 | 2659 | 2643* 2644* |
| MVC3 | A | 006 | 21B4 | 2253 | 2252* 2271 |
| MVC4 | A | 006 | 21F7 | 2272 | 2271* |
| MVC6 | A | 006 | 21AB | 2252 | 2251* |
| MVC8 | A | 004 | 2024 | 2081 | 2078* 2079* |
| MVC9 | A | 004 | 1EA3 | 1939 | 1932* 1935* |
| MVI1 | A | 004 | 232A | 2424 | 2421* |
| MVI2 | A | 004 | 2335 | 2428 | 2427* |
| MVI3 | A | 003 | 200C | 2076 | 2074* 2075* 2077* 2079 |
| MVI4 | A | 004 | 251B | 2616 | 2513* 2631 |
| MVI5 | A | 004 | 253E | 2632 | 2631* |
| NAS | A | 001 | 2BB8 | 3216 | 0318* 0319 0454 0455* 0507 0534* 0535* 0541* 1159* 1450* 1453* 1743* 1764 1780* 1790 1841* 1843* 1972* 2155 |
| NBLNK | A | 004 | 1333 | 0808 | 0804 |
| NEG3 | A | 002 | 1F54 | 2023 | 2054 2381 |
| NEG4 | A | 002 | 1F56 | 2024 | 2055 |
| NEXT | A | 004 | 2057 | 2105 | 2119 |
| NODS | A | 003 | 2A5A | 3090 | 0109* |
| NOTBLK | A | 004 | 2869 | 2929 | 2926 |
| NOTDAT | A | 004 | 0F0D | 0409 | 0406 |
| NOTSSW | A | 005 | 0E8A | 0370 | 0366 |
| NOT12 | A | 001 | 1E32 | 1587 | 1384* 1435 1469 1588* |
| NRWRT | A | 004 | 0FB7 | 0476 | 0468 |
| NSSW | A | 003 | 1735 | 1217 | 1211 |
| NWRT | A | 006 | 112B | 0598 | 0460 |
| NWRTPG | A | 001 | 2AAE | 3124 | 0302* 0451 0957* 2153* 2164* 2183 |
| NXT | A | 003 | 2958 | 3005 | 3001 |
| NXTCHR | A | 003 | 2805 | 2903 | 2923 |
| OLD | A | 003 | 2B14 | 3173 | 0470 1275 1639 1729 1759 |
| ONE | A | 001 | 0A03 | 0015 | 0288 0416 0439 0505 0564 0573 0654 0860 0866 0933 0948 1144 1150 1160 1232 1263 1376 1476 1489 1504 1516 1533 1543 1647 1674 1689 1735 1772 1935 2050 2112 2117 2118 2163 2250 2254 2258 2264 2267 2517 2582 2626 2715 2720 |
| OPINCP | C | 001 | 0001 | 3413 | 2803 |
| OUTREC | A | 001 | 2395 | 2502 | 1410* 1431 1472 1473 1529 1530 2653* |
| PACK | C | 001 | 0226 | 3416 | 0488 0725 2096 2106 |
| PASPRM | A | 003 | 2A7B | 3099 | 3091 |
| PAUSE | A | 004 | 0C9B | 0195 | 0170 |
| PFLAG | A | 001 | 2AAD | 3123 | 0311* 0392 0396* 0407 0410 2069 |
| PGMDEL | A | 007 | 30FC | 3318 | 1077 |
| PGNTP | A | 006 | 1820 | 1308 | 1126 1135 1274 |
| PH | A | 002 | 2AF9 | 3166 | 0273 0717 0759 |
| PHAS | A | 001 | 20C7 | 2147 | 0532* 0533* 0540* 1158* 1449* 1450 1452* 1763* 1840* 1842* 1973* 2154 |
| PRGID | A | 003 | 1669 | 1132 | 1111* 1308 |
| PRGID1 | A | 003 | 17C8 | 1271 | 1268* |
| PRGID2 | A | 003 | 0F9C | 0465 | 0462* |
| PRINT | C | 001 | 021A | 3403 | 0087 0092 0179 0226 0610 0687 0765 0964 0973 0982 0999 1017 1029 1040 1054 1081 1309 1333 1459 1590 1658 1667 1820 1993 2723 2728 2733 2742 2753 2784 2815 2948 2953 3015 3043 3096 3115 3509 |
| PRINT1 | A | 001 | 2A42 | 3083 | 0111 0115 0119 0123 0127 0131 0135 0139 0143 0147 0172 0189 0220 0245 0850 1172 1176 1180 1184 1188 1192 1196 1234 1325 1848 1852 1856 1860 1864 1868 1978 1982 |
| PRINT2 | A | 001 | 2A8A | 3108 | 0616 0987 1046 1339 1998 |
| PRTBF | A | 001 | 0A15 | 0027 | 1618* 1619 1619* 1620* 1621* 1623* 1630 1654* 1655 1655* 1661 1672* 1680* |
| PRTEND | A | 004 | 2A86 | 3102 | 3084* 3087 3100* |
| PRTPRM | A | 001 | 2A77 | 3097 | 3093* 3094* 3095* |
| PRT2 | A | 006 | 2A9E | 3114 | 3111 |
| PRT3 | A | 004 | 2AA4 | 3115 | 3113 |
| PWR | A | 004 | 132C | 0805 | 0802 0817 |
| PIAR | C | 001 | 0020 | 3439 | |
| QCPU | A | 001 | 109E | 0550 | 0518 |
| QDCP | A | 004 | 1053 | 0529 | 0516 |
| QFPA | A | 006 | 10F2 | 0577 | 0520 |
| QFFB | A | 006 | 1044 | 0525 | 0522 |

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| QPUDT | C | 001 | 0A07 | 3445 | 3491 |
| QTAB | C | 001 | 022F | 3446 | 3492 |
| QUITFG | A | 001 | 2381 | 2494 | |
| RCTR | A | 002 | 2B20 | 3178 | 0331* 0339* 0414 0416* 0432 0438 |
| RDFAS | A | 004 | 2201 | 2288 | 0315 1400 1795 2372 |
| RDFASR | A | 004 | 223E | 2306 | 2288* 2299 |
| RDMD | A | 029 | 3674 | 3391 | 2951 |
| RDWRT | A | 004 | 2140 | 2202 | 1398 1408 |
| RDWRT2 | A | 0J4 | 2190 | 2230 | 2202* |
| RD1442 | A | 004 | 2A23 | 3070 | 3061 3066 |
| READAJ | A | 002 | 3174 | 3324 | 2042 2057 |
| READIE | A | 001 | 0A80 | 0031 | 0032 0651* 0653 0660 0727 0818 0831 0862 1925 1969 2036 2044 |
| | | | | | 2074 2092 2098 2099 2100 2100* 2102 2103* 2104* 2112* 2118* 2123* |
| | | | | | 2124 2124* 2125 2837 2850 2867 2886 2910 2925 2927 2927 3112 |
| | | | | | 3114 3324 |
| READ4 | A | 002 | 202D | 2092 | 2101 |
| RECORD | A | 004 | 2749 | 2836 | 0151 0257 0341 0636 0771 0854 0947 0951 1201 1873 |
| REM | A | 040 | 35AC | 3378 | 1980 1981 |
| REMB | A | 001 | 355E | 3376 | 1980 |
| REMB2 | A | 001 | 35AC | 3379 | 1984 |
| REM2 | A | 015 | 35E3 | 3381 | 1984 1985 |
| REPERE | A | 004 | 1153 | 0610 | 0357 0359 |
| REPPGM | A | 001 | 1614 | 1104 | 0205 |
| REPWHO | A | 014 | 346E | 3363 | 1109* 1268 3400 |
| REPWH1 | A | 014 | 3657 | 3390 | 1110* 1236 1237 |
| RESNS | A | 004 | 2808 | 2904 | 2913 |
| RNUM | A | 001 | 0A03 | 0009 | 3518 3519 3521* |
| RPCNT1 | A | 004 | 1662 | 1130 | 1116 |
| RPCNT2 | A | 005 | 1672 | 1137 | 1128 |
| RPCNT3 | A | 005 | 16B2 | 1158 | 1141 |
| RPCNT4 | A | 004 | 16C7 | 1168 | 1152 |
| RPCNT5 | A | 006 | 17A5 | 1263 | 125E |
| RPCNT6 | A | 004 | 17FD | 1292 | 1261 |
| RPCNT7 | A | 006 | 17BB | 1268 | 1113 |
| RPF1 | C | 001 | 0211 | 3448 | 3522* |
| RTRN | A | 003 | 0C4E | 0163 | 0777 0779 |
| RTRN1 | A | 006 | 0F75 | 0454 | 0523 |
| RTRN2 | A | 001 | 0D2F | 0261 | 0780 2986 |
| RTRN3 | A | 001 | 16CF | 1171 | |
| RTRN3A | A | 004 | 1707 | 1201 | 0902 1238 1344 |
| RTRN6 | A | 004 | 2AA9 | 3117 | 3109* |
| RTRY | A | 004 | 27FA | 2900 | 2908 2915 2928 |
| RTRY1 | A | 001 | 2461 | 2554 | 2544 2593 |
| RWRIN | A | 001 | 20C8 | 2149 | 0538 0544 1162 1454 1778 1846 1974 |
| RWRINE | A | 004 | 2134 | 2186 | 2150* |
| SAVEID | A | 004 | 2ADD | 3154 | 0297* 0400 0462 0567 0581 0582 0645 0741* 0762 0764 0791 0922* |
| | | | | | 0923* 1015 1092* 3155 |
| | | | | | 0296* 0494 0586 0603 0740* 1137* 1295 3471 |
| SAVID | A | 096 | 0A74 | 0028 | 0027 0925* 0926* |
| SAVIDE | A | 001 | 0A15 | 0026 | |
| SB | A | 002 | 2AFD | 3168 | |
| SBYTE0 | C | 001 | 0208 | 3453 | 3514 |
| SBYTE2 | C | 001 | 020A | 3407 | |
| SBYTE* | C | 001 | 020C | 3454 | 2450 2454 |
| SCANED | A | 006 | 24D9 | 2598 | 2525 |
| SCDFG | A | 001 | 2AB0 | 3126 | 0293* 0485 2067 |
| SCERR | A | 046 | 2F97 | 3297 | 1056 1057 |
| SCERRB | A | 001 | 2F69 | 3296 | 1056 |
| SCNERE | A | 004 | 15CD | 1054 | 0481 |
| SCNVIC | A | 004 | 227A | 2366 | 0463 0476 1130 1269 1286 |
| SCNVTE | A | 004 | 2346 | 2435 | 2425 |
| SCNVTE | A | 004 | 234A | 2436 | 2366* 2368 2370* |
| SCTR | A | 001 | 2BAB | 3215 | 0329* 0436* 0439* 0542 |
| SECT* | A | 002 | 2BE2 | 3229 | 0536* 0542* 1139* 1143 1160* 1451* 1762* 1844* 2151 |
| SELDRV | A | 004 | 234F | 2449 | 0100 1456 2899 |
| SEQCHK | A | 005 | 0EE7 | 0398 | 0389 0391 |
| SEQCTR | A | 004 | 2B1E | 3177 | 0271* 0330* 0351* 0398 0403* 0633* 0643 0648* 0721* 0737* 0738 0793 |

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| SEQMV | A | 004 | 1FF9 | 2071 | 0795* 0955* 0997 1007 |
| SETADD | A | 004 | 0D13 | 0245 | 0201 |
| SETDSK | A | 001 | 0B9D | 0079 | 3556 |
| SETTO | A | 004 | 0B78 | 0042 | 0457 0584 1292 1784 2325 |
| SETTOR | A | 004 | 0B86 | 0045 | 0042* |
| SETUP | A | 024 | 36B9 | 3393 | 2956 |
| SET0 | A | 004 | 0B8A | 0047 | 0563 0931 1321 2873 |
| SET0R | A | 004 | 0B95 | 0050 | 0047* |
| SIOI | C | 001 | 0018 | 3424 | |
| SIO1 | A | 003 | 246E | 2564 | 2531* 2543* 2545* 2568 |
| SIO10 | A | 003 | 250C | 2611 | 2598* 2599* |
| SIO11 | A | 003 | 2509 | 2608 | 2600* |
| SIO2 | A | 003 | 2587 | 2650 | 2639* 2640* 2641 |
| SIO3 | A | 003 | 258E | 2652 | 2642* |
| SIO4 | A | 003 | 259F | 2656 | 2641* |
| SIO5 | A | 003 | 246B | 2560 | 2532* 2548 2549 |
| SIO6 | A | 003 | 25FC | 2690 | 2688* 2689* |
| SIO7 | A | 003 | 24AE | 2584 | 2535* |
| SIO8 | A | 003 | 248F | 2574 | 2548* 2674 |
| SIO9 | A | 003 | 2492 | 2576 | 2549* 2550* |
| SIZER | A | 004 | 1B33 | 1588 | 1389 1395 |
| SIZERR | A | 004 | 1B4B | 1598 | 1589* |
| SKDV02 | A | 006 | 1AD5 | 1546 | 1541 |
| SKD02 | A | 006 | 1A5E | 1508 | 1502 |
| SKD12 | A | 006 | 1A24 | 1492 | 1487 |
| SLAMP | A | 002 | 2ABC | 3135 | 2939 |
| SLDRVR | A | 004 | 2371 | 2466 | 2449* 2455 |
| SNBYT2 | A | 002 | 2994 | 3025 | 2943* 2944 2946 2966* 2967 2984* 2985 2987 2990* 2991 2993 2999* |
| | | | | | 3000 3002 3010* 3011 |
| | | | | | 2748 2758 2790 |
| | | | | | 2695* |
| SNSAP | A | 004 | 2607 | 2695 | |
| SNSAPR | A | 004 | 2679 | 2740 | |
| SNSDR1 | C | 001 | 0080 | 3441 | |
| SNSDR2 | C | 001 | 0040 | 3442 | |
| SNSDR3 | C | 001 | 0020 | 3443 | |
| SNSDR4 | C | 001 | 0010 | 3444 | |
| SNS24 | A | 004 | 25E2 | 2684 | 1387 1393 2747 2771 2798 |
| SNS24R | A | 004 | 2603 | 2693 | 2684* |
| SPACE* | A | 036 | 2C4E | 3255 | 1796* 1803* 1811* |
| SPFLGS | C | 001 | 0A02 | 3455 | 3489 |
| SRCE | A | 002 | 2061 | 2108 | 2105* |
| SSWID | A | 004 | 2B0D | 3171 | 0365 0816 1210 |
| SSW05 | C | 001 | 0004 | 3477 | 3110 |
| SSW07 | C | 001 | 0001 | 3426 | 3514 |
| SSW1A | C | 001 | 0020 | 3432 | 2857 3089 |
| SSW1B | C | 001 | 0010 | 3433 | 0104 2859 |
| SSW17 | C | 001 | 0001 | 3431 | 0916 2855 2879 3088 |
| SSW18 | C | 001 | 0080 | 3430 | 2853 3089 |
| SSW2F | C | 001 | 0001 | 3434 | 0084 0107 2844 2877 |
| SSW22 | C | 001 | 0020 | 3427 | 2450 2454 |
| SSW23 | C | 001 | 0010 | 3428 | 2450 |
| SSW24 | C | 001 | 0008 | 3429 | 2450 |
| SS1 | A | 004 | 1FA1 | 2048 | 2046* 2047 2050* 2051 |
| SS2 | A | 004 | 1FA5 | 2049 | 2047* |
| STARTX | A | 001 | 0000 | 0005 | |
| STATE | A | 002 | 0A14 | 0025 | 2685* 2772 2775 2778 2781 2799 |
| STATUX | A | 002 | 27F4 | 2889 | 3035* 3036 3074* 3075 |
| STCNT | A | 004 | 1D48 | 1795 | 1676 1733 |
| STPFLD | A | 004 | 219B | 2249 | 0441 0682 1148 1254 1403 1703 1738 1747 1775 1805 1813 2178 |
| | | | | | 2180 2223 2225 2415 |
| | | | | | 2249* 2250* 2251 2254* |
| STPFLR | A | 004 | 21FD | 2274 | 1316* 1407* 2228 |
| STPSCT | A | 001 | 213F | 2200 | |
| STP2 | A | 004 | 1209 | 0687 | 0656 |
| STP3 | A | 004 | 1D8B | 1820 | 1799 1817 |
| STRSCT | A | 001 | 213B | 2199 | 1397* 1406* 2204 |
| STRTA | A | 021 | 30F5 | 3317 | 0094 0095 |

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| STRTAB | A | 001 | 30B2 | 3315 | 0094 |
| STRTHB | A | 001 | 3059 | 3311 | 0089 |
| STRTHS | A | 001 | 30B2 | 3314 | 0089 0090 |
| SVPREQ | A | 002 | 2B26 | 3182 | 0083 |
| SWITCH | C | 001 | 020A | 3420 | 0084 0104 0107 0916 2844 2853 2855 2857 2859 2877 2879 3088 |
| SZERR | A | 021 | 2FF0 | 3301 | 3089 3110 |
| SZERRB | A | 001 | 2F97 | 3298 | 1592 1593 |
| SZERRC | A | 022 | 2FAD | 3299 | 1592 |
| TDDCF | A | 001 | 238C | 2498 | 1386* 1392* |
| TDDCFa | A | 002 | 2392 | 2500 | 2500 |
| TDDCR | A | 002 | 2382 | 2495 | |
| TDDDF | A | 001 | 2383 | 2496 | 2501 2653 2659 |
| TDDDFa | A | 002 | 2394 | 2501 | 2648 2651 2654 |
| TDDDR | A | 002 | 2380 | 2493 | 2647* 2658 |
| TEHADR | A | 002 | 143D | 0896 | 0841* 0869 0892* |
| TEMP1 | A | 002 | 20BB | 2145 | 1143* 1144* 1150* 2126* 2127 2151* 2157 2160* 2162 |
| TEMP2 | A | 002 | 2ADF | 3156 | 2397* 2399 2401* 2405 |
| TEMP3 | A | 002 | 2277 | 2363 | 0634* 0653* 0654* 0655 0720* 2367* 2435 |
| TEMP4 | A | 002 | 219A | 2247 | 2095* 2132 2697* 2739 3086* 3101 |
| TEMP5 | A | 004 | 2ADD | 3155 | 1626* 1637* 1675 |
| TEMP6 | A | 002 | 2AE1 | 3157 | 2696* 2738 |
| TEMP7 | A | 002 | 2AE3 | 3158 | |
| TEMP8 | A | 002 | 1F52 | 2022 | |
| TEMP9 | A | 001 | 1F50 | 2020 | 2035* 2065 |
| TEM1 | A | 002 | 25E0 | 2681 | 2686* 2692 |
| TERM | A | 018 | 3059 | 3310 | 0191 0192 |
| TERMB | A | 001 | 3047 | 3309 | 0191 |
| TEST | C | 001 | 0212 | 3414 | 0099 3523 |
| TEST1 | A | 004 | 18B5 | 1373 | 1365 |
| TPI | A | 005 | 0CB8 | 0206 | 0203 |
| TIO1 | A | 004 | 2467 | 2559 | 2538* 2675 |
| TIO10 | A | 004 | 250F | 2612 | 2602* 2603* |
| TIO11 | A | 004 | 2513 | 2613 | 2604* |
| TIO15 | A | 004 | 2583 | 2649 | 2638* 2645 |
| TIO18 | A | 004 | 2314 | 2413 | 2395* 2396* |
| TIO19 | A | 004 | 2499 | 2578 | 2571* |
| TIO2 | A | 004 | 259B | 2655 | 2645* |
| TIO4 | A | 004 | 2474 | 2565 | 2533* 2534* |
| TIO5 | A | 004 | 24B1 | 2585 | 2536* 2537* |
| TIO7 | A | 004 | 2475 | 2566 | 2539* |
| TIO8 | A | 004 | 2495 | 2577 | 2551* 2552* |
| TIO9 | A | 004 | 2505 | 2607 | 2589 2601* 2671 |
| TL | A | 003 | 0CD0 | 0212 | 0209 |
| THADR | A | 002 | 1347 | 0813 | 0808* 0830 |
| THADR1 | A | 002 | 1E38 | 1901 | 1893* 1904 1923 1940 1968 |
| TODRV# | A | 001 | 2C02 | 3247 | 1357 1358* 1363* 1366* 1369* 1372* 1373 1382 1391 2217 |
| TODTRK | A | 006 | 254D | 2638 | 2629 |
| TOOFAR | A | 004 | 2735 | 2815 | 2522 |
| TRKCC | C | 001 | 0002 | 3412 | 2802 |
| TRYAGN | A | 004 | 274D | 2837 | |
| TSTDAT | A | 004 | 2826 | 2912 | 2906 |
| TSTDCP | A | 005 | 1454 | 0913 | 0274 |
| TST# | A | 002 | 2C05 | 3249 | 2920* 2921 3474 |
| UDSCN | A | 004 | 1E3B | 1904 | 1921 |
| UDTID | A | 004 | 2B11 | 3172 | 0370 |
| UDTIS | A | 004 | 1E1D | 1893 | 0875 |
| UFIND1 | A | 004 | 36D0 | 3492 | 3501 |
| UFIND2 | A | 003 | 36D7 | 3494 | 3504 |
| UFIND3 | A | 003 | 36EC | 3500 | 3506 3508 |
| UFIND4 | A | 003 | 36F6 | 3503 | 3496 |
| UNPACK | C | 001 | 021E | 3415 | 2708 |
| UP1 | A | 002 | 2631 | 2710 | 2706* |
| UP2 | A | 002 | 2633 | 2711 | 2707* |
| USECRT | A | 001 | 27F5 | 2890 | 0177 0224 0249 1330 1876 1999 2841* 2861* 3085* 3092* |
| UTAB | C | 001 | 0232 | 3447 | 0080 |

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| UTCNT1 | A | 004 | 1E74 | 1923 | 1918 |
| UTCNT2 | A | 003 | 1EC7 | 1952 | 1945 1954 |
| UTCNT3 | A | 004 | 1EF4 | 1968 | 1947 |
| UTCNT4 | A | 003 | 1E4C | 1909 | 1907 1914 |
| UTCNT5 | A | 004 | 1ED5 | 1957 | 1962 |
| UTCNT6 | A | 004 | 1EE9 | 1964 | 1959 |
| VMSG | A | 009 | 2C57 | 3256 | 1822 1823 |
| VMSGB | A | 001 | 2C0B | 3253 | 1822 |
| VTIM | A | 001 | 2EB2 | 3214 | 0328* 0491 0493 0585 0602 1138* 1294 |
| VTIMB | A | 001 | 2B96 | 3212 | 0454* 0483* 0484* 0525* 0546* 0577* 0581* 0582* 0598* 0599* 0600* 1139 |
| VTNAS | A | 001 | 20C1 | 2146 | 1246* 1264* 3215 |
| VTOC# | A | 002 | 2AC3 | 3141 | 0317* 0459 0505* 0506 1719* 1735* 1772* 1791 |
| VTOC1# | A | 031 | 2C2A | 3254 | 1675* 1720* 1736* 1773* |
| WAIT | A | 004 | 2908 | 2984 | 2989 |
| WCPUVT | A | 004 | 10EB | 0575 | 0571 |
| WINID | A | 002 | 2B1A | 3176 | 0878 |
| WINRW | A | 004 | 239C | 2506 | 0433 0471 0500 0555 0588 0677 0811 0894 0940 1120 1249 1278 |
| WINRWR | A | 004 | 251F | 2617 | 1297 1:17 1426 1441 1698 1724 1751 1767 1785 1899 2168 2173 |
| WINRWT | A | 004 | 2517 | 2615 | 2212 2218 2291 2328 2408 2430 |
| WORK | A | 002 | 2AC9 | 3145 | 2506* 2508 2509* |
| WRPAS | A | 004 | 2242 | 2321 | 2569 2580 |
| WRPASR | A | 004 | 2263 | 2333 | 1471* 1475* 1479* 1480* 1485 1488* 1490 1493 1499* 1500 1503* 1505 |
| WRITE | A | 006 | 0F44 | 0432 | 1515 1528* 1532* 1546* 1547 |
| WRT# | A | 010 | 2BE0 | 3473 | 0508 1266 1793 |
| WRTREC | A | 004 | 1984 | 1440 | 2321* |
| WRTVPY | A | 001 | 25E1 | 2682 | 0415 |
| WRTVTC | A | 004 | 0PEP | 0496 | 1168* 1232* 1246 1319* |
| WRT1 | A | 006 | 1429 | 0889 | 1436 1582 |
| WRT2 | A | 004 | 11F6 | 0677 | 2590 2591* 2595* 2664 2665* 2672 2673* |
| WRT3 | A | 004 | 111E | 0588 | 0604 |
| XEXIT | A | 004 | 27C1 | 2871 | 0806 0832 0838 0870 0883 1970 |
| XEXITR | A | 004 | 27E9 | 2883 | 0672 |
| XEXT | A | 004 | 2A1F | 3068 | 0576 |
| XEXT1 | A | 004 | 281E | 2910 | 2851 2929 2996 2998 3250 |
| XHANDL | A | 004 | 183A | 1319 | 2836* 2872 2876 2878 2880 |
| XLOC | A | 001 | 2BE7 | 3230 | 3038 3063 |
| XREG | A | 002 | 2B24 | 3181 | 2900 2922 |
| XR1 | C | 001 | 0001 | 3404 | 1322 |
| | | | | | 0082 |
| | | | | | 0048 0049 0049 0103* 0333 0334 0335* 0338* 0413 0417* 0426 0427 |
| | | | | | 0551* 0564 0565 0566 0567 0568 0569 0570 0573 0632* 0658 0660* |
| | | | | | 0661 0661* 0722* 0770* 0797 0805 0808 0816 0819 0819* 0820 0820* |
| | | | | | 0821 0823 0824 0824* 0826 0830* 0835 0836 0836 0840 0841 0844 |
| | | | | | 0846 0864 0865 0865* 0869* 0880 0885 0892 0932* 0946* 1078 1079 |
| | | | | | 1108* 1125 1137 1138 1158 1169* 1230 1233* 1244 1245 1320* 1634 |
| | | | | | 1639 1642 1643 1644 1645 1691* 1696* 1718* 1729 1732 1743 1756 |
| | | | | | 1759 1762 1763 1764 1838* 1893 1904* 1905 1905* 1906 1908 1909 |
| | | | | | 1909* 1910 1912 1923* 1924 1924* 1927 1927* 1928 1931 1933 1933* |
| | | | | | 1939 1940* 1941 1941* 1942 1944 1946 1948 1948* 1956 1957 1960 |
| | | | | | 1960* 1964* 1965 1968* 2032 2044* 2045 2053 2054* 2059* 2095 2102* |
| | | | | | 2105 2110 2113 2115 2115* 2116 2116* 2125* 2126 2129 2130* 2132* |
| | | | | | 2367 2368* 2379 2379* 2380 2381* 2421 2427 2435* 2507 2508* 2512 |
| | | | | | 2524 2541 2556 2557 2573 2588 2605 2606 2615* 2657 2662 2670 |
| | | | | | 2696 2698* 2706 2713 2713* 2738* 2846 2849* 2864 2868* 2874 3086 |
| | | | | | 3087* 3093 3094 3095 3099 3099* 3100 3101* 3485 3487 3492* 3494 |
| | | | | | 3494* 3495 3497 3498 3503 3520* 3521 3522 3524 |
| | | | | | 0452 0152 0163 0165 0167 0169 0200 0202 0204 0206 0208 0210 |
| | | | | | 0212 0214 0216 0218 0258 0258 0265 0266 0273 0276 0278 0282 |
| | | | | | 0284 0289 0296 0297 0298 0300 0305 0307 0309 0333 0334 0343 |
| | | | | | 0343 0349 0354 0356 0358 0363 0365 0370 0372 0374 0377 0380 |
| | | | | | 0385 0390 0398 0400 0413 0426 0638 0640 0643 0645 0658 0707 |
| | | | | | 0717 0738 0740 0741 0743 0772 0772 0776 0778 0789 0791 0793 |
| | | | | | 0797 0803 0805 0818* 0825 0825* 0826 0827 0831* 0837 0840 0857 |
| | | | | | 0859 0859* 0862* 0864 0872 0878 0880 0885 0913 0922 0923 0925 |

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

CROSS-REFERENCE

OBJECT CARD LISTING

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| | | | | | 0927 0953 0955 0996 1014 1086 1088 1088* 1092 1109 1110 1111 |
| | | | | | 1115 1203 1206 1208 1210 1217 1219 1221 1224 1226 1230 1359 |
| | | | | | 1361 1364 1367 1370 1378 1378 1379 1379 1386 1392 1630* 1642 |
| | | | | | 1643 1644 1645 1649 1649* 1875 1877 1880 1882 1884 1886 1894 |
| | | | | | 1894* 1906 1916 1916* 1917 1919 1925* 1934 1934* 1936 1939 1942* |
| | | | | | 1949 1949* 1952 1952* 1953 1957 1958 1961 1961* 1965* 1969* 2033 |
| | | | | | 2035 2036* 2037 2039 2040* 2041 2045* 2048 2048 2049 2049 2053 |
| | | | | | 2055* 2056 2060* 2062 2063 2064 2065 2071 2071 2076 2080 2081 |
| | | | | | 2081 2697 2699* 2707 2712 2714 2714* 2717 2719 2719* 2739* 2837* |
| | | | | | 2838 2839 2839 2850* 2867* 2874 2882 2882 2900* 2901 2901 2910* |
| | | | | | 2916 2919 2919* 2920 2939 2972 2975 2977 3062 3067 3491* 3493 |
| | | | | | 3493* 3495 3497 3498 3499 3500 3505 3518 3519* 3520 3521 |
| XR2WK | A | 002 | 1F52 | 2021 | 2022 2041* 2042 2056* 2057 |
| X12 | A | 002 | 2BF6 | 3238 | 1485 1488 1490 |
| X1403 | A | 003 | 0A12 | 0021 | 1612 |
| X1442 | A | 001 | 2A3D | 3077 | 3070* |
| X19 | A | 002 | 2B95 | 3211 | |
| X2 | A | 002 | 2BEA | 3232 | 1500 1503 1505 1539 1542 1544 2077 |
| X200 | A | 002 | 2B8F | 3208 | |
| X255 | A | 002 | 2279 | 2364 | 2399 2401 |
| X256 | A | 003 | 2B8A | 3205 | 0335 0417 0655 0932 1233 1691 2518 |
| X3 | A | 002 | 2BEC | 3233 | 2515 |
| X3FFF | C | 001 | 3FFF | 3421 | 2847 |
| X4 | A | 002 | 2BEE | 3234 | 0536 1844 2370 2769 3042 |
| X47 | A | 002 | 2BF8 | 3239 | |
| X48 | F | 002 | 2BFA | 3240 | 2157 2160 |
| X5 | A | 002 | 2BFO | 3235 | 2075 2509 2514 2644 |
| X5203 | A | 003 | 0A0F | 0020 | 1610 |
| X6 | A | 002 | 2BF2 | 3236 | |
| X74 | A | 001 | 2B8B | 3206 | 0286 |
| X8 | A | 002 | 2BF4 | 3237 | |
| X80 | A | 002 | 27EE | 2885 | 0291 |
| X87 | A | 002 | 2BFC | 3241 | 2078 |
| X87C | C | 001 | 087C | 3475 | 3112* |
| X880 | C | 001 | 0880 | 3476 | 3114* |
| X900 | C | 001 | 0900 | 3472 | 3501 3504 3506 3508 |
| X95 | A | 002 | 2B8D | 3207 | |
| ZERO | A | 005 | 2B5A | 3204 | 0329 0459 0634 0720 1471 1484 1498 1514 1528 1538 1719 2268 |
| ZOUT | A | 006 | 2000 | 2074 | 2301 2376 2070 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

THE CHARACTER $\bar{\cdot}$ INDICATES A BLANK COLUMN AND THE CHARACTERS \bar{D} \bar{E} \bar{H} INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

| | | | | | | | |
|-------------|--------------|---------------------|--------------------|---------------------|---------------------|--------------------|------------------|
| GBK GBD | PN 42 | 48216 EC 571989 | 3340 CE DISK EDI | TOR | MOD 12 | 84228422 | DD630000 |
| TD-YK70< | E B9U | <E + +DE | | | | | EHQDD630001 |
| TAE%I&DA | &DA | | | | | | KI-DD630002 |
| T+->2(| -SLO K\|@ | <"UT=K\|"/0 (- | WGO *53="?" /0 | "EC**3S | T\|2D - | 11K%U<*H,IT-A -7 | 2DA- E&UDD630003 |
| T+-7_OH* | BFUIR<.. | "@<BG /YF&3C50H* | BH?"00H*BD%BGH4@ | "*2, +*@D_*HAK | | 8D H.OA (H3-A -7 | 2U & HL DD630004 |
| T+-0Y\| | *DO@BGHUH | AITG%OH*DE-DY</L | /2ZB K-2\|<BGHUH | AHCI00H*DE-DY<Y3 | /2ZB K-2<BGHUH | AHCH 'E&DD630005 | |
| T+-1T7< | BGHUHAHC< | DOH*DE-HY<23 /2Z | BA/EO\|<BGI4W_P5' | -OHD<E,5\$ \|HANS5 | / HACS56 *BACH= | 'P D HY4DD630006 | |
| T+-2; | @YD40H*DE-Q | X(-Y@@BD6+\| X** | &CD. /OHEJ/&15\|" | -OH*BH?"-OH*.@%B | GHUHFDTAROH*BE%B | G SH J*YDD630007 | |
| T+-3R"=G | /O?.7*D | A@YEY?)UAA-DG?H | DO DOEH4A S%O0HD |)V84A SOI@-DG?H | DO DOB#7L *BAF4= | (EH 2DHDD630008 | |
| T+-4MH1T | -J1ZT&D | B. ?2 E; *E L -J/ | 7OH*DE-QX(-Y8@B- | 50A <E%BG /,FELF | J"=. /OHS"=. /O? | 20H* #H DD630009 | |
| T+-5\| | HUHFITQ0+\| | X* * &CD. /2)I,N' | -Q<BACK<:C2, COQ | D%2D3C Q1 3EK.A6 | 1H1@%G3E. \|3-\|H,7 | DAH ;, UDD630010 | |
| T+-6HG&E0H | 18D984 | ACB,90 DMNC30H,E | (5@D9@ AENF'5 C | 2 E*@@BD2@Y*OT&H | EBOX2-KS'ED, "JM | (C " 2ZDD630011 | |
| T+-7ECR*, | S08 CR* | H #5 <BAE64 ("6 | PI=# " 66\| \| @DXB1 | -BXJ-. <D7N>(VY | ,H*BADO>(VY, \|H | ACLO P9<DD630012 | |
| T+-8 "2D> | C E, ?5% | 8@Y*5T&<CH3\|2 J< | % 2, _NT0\|H, H'55. | 2 E&@C2D_OH*KG*B | GH-D< K, CHXH<AB> | 8HW@)J4DD630013 | |
| T+-8#C | E, ?S>8 " | ,, 60AH: %, O-Q0H18 | D#TOAH2AKP'-'\$E' | -P3QA@B, 2/OTB H- | ' , H<BGI4W_P5' | -OHD PD4DD630014 | |
| T+-96CTH' | BD2@-E | >?; H @-DHAT ,GS, | >OH*+<, 7R \|HAES5 | " * ADN* *E \$ "JE | LOH*- . ?HGDS5* <B | AD?D 9LEDD630015 | |
| T+-: | 1T6<CH072 E% | 8"2D30A LP-HGT84 | C 2XJOHDL'Q4C' 2% | AOHDMGQ4GA2%IOHD | L-#7E <BAC3+'80C | "JM R: XDD630016 | |
| T+-#%HL70H, | . 2 E%W | (EDD=@BAC3<'C2D | 2@-D) .E<D#N" " 6* | X\|E@D, * AC3<' SD | "O D\|<3, OHD6 (5@ | , G% " ;DYDD630017 | |
| T+-@X | JNAT&(SH_7 | " JN2AT ,GS, >\|E | D%?HAA3-\|HD72U 3 | /1'R\| -@D, *BAC3(| %P5'-\|K@, H<BAC4E | + BX 'LHDD630018 | |
| T+-'SH | YC(-D, S%B | GCTH@"2D1+0DD_01 | -P5'<-"@7+@0 H@H | , H<BGH91 K " , >E8 | AH: %, H 8AH: XE @B | GHR% ; HHDD630019 | |
| T+-=) | H#8'"2D10 D | +HT7"HD# -J -C E | , ZB>8C E, >B>=0H* | . ; 4AH%<, O%BADK%< | <I--*H_3 /2I: " " | X934 E&DD630020 | |

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| T+/"Q"=R@YDLI | ,0-OBK Q, E<BGH91 | K ,>BGHYI PE1 | *I& I>@BAE*4< S> | *BW@< B>;EX ' BD | 0@YD #E&DD630021 | T+/LDH6M@AK>= < | ,0%EGH91 K ,>LO | EH"7B M- OH*XK6@ | H"4H @ AE<X@"2D | 30H*XK*BGG5W' -. | J6 RC4DD630043 |
| T+/ LB*BG SQBBW8 | ,,E0*KAO,X-1-K@ | H)COAE@H@ DX"C\|9 | I"UX"OH*TXDAH B> | 9C-DD00YCC DS*S, | CC E *KDD630022 | T+/MV7K&CH19-\|@ | D, %BGC-G /OH@1TH | E7"TOH*BH?"TOH* | -2@BG /,FG2'Z"=L | /OHS"=L /O?.OH* | BFXH 8HDD630044 |
| T+/A+HW@,><BGHU. | /1HD\|~@DX"HA.C- | H,72DG (-Z?H2X | 2-5% (-Z?H232-6L | /O'5C E,ZB%8C E | ,?S% KT4DD630023 | T+/N-HS#(="P /2D | H0H*BH?"V\|E D7*B | ACT. /1E". <>'E@ | < 2@IH1@ /OH@1UY | ?E""W0H*BH?"WC< | ,GSY 0S0DD630045 |
| T+/BIJ"HG@3T"HD" | UAORC <-1S_V\| M | -100CH#*,RLOAH#- | < K?S#=# /2CHC E | -121?C E,>B_OC D | ,8S% =R-DD630024 | T+/O59@BACK<' BD | 'OHD+<%BGDP@% 2@ | 4000C.4YD7*BG /, | P<2'H"=- /OHS"=* | 'BD'OHD+<%BGDP" | /OH 68HDD630046 |
| T+/CDD@BGH<-<AB> | UH5Q<AB>=H432/6C | B M-C E,?S_J\| | ,0%BGH92 K ,>LU | \|H,#2DE, /O>HL D | NB-< 2SYDD630025 | T+/POP%R -.X"=:XB | G S.":%BGB@? /OH | E0S8>("",OH*DST- | \|B%G DA6'OH*BH?" | ,OH+<%BG /,P.S= | P"=4 EJHDD630047 |
| T+/C"L <CH9(<-Q | , DO BB,)L E+H79 | <EI@1H40-?3E.@Y* | EL-DNE-<@ B?B@Y* | %C E,ZB_4C E,?S_ | B\| Q8DD630026 | T+/QJOH*BH?"_OH* | N53%\|. <@QCDHC Q | 1 3C@GA@1H98*G3E | .?@BG /YBL3E.?OX | GO D.2=HBACY\|.< | X SY #C0DD630048 |
| T+/D:H@H<S>*H_0 | < B>;H_7 /O_BCA1 | HGB>2CE'H7OZ4OH* | TXDAH B>9OH*KD-0 | BH90H\$00 H98H* 0 | DH:E JCHDD630027 | T+/B<7 Q@ BD1+~@ | D0<HAK "XATJ>ASO | F(V*F. HO@EQ8C20 | COA P>84BAS%?@-D | TC E,?S_< ,0%B | GH90 "K*DD630049 |
| T+/E5H5X<AB>=H6 | <GD-*H#H<P4T-BXL | /O"TOH*BF%HS.X7 | "9*BGHY, /OHS"=P | /O82+? D?*HAK | D<B% ED8DD630028 | T+/EG-D- H#V (-Q | ,. @ APB @C2D3@Y* | 6OH*S;-CP2*E' AR | WOHQHA1-BXL-GAO | ,%/O< K?S#:%C2D | 3@-D LSHDD630050 |
| T+/FOGS,>C DS)2_ | E0H*XK\$7E HAK#7 | T < AEKP (5@,G% | AEMP (5XD7* AEPH | F<B%: D># /1'R | H- 8 8T0DD630029 | T+/\$B@EOAH.% ,8-@ | AH.%H 00DH'0, NTO | H=C /2P\$H'0 KB | #B- J@~@Y*NG E | -108<AB>8HW@ K? | SB-< R#*DD630051 |
| T+/G, KI7BYD+ KI | 7B-<(KI7H8,2/DJ | %EHEE(-DH-)HA *B | GDP@8C2D*@/ JC'E | ,?S_+\| ,O?GH,7 | 2/OY 5.YDD630030 | T+/\$'OH*-2C0 H=C | B M- OH*D@-DH(F# | /2ZB K-4V%BGHUH | AHCK=OH*D@-DY(+\$ | /2ZB K-5C%BGHUH | AHCH *S*DD630052 |
| T+/HWC E,?S_9 | ,0%BGH91 K ,>*B | GHR%, ;*BGDBC /OH | E1S@_W-"YOH*BH?" | YOH*<T3@HDDW'@ET | 2 P% :-0DD630031 | T+/*8 (%BGHUNFHCH | :OH*XK\$7X <BAB@> | '1&C2-N: 'P' C2-L: | (0<,C-HAC3- H, | 2UB@AB7KOH*LG\$7 | R < ;38DD630053 |
| T+/I/\| \|D_T-\|H,8 | #C2D=@Z FC'E,;K> | CT&D<H?X2-J6< KI | 7H5YF<B% ;H>#B M- | 'OH*J-@BG SQBB_Y | ,:C4 0J0DD630032 | T+\|)3 J/E?M A0 D | QH.5 A% AP@B'E . | -J/6?N GOHDQH<B | GHB9%P5'-C-,8 Y | C(-D,S%BGHUHF13R | POH" *3QDD630054 |
| T+/H*4B?Y@YH:\|~H | ,: \|HD<3Y\|H,4D<B% | ;H>; (5@,G% AEND | %POZ4P20CH_5ST&E | EH>X2 EY:C2D=C E | ,:K% JJ*DD630033 | T+/:>E0) @1&A<-*@ | 7+@8AH:%,8<BGH91 | K ,5@BGR%,7C4 | \|H,\|2 E%@'B?B\| | D%*HGO 8AHXH 00 | DH:E QI<DD630055 |
| T+/.P-%BGDO@#C2D | 'OH* "A<J D~H | AF OB<E*D7C1-<S- | < CDIH_7 /OH@ U@ | 1K@HAK' C /2) I, M' | -Q< "P, %DD630034 | T+/-ZHW@<ABI?H'3 | /2IBC HP2CJ>OH* | S;-A 6D <ACDIK - | ' A-E@YEHC IHAS% | H\| ,0%BGH91 K ,>L- | 6H-DD630056 |
| T+/<K-J. \|+0@D0.5 | / <BACD: "OOC -E1 | +OH* (.84CP0XIA@YD | QTE(\$H_7 JN2TE(| -H1# "JNAAT',GS, | >E@ @-HDD630035 | T+/-UC20COA H8*B | GHIY PE1* D,0%B | GB7-<"4X"K @<GD- | *H#H<P4T-BXL /2+ | *6D- H#X /O?.C H | 1>/Q =84DD630057 |
| T+/(P5" /O@R\| - | ,4TTOH, \|2D S(E# | .B-HAA@61-P5"2/"Q | 4 J(GC<,4K_V\| | ,5%BGH92 " ,3H4 | B S% 0/DD630036 | T+//~E*BG /YFE3G | F+ @%\|@ E@-G /O? | .\| ,8<HAK C /O> | H C E,7B?XOH*P)KB | GHUHFIS:,+\| X'~H | 6E< "7-YDD630058 |
| T+/+HC* AD23B -D | B4-DB4-DA-M A0 D | LUXI,)HA =H5 60 | A "B'E0G -J(U(ED | LJ@HBBYC2/:Q@A2? | K~D "NO<DD630037 | T+/SE/OHEOSH>3~" | VOH*DS%BG S."9*B | GE0*@ S7'C "X KO | D\| " ,7DA* AF50 | '@E\$2 @@0B0B?~H | FO D 1T%DD630059 |
| T+/\|C"53="?"=8-X | 2-RN%BO. (DM\|LO | BH"5 (-XDA~HACM4 | BB2,40 DN,LOEH"7 | /2ZBASQ4K<BGI4U | @<B% 92&DD630038 | T+/TNF.H@2B0B?~< | F@-DD\| ( % ,74A7H | AAC3Q. H' BOBOHD | R_@@ H"4H "HACHO | AA E% @QOH*Q;04 | . H KYHDD630060 |
| T+/\|=" ,5 <BAEE7 | S -D\| E?=@-\| J | EO-HH-F0?+2*K L | B?'B-\| "J+5(ED | H\|~HG(.5 "HAB3T | OHD@ 2T DD630039 | T+/U@. G2-)Y@ AX | 2C "TLSOA. ? ,6L | /2PS+@<.Q%BF3* | < B(+. H% B=_AXB | GI;H9 0_SOI \$<00 | CHL@ H,8DD630061 |
| T+/@90A ;G-HG+Y4 | AAK@E@-D2SE'~P30 | FH"H: @BD?@Y*@\$B' | ~P30EH'H:C2D?C < | ,4K_V ,5T&AEC7 | /2< 2Y*DD630040 | T+/V.H5Y< 2D#H6X | /2E OH*S LOOH" " | /2P\$HW@< 2D#H5Y | < 2D"HW# /2E | TV00DH#8,\$30 H@. | /2<) Z<DD630062 |
| T+/J4XD "B? (+ @ | D0* @GO @@BD30I | PA@BGCTH(T8,."H | ADT-A -,2UIQ'@BD | 60 D<R"HAS330H,Q | % SY 'S-DD630041 | T+/WFXAH B>9C E | ,7S_D\| ,0%BGH92 | K ,>L@ H9~ JX | C\| EHHCO KBH' A% | 2@YDH\| AHHCODKBH | @ B% \$HQDD630063 |
| T+/K?7C8% B,) +33 | "H,<%E Y4 (0~BV6 | 1*S0H<K<4CA@1K3E | 2 E,"*BGB8Y6 K> | HCO ,"%YCO DMW-0 | CH#4 7A8DD630042 | T+/XAO%BGH91 K | ,>@OCH<Q, @E0CH#* | -1TOEH=H@PKCG BD | ,><BGH<T /2(10H* | .2@BG /,P<B7I"=X | /O% 2-BDD630064 |

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|---------------------------------------|--------------------|---------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|---------------------|-------------------|-------------------|
| T+/X234 P3.2-S4 < K, IH5Y< K, .H9* | < K, (H9U@HB, RC-D | D2K, .CO D6EYCO D | R8 8AHXUD3E8AHXU | D3E0 8: %DD630065 | T+/@+100 P' & G | 2-&, K &GS -G /1# | N (&DD1) HB <BGG, D | 5 J880-HH-<BGEBU | @ K>8 H-1@BGH<- | 8@B* QC@DD630087 | |
| T+/Y7 K, RH5Y (K, IH\$2 -12/TQ K, | IH"Q+ K, RB-< (K, | IH"5 /Y+C DD32, | RC DD4K, IC DD6K | EC D R8 DD630066 | T+/I' *BEG; 7 /2Z | B N85, <BGHUHF (3P | TOH*) #L? "H%G /0? | .OH*BFUH8<BT"9*B | GHY8@B-50A) #*B | G SH 50@DD630088 | |
| T+/Z2HXUD304AEXU | , :?HB "HGE-@AHXU | , :-8AH_UH 04AHXU | , :% BPU-< K, LH_U | @CB, RC DD5K_EC-D | D5KY =T4DD630067 | T+/"=P /0?. | "7" (--H34 | AH, "2-Q*4 J'Q (H | D1K0 G5AQ0-HH6.7 | E \|HA #0D CQBB90 | 4 /@ E4DD630089 |
| T+/D_26@ H_UH @ | APWE+ K, NH_G2/6U | < K, IH5Y< K, .H9* | < K, (H9U@BS, RC-D | D2K, .CO D6EYCO D | EX60 9B@DD630068 | T+/"=M-4AG5H1)< | BG7PB &, P4-H | -Y-0 G: Q-YD8 &P | > DAC -Y-YC\|6E | -Y% AG9_% -D (-D | -NCQ -\$QDD630090 |
| T+/, Y K, RH5Y (K, (H=, 2 -12/1Q\| K, | (H=Y+ K, RB-< (K, | (H=, /D"C-DD2K, | RC DD42, I\| D5L4 | H%4 628DD630069 | T+/" : /'O (H-M-4 | AG5H1) < BG9*5 J' | Q (&HD1K1AB7) QTDE | BB7; @80B< E--MC4 | \| H, C2-LQ8C2D_@Z | G, * 7R-DD630091 | |
| T+/XT@YDD\| HD5E0 | H%QD43_HX*(K, | LH_-2/ 12/06: &B, | GB <D12, N+1 D134 | \|H_P2/ 12/06: DB, | GC "RUDD630070 | T+S 5L5"2/2-< B | +BYD+ B +H"BA"0 | + B +H=Y< B VH"0 | \| B'VH : @ E; % ER | POH* DD (-->L& | AHRY 00MDD630092 |
| T+/_; KB D1-0 KEH | D1@BGPQ& \| \|@S<T& | HF4# /OHE1VU?@\|" | ?OH*BH"?OH* C- | BB-"2DA*8H YJ@/ | E\| D :LDD630071 | T+SA00H*BI-EH/&D | AC DH-ODAC D-Q2 | _O-DHSC3TBY @ D | A (D-Q*BG SCB | "G5 -HAH-8ABY< | H 74 5Z8DD630093 |
| T+/>RF90@ J?S\|D | \$-C1 P8 @E DLG64 | HU-DL F HFC1-BVY | @K0ZM D% &BH_4 | D'00DH#8, QCOBH" | B -Y \$K8DD630072 | T+SB, EOG2 & K &G | K &H+ KATB-<+ D | AB- /2AP H700 | FB_8H7@HAB_*4 KB | #CED-Q2B#@-H.- | (-D @, 8DD630094 |
| T+/?HELOBH" /10 | 5L&HBH9.2 K@GHB, |) H>9 (-Q, E<BAF9= | * -HFY DBIOMFZ= | *G32"CO , "-YCAVD | *8-H @I4DD630073 | T+SCHWB93 /2BE (&D | /H%BG | CEHHL* | < KB#H=H@ BD>C & | ,4SCGC &, 7B>8CED | ->2% OL@DD630095 |
| T+/0\|&XBGFP9@ S? | =@YDS\|D HU00@BZH | HU30\|H, G /OHE P@ | HU34\|H, D@ BD10 D | \$V@BG /YK+ H, " ?H | &ACO PIYDD(30074 | T+SD/= ?HDCL0?H"Q | KB#H", 2/1 < B? | OH.% B?OB-<@C2D | >C", 8B?O0H*TXHA | H B? (OH*TYDAH B? | POH* ED@DD630096 |
| T+/1H& ZECO , "OY | CC H%HS,)OHD) KCO | A. <AB>=H4H@Q 2 | E0H*\$V3EHGDU BO | B-12-E-6 K>H0H* | CO \$38DD630075 | T+SE*HR%, 4%BGHR% | /7C4 HD# -KCSOH* | (- /000CH'D/+30AH'H | <BK?-H'Q@.2?O B@ | , 8 0 NJ%DD630097 | |
| T+/2E<B0 \|B@, OXH | AK C /2+*-D- H#X | /2F\$H## /11FO-E | H "OAH%<, O-EB. BY | D'00DH#8, QCO H@. | /2< '3HDD630076 | T+SFP B(+ G /2+ | *-D- H@4< B(+ . | /2+*ED- H'- /2P | \$H'. /2F\$H'0 ('2? | JHL" -SEH0H* | 88YDD630098 |
| T+/3 XHAH B>9L&H | FH1L2-J9 (-H, U?H | A, 8AHX<H 0*- .BY | D#%BGHR%, ?%BGG@ | *AB>8C-ODH@-, ?TO | H@0 :Y-DD630077 | T+SGK (-S 8 | AH- H 00AH\$ S 0 | AH\$Q ODHR- 8 | AH- H 34OHR2 -U | + B?QB-12/26'D2P | P@-H E4DD630099 |
| T+/3#0H*/W2?H\| | , 3<BGH92 K , 044 | B S>K@-EEL&HFH1L | -J3AG D, 8/H*ABC | GCUODCS>8\| , 0%B | GH90 :&HDD630078 | T+SH(CLOAHR+ KP | PB-12/1 + KPNB-< | < KFPH5Y@ KPQC D | /=SF6C & BFOH* | CEHHUD<AB?HH34 | @ B% -Q4DD630100 |
| T+/46ED- H#U+ K, | CB-<GHBDH># /2P | \$H## /2CHC &, >B? | *OH**0LO H@ /0_ | 8OH*TXDAH B>9C & | SS2% 0. DDD630079 | T+SIH3<BGH92 K | , 004BK HSE-HAB@0 | HHXIH B"HGE OAHXH | , O-ODHW@, 030 HY | @ BIDOH* CEHHWQ | <AB% YZ@DD630101 |
| T+/51> OAHXHDOGO | BHHUSE*BGHU. /2H | A.D %LS, X\|KHS\$\|H | B<T4AHW"2-J P&B1 | +H># /2F\$HW" /15 | K C =RMDD630080 | T+SHC2B% , 3<B | GB7-<B4-.HX. /2+ | *ED- H@ /0 1%G | S | PE1 * "3EHH444 KI | 7(6D @2%DD630102 |
| T+/6XHHW@P<K1+H?G | /2F\$HW@ HSIK@-B | DOH*) <BG /YFLB1 | POH*. 23Y H%GB H- | C <-1S_VC <, _2_ | V D #J-DD630081 | T+S@=H44+ K ((E=# | /2HAC &, ?S_- | , 0-4AHXH, 0?HA/'H | A 3&AH%<6 J'H ' | H"03=K 9H"00CK < | , 000 H08DD630103 |
| T+/7HX<*@AK>8C D | , 8S?>OH*-2<BGHUB | AIT (KOH*D&E-DY<7, | /2ZB K-3YXBGHUB | AHC\|H0H*D@-D0<," | /2Y 8LDD630082 | T+S. 9 U-F (U- | PHXP2 &Y@ D/"CG9 | H-U/"\| D_0 H1H | TLTYCH1H< K, -HXH | (K, -HIX2A 4\| K, | -HXU N@DD630104 |
| T+/8SE-QY (B. /2) | I?; * OHD-H, 7E <B | AG2S (AO*, B*BAD8+ | *00C -J&) ?; & 0 D | <. 5 @BAD"MH 4 J8 | 88-H 5IDD630083 | T+S<4\|18, 0?HGB-0 | H@HD733"H, L /2+ | *HD- H#XA B<10H* | /W2=>\| -@D_<'AH>% | 4 K<_\| \|EGEL& | AH3- :I4DD630105 |
| T+/9) 00CH'D, RLO | FH'H@ B?00H*TXH | B? ((&D; +(HA 64 | A -. 2 & (@90GK &E | 'E C2-E_ 'E0C -J9 | BOH* PB8DD630084 | T+S (?\| @ CO H@. | /2+*-D- H#U5 KI | 70H* 4BB (4+L- | BC\|HEBC3 H48@@L | @+B BC\|HEBC3HH48 | @@T "\$YDD630106 |
| T+/: QGU3S -P' & C | 2-&>'E0C J9-0H* | ; +3HAGTK &\|B -D | C4-DA-H 0 D; -71 | , C3"GDLK &GS -D | + AB NK4DD630085 | T+S+D\| <BG | | H8OT-0 CE@ | 4BBHS (DD1LMAIKH | + KH H3&DD630107 | |
| T+/*LZ YC?H 0 D | ; UFO 5 J884-D | D4-H -; * @YDE-H | @YD74-DA@-HAOH* | ; %; HB \$5, < AG%* | 4 KY \$B0DD630086 | T+S VHS?0 Y, "JO | AH= DC DVGS -C-D | T8B70C-DT8B?%C D | T6B -C-DT8 YCC H | B>HC UT- C D | U>B< 4SQDD630108 |

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| T+S6-8 4CH7U,/AB | DI3N8H C DELRC | US2(+C USB(+C | U*S(++-HU*-0 IH@ | TL-0 I.HTLTYAI.H | < BE "D*DD630109 | T+SU2_L-HH,P2DA@ | : KD5 DD_TACHRE | 8 SWLOA (.3-HHRL | 2DA~/20H<DZVC- | BHR 2DA<8BBWMOI | ZG3Y #1DD630131 |
| T+SJ\$EB(+C U)S(| +/D @/G+-DUS*H | GHTYBIF@< KK-H= | < KKIH= < BK&IPO | < BKLIF0: KKLK | UVS< E3XDD630110 | T+SV_DB50H*X0-(| CB<BGI@D0&2WH+ H | ZU*H&CC-HHRL DBU | :0H+Z&-(CBCEDI*H | 1&SWK@4D OHMZRTA | BHR& QJHDD630132 |
| T+SKOLTYBII11 I | 11-LA BE1@0 @0 | O& U**D IO<8 SJ | ?@ZBPC UWS(+C U | B(==*EB@0 @0 | COE).ODD630111 | T+SWY+&YZU@B&HP7 | 3&CT /2VAOH*BFUQ | TH~, "#<BG S. "#<B | GHHO -0 & CA@BW | :<-MX@\|11 <G1HEH | 0@2* =AUDD630133 |
| T+SLJIIPA BLJ\|-@ | HA*0@ H*4H*@B | AIZX3 GA BK1C U | B(=-K @YD=+\|@ | V&L? "I;G DBKFOH* | UQLO 8Y8DD630112 | T+SXT'CFWI*G@ SD | "0A DG@BGR*4BBY | PCODZ527?OH*BFUQ | TH~, "#<BG S. "#<B | G CA4=\|E6) PA8@N | 4'Q KIHDD630134 |
| T+SM<"2P/OH*X 00 | I&4TLTYCI&4< BM | HH48< BMFH48< BM | EH48: SM&C VEB(| +++EB**QDO& W%-< | "I< N-@DD630113 | T+SY;0*LE6MCH5>(| 6*PA1+/ 5_V 1)X | R5_U1NB-0\| DD7@B | GHS+*943 KY-<N& | X@TOBH, "/2YTTA(| -+J< 91*DD630135 |
| T+SNG 3A BM\|0& | X 3MAHXM@ OH* | CGHINO\| B?B-\| | -KER\|&4.R*HAE&0 | AIMDVGT0 "C- | X&D NA-DD630114 | T+SZROH*YOC&HHT7 | AMBW:@5D ONH.D.TA | LI*69U2-40A <B | GHS+4BBDI+*DI*L& | AHRY5 KDI+&DBDTH | -X 0#UDD630136 |
| T+SOB-*BG < BO | DH48< BOHH48: KO | HC VYBOHC VT2 | +C DV,B\|-CODV,B? | OC VXBOD<&ET-CG | DH9& Q8DDD630115 | T+SDM@/ C@Y*\$+? | X'JO HX* G D; D | * KZ: @BG /Y | 4-DD(DDSLNAHR, | /0 (-D,C-D -T | 2D U "1 DD630137 |
| T+SO'CE W%-< LG | PH9L3 <AB+RH8* | 11B+MO& W%-< PG | PACGDH8 <A H8) | "H C'-KH<+\|@V8L? | "I;D =RYDD630116 | T+S,\|CE@H60,~@Y* | FCEYH6-,EOH*BFSS | /0 | @E?A1<J/H | | 5J-DD630138 |
| T+SP80A UUXBGIF9 | "H C'-KHE+\|@V8L? | "I;G DBK\|OH*URO_ | (-WATCEB/G | 01BP-<*EV7-0 I-4 | TLTY 'IHDD630117 | T+SXH \|@ | DA &D C | 0@\|C01\|C0@\|C0@-C | 4=\|G2@\|-6=(~H5<P | SE<\|P9DA/QHCC2<G | I5;H MJ<DD630139 |
| T+SQ3 KP'@0 G<*E | V8<BG 4BBR@ (D | D&L&BHR,B &-0-H | .B30FH2D@ABXS(D | K<L&BIT\| /OH; & | 4&HDD630118 | T+S_EB>R 9<LT&(\$ | L1< 00'LC@-C0@ | - D @SPO*\$ | FOXSP17A,E4' 0 | J - C A A < D H | 0 QR8DD630140 |
| T+SE>?D A4-DA@-H | CC0 ,H-YC0 DWH80 | B %X18-HCC0 ,H&Y | CO DWG@BG /YB.K4 | 8OH*BF-IO.+\$/OH | EAVQ 9.HDD630119 | T+S> D < 0 &A | C A E < D A | & B A C @ | FO HA < D&D | < 0 D HEDDD630141 | |
| T+S&ZB5@5 K,/(&H | /W%BG C /OH&0/H | XU\|""OH*V8%BGI-- | /OHS"" /02\|OH* | BF%HV.&?""BGI-- | /OH 1&4DD630120 | T+S># A BD D- | A DY POH 0*\|T | LO*\|T | | | KE<DD630142 |
| T+S\$UH?"=OH*<T3& | HIOH K*BH=# /2P | S+A HD*H&AC34.F< | 8H YL&Z D <XQ3/ | B/ 2U @@S1T+H | HD*H E,MDD630121 | T+S76 D | A | E | D | H O D H A- | H 0 3CUDD630143 |
| T+S*-U @@K1TOH* | BF%QU.G?""BGI-- | /OHS""3 /0 OH* | V8T-AB/L DBR'+&H | .QCUAB6G UBHT+KH | .QCU E,DD630122 | T+S01 B@ < AP | I&GD1*L | U5)R.&(\$P&(-G5D_ | 1)PT6*XEBUCL1*\$ | TE<XS&-X96_ 8_ | A0@H 3D-DD630144 |
| T+S)EG /+P-QXB | 6IH&< K*BH9? /2E | "OH*BFXR-.YP*%B | G S."#%BGB@X4BB- | X0-HH-.1 P:1;PV@ | @B* 5\$HDD630123 | T+S1&&<GVO*YLO*. | L1HCF5_V 5@-H8U_ | 2;I 9--X9=) 8XP | C8'\$R8U?3@*L0&<L | R2;PE&+) 5)ST&(X | EO*E 0LHDD630145 |
| T+S;N'LOBH,@8 &H | (@Z E(DD1&0A17& | "@B& 5 K,EO-H | H-<BGI@D&- H.OA | Z=3-A -,2D(48H'H | -0A OR DD630124 | T+S2X:DCO6MCU5*X | TE<\|H1*\|K0*LA5=\| | E6HCC2<PC4UC05HC | 3@*L0@\|A &DA &DA | @(\| &DA @\|J &DA | &D :HDD630146 |
| T+S-@HR*8D H.@/ | H? X'*BGI*Q* K, | EC DX_G AOH* <H | BBY 5 K,E\| HD73- | \|H%K2UBG /O>H&E" | -P34 QOHDD630125 | T+S3S&\|C7&DA &\|C | &EDA &DA &\|G1&DA | &\|G2&DA &DA &\|G | 5&DA &\|G6&DA &DA | &\|G9&DA &\|.0&DA | &D 48DD630147 |
| T+S-. SD*YDK+ D | BC-H&B3-A -,2D'K | XA5'\|OH* EA&BY | 9 <BGH4@5 S- | /,H+C/\|<Q&-<&DL | J. H @SHDD630126 | T+S4) &DC2@\|3' \|A | 1&GI4@PD&+\|0&<P | X1*\|U8@N OHCS2) R | @-A @@XN1;.T2<N | 2)PF5_XN0;\|I5_N | 0XH #B4DD630148 |
| T+S/P+D KA-H&D3- | - P DB-:@1 AO-H | H-<BGHEH8BB0EOI | YBC-D. P DB-:T | &1PB0E@1SA&-H | A(H EQHDD630127 | T+S5Q4'\$W&<XS&+ | H1HC2'DCB:+ E&<L | IO*) 8_PS2)PV0 | I1DCH1*GD1) V 0@G | R1FA 0'\$R6*PC84C | H1*D -CHDD630149 |
| T+SSA. M'8BOE0HD | YG%BGH P3FD 'E % | C@-DHCQH. -XCOHD | X=%BGI@D8DBD5@Z | (T DAH,0#*2D50H* | Z+TD NLHDD630128 | T+S6L1<PR&<\|A6*J | 0)PDE (X&8'XY&@T | E&<\$F0MCD1* K&(\$ | R&<E 0'-0&(LO1+L | L1HCHO;I 8'\$0&(L | A5;- 'HODD630150 |
| T+SS&KWO<D<ZVC- | DHR\|2U+4& SWL@/ | *OH*BFKD) (XL*@*B | G /YFJLE90H*BH?" | 1OH*Y--(CBCOAH,@ | 1JB*)RDDD630129 | T+S7+L<.Y8@PS2)P | V0)\|I1DCC2<GR0* | T1)XS&<XN&<LR2;P | E&<(\$I1) D&(\$F&E? | D9() 5_-T2) \$N5<X | S8XU).*DD630151 |
| T+ST7@CEBHR.3&6&C | A&STE<DHZVCUHR | UBV*@4<H+ DD_-H | &&.5\$ \|HAACYHH,0 | 'Q&C2' &D' H G2-H0 | =BBY :K*DD630130 | T+S8I5*) 9<LT&(\$ | R&< P9DCC0) XDK4A | 2)PS1)XT&< A6*J | 2)N 1<PC4UCA5*J | 0*LD&<LE0'I 5>P | E6H% &JHDD630152 |

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

OBJECT CARD LISTING

OBJECT CARD LISTING

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

T+S9D8ATEE<\$04*I 09KXN14CC2<GI5MC I5<GG1HCD0;|AE<| A6*J 2;I 2)PV0| I1(POE(X05_J 4@P F84 : 8DD630153

T+S9^5_N 1<GTOMC H5XLU4@N QDCD5UC A&E7C5() 0XPF5_X EE<GD1<XN14CO6MC R1)-P2)PG<GN:DC P6)Q :SHDD630154

T+S::1'XA5+I.1)X E5_V 2)N 5<PS8%G G10_ 6*PT:(~EE<G W1DCH2;(1)PD&DC C0)XD&+.Y5;|A94C E6)U --DD630155

T+S^55_V QDCC0)X DE(XE0*J 9%GS;X N9*GL2*J 8XQ9<P N0@N :4C05HCC0)X DEFA 8XPO&G_ 9=- X94 RJDD630156

T+S@09%GSE(XE0*J ,&<GN1DA&+~X9=) &+SA8UCE9*-E0=| E1<XN9*GL2*J 2*J QDCI1DCR1*GD&+S A8U P-YDD630157

T+S',9=-X96_ 2*J 1;-F1*|T1*J 9%G S&+~X9=-I5;PA&X DE+Y8>|E5DCT1;. TE<TE0*LE6HCC0)X D8X< 5DD630158

T+S=N0)N 1)IR5_V -<TI84CS:+.T1)J 6*PS1;(,8>|A6:(,&+|H1)N 6*PT6;T D0;|AE(LO1+LL1MC 05N 1#HDD630159

T+S^/1(XI9*N 94C I8UCN5>(0MC1@UC H&<.Y8@N 5@GC@U_ &<XFE+T09DCW2;. H&+|0&<|05;|I5;L EE4 RI&DD630160

T+T *6*PS1;(8@T EE<TA4=(.1)IR5_V 2)N 1<|PE<|05*\$ I1=LR1HCR1*|06*J .EDCR1*|06*J 2;I 5'U)THDD630161

T+TAP2)PT1*J 0XP L5>R:6*PA1+/-1<X S4UCIQ)R 5_N 1=- S1*N 5'XI5;|E6;. E0=|I5_N 8@PR5<X N0;< NYHDD630162

T+TBK1*L1K4A 8=L R5HC05MCS8>R 8'R 8XPL1*|TE<XN5=L TE<LE9*XC1M_ &DC 1'6A @~4@MA &DC 1=P 5,8DD630163

T+TC(8|G4*|I &DA @*E-5<\$C9DA &DC N5_PEQDC5'|-TE&DC 2K4A 1<XS4UCD6*X V1HC1&+\$I4'(0XN 9+H 8H8DD630164

T+TDH1*J.&DCI1UC D6+XV1HC2&<XSE<L E8XIR1*J 8XPT&(\$ N&+.S97.2K@LE4@P T1*J &DA &DA &DA &D 218DD630165

T+TEC&DA &DA &DA &DA &DA &DA &DA &DA &DA &DA &DA &DA &DA &DA &DA &D 3YDD630166

T+TE=&DA &DA &DC A1<LE1FA-1<XA1'P 08>|I04CC5_PT6)\$ LE (-R5%)-QPCN5XJ @-H@-(LI8>.I5*) 0'Q R:0DD630167

T+TF95;|R5_(0@G R1DCI5NCE6)X06)P 0&+.P0*|EE<GV0*X L0*.L1HCT5UCA1<J 5*PW&(-R5%-R0)J 9=* 4&DD630168

T+TG494CN5>(5_N 1<XS4XPN8@PRE(\$ N1HCO1UCT2<N 1_S L4*\$W2)PG&(\$P8@X 05;I:&DA QNA &DA &D ;2<DD630169

T+TH?&DA &DA-&+| E6)LI5*GT1HCO5@P R0;|I5_N QDA &DA S0*LP&DA &DA &DA QDCC5_LP6*PS8UA -ED @L-DD630170

T+TI&DA &DA &DA &DA &E7C5_FF2*) &DA &DA-&<|05*\$ I1=LR1HA-&DA &DA &DA &DA&4=. TED #Z@DE630171

T+THV&DA &DA &FA 4@XS84A-&DA &DA &DA &DA &DA &E7D1)|X9=),9=- X&DCX9=)=&<XD&(\$ FE(* JY@DD630172

T+T.-1'J(8V5 8'R 1<PL1;|EO@LU54C F1>|T6<\$F-UCF6)\$ H6(LO1+LL1N9 8=(=&+|0&(LO1+LL1N? R1)* 88HDD630173

T+T<\$9=-X&DA &DA 9=-X-UCI1DC01UC P6)\$G6*GH&+|0&(X E54A 1<PP6*PS8UA -1)PDQCK1;/ 8'R 2)N 1C-DD630174

* CONTROL RECORD MEANING AND USE DD630193

DD63 3340 CE DISK EDITOR MOD 12

DD63 3340 CE DISK EDITOR MOD 12

OBJECT CARD LISTING

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

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* ----- * DD630197
* $DJP PFTT COPY FROM DRIVE FF TO DRIVE TT. FF AND TT CAN BE D1 ORD2. * DD630198
* $ADD ADD A PROGRAM DECK OR DECKS. * DD630199
* $LST LIST PROGRAMS ON DISK. * DD630200
* $DELXXX,YYY DELETE PROGRAMS XXX,YYY FROM DISK. * DD630201
* $REPXXX ADD REP CARDS ET C. TO A PROGRAM, E CARD MUST FOLLOW REPS. * DD630202
* $CONFIG TO CHANGE CPU, UDT, OR CHAIN IMAGE. E CARD MUST BE THE LAST CARD. * DD630203
* $CMP COMPRESS DISK * DD630204
***** DD630205
EB95*E7*=-DC*PH$ ="7H&F| | C FX ASC RA SO Q 11350321770 32877;$0DD630206

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PART NO. 4248210
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FD60 LSR FEATURE TEST MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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93 *
94 *   ORG TO X'2000' TO GET OVER DCP'S LOAD-TIME CODE.
95 *
96 *
2000
97 *   ORG X'2000'
98 *
99 *   ROUTINE 1 PREFIX 5471
100 *
101 RT01 DC XL1'01' ROUTINE NUMBER
102 *   XL1'00' FLAGS
103 *   DC AL2(RT02) ADDRESS OF NEXT ROUTINE PREFIX
104 *
105 *   TBF SBYTE1,SSWLG  BYPASS SSW4 IF LOOP ON SECTION OR
106 *   JF BYPA1 ROUTINE
107 *   MALT XL2'FDA1' AI MALT IF SSW 4 ON
108 *   DC XL2'FDA1'
109 *   ABEND 0 **4 MODIFY TO BRANCH TO EXIT ON SYSTEM
110 *   **4 RESET- START IF FD6 AU'0-LOADED BY
111 *   DCP
112 *   BYPA1 TBN SBYTES,SSW2F TEST SSW 2F FOR AUTO CALL OF THIS
113 *   ROUTINE AT IPL TIME OF DCP
114 *
115 *   SBF SBYTES,SSW2F
116 *   NORM JF
117 *   MVC ABEND+3(2),RESTR SET UP BYPASS OF FD6 ON SYSTEM RESET-
118 *   START FD6 DURING IPL SEQUENCE
119 *   MVC EXIT+3(2),X'1FF5' SET UP RETURN TO DCP WHEN DCP AUTO-
120 *   CALLS FD6 DURING IPL SEQUENCE
121 *   NORM TBN SPUT10-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
122 *   BF LINK 5471 PRINTER/KEYBOARD IS NOT ATTACHED
123 *   MVC PAD,X0000(2) ZERO THE STORAGE AREA
124 *   L XFFFF,X'CO' LOAD INT LEVEL IAR WITH -FFFF-
125 *   ST PAD,X'CO' STORE INT LEVEL IAR INTO PAD
126 *   CLC PAD,XFFFF(2) CONTINUE WITH TEST IF IAR
127 *   JE NEXT1 WAS SELECTED CORRECTLY
128 *
129 *   HPL X'03',TENS 61 ERROR HALT
130 *
131 *   NEXT1 L X0000,X'CO' FAILURE TO SENSE THE CORRECT
132 *   ST PAD,X'CO' VALUE WILL RESULT IN LSR CHECK
133 *   B LINK
134 *
135 *   ROUTINE 2 PREFIX MLTA GENERAL ADAPTER
136 *
137 RT02 DC XL1'02' ROUTINE NUMBER
138 *   DC XL1'00' FLAGS
139 *   DC AL2(RT03) ADDRESS OF NEXT ROUTINE PREFIX
140 *
141 *   TBN SPUT20-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
142 *   BF LINK MLTA IS NOT ATTACHED
143 *   MVC PAD,X0000(2) ZERO THE STORAGE AREA
144 *   LIO XFFFF,SAB LOAD MLTA LSR WITH -FFFF-
145 *   SNS PAD,SAB STORE MLTA LSR INTO PAD
146 *   CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
147 *   BNE MALT2 WAS SELECTED CORRECTLY
148 *   LIO X0000,SAB LOAD MLTA LSR WITH -0000-
149 *   SNS PAD,SAB STORE MLTA LSR INTO PAD
150 *   CLC PAD,X0000(2) TEST RESULT
151 *   BNE MALT2
152 *   LIO XAAAA,SAB LOAD MLTA LSR WITH -AAAA-
153 *   SNS PAD,SAB STORE MLTA LSR INTO PAD
154 *   CLC PAD,XAAAA(2) TEST RESULT
155 *   BNE MALT2
156 *   LIO X5151,SAB LOAD MLTA LSR WITH -5151-
157 *   SNS PAD,SAB STORE MLTA LSR INTO PAD
158 *   CLC PAD,X5151(2) TEST RESULT
159 *   BE LINK
160
205A 02 205A
205B 00 205B
205C 20B7 205D
205E 38 20 OAOE
2062 0C 90 0216
2066 0C 01 2809 2808
2066 31 28 280D
2070 30 28 2809
2074 0D 01 2809 280D
207A 0C 01 20B4
207E 31 28 2808
2082 30 28 2809
2086 0D 01 2809 2808
208C 0C 01 20B4
2090 31 28 280F
2094 30 28 2809
2098 0D 01 2809 280F
209E 0C 01 20B4
20A2 31 28 2811
20A6 30 28 2809
20AA 0D 01 2809 2811
20B0 0C 81 0216

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DATE 29AUG75
EC NO. 827804

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FD60 LSR FEATURE TEST MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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2084 FO 7D 76
161 HALT2 HPL X'76',TENS 62 ERROR HALT
162 *
163 *
164 *
165 *   ROUTINE 3 PREFIX SIOC
166 *
167 RT03 DC XL1'03' ROUTINE NUMBER
168 *   DC XL1'00' FLAGS
169 *   DC AL2(RT04) ADDRESS OF NEXT ROUTINE PREFIX
170 *
171 *   TBN SPUT30-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
172 *   BF LINK SIOC IS NOT ATTACHED
173 *   MVC PAD,X0000(2) ZERO THE STORAGE AREA
174 *   LIO XFFFF,SCDAR LOAD SIOC LSR WITH -FFFF-
175 *   SNS PAD,SCDAR STORE SIOC LSR INTO PAD
176 *   CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
177 *   BNE MALT3 WAS SELECTED CORRECTLY
178 *   LIO X0000,SCDAR LOAD SIOC LSR WITH -0000-
179 *   SNS PAD,SCDAR STORE SIOC LSR INTO PAD
180 *   CLC PAD,X0000(2) TEST RESULT
181 *   BNE MALT3
182 *   LIO XAAAA,SCDAR LOAD SIOC LSR WITH -AAAA-
183 *   SNS PAD,SCDAR STORE SIOC LSR INTO PAD
184 *   CLC PAD,XAAAA(2) TEST RESULT
185 *   BNE MALT3
186 *   LIO X5151,SCDAR LOAD SIOC LSR WITH -5151-
187 *   SNS PAD,SCDAR STORE SIOC LSR INTO PAD
188 *   CLC PAD,X5151(2) TEST RESULT
189 *   BNE MALT3
190 *   LIO X3434,SCDAR LOAD SIOC LSR WITH -3434-
191 *   SNS PAD,SCDAR STORE SIOC LSR INTO PAD
192 *   CLC PAD,X3434(2) TEST RESULT
193 *   BE LINK
194 *
195 HALT3 HPL X'57',TENS 63 ERROR HALT
196 *
197 *
198 *
199 *   ROUTINE 4 PREFIX 2501 CARD READER
200 *
201 RT04 DC XL1'04' ROUTINE NUMBER
202 *   DC XL1'00' FLAGS
203 *   DC AL2(RT05) ADDRESS OF NEXT ROUTINE PREFIX
204 *
205 *   TBN SPUT31-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
206 *   BF LINK 2501 IS NOT ATTACHED
207 *   MVC PAD,X0000(2) ZERO THE STORAGE AREA
208 *   LIO XFFFF,RDAR LOAD 2501 LSR WITH -FFFF-
209 *   SNS PAD,RDAR STORE 2501 LSR INTO PAD
210 *   CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
211 *   BNE MALT4 WAS SELECTED CORRECTLY
212 *   LIO X0000,RDAR LOAD 2501 LSR WITH -0000-
213 *   SNS PAD,RDAR STORE 2501 LSR INTO PAD
214 *   CLC PAD,X0000(2) TEST RESULT
215 *   BNE MALT4
216 *   LIO XAAAA,RDAR LOAD 2501 LSR WITH -AAAA-
217 *   SNS PAD,RDAR STORE 2501 LSR INTO PAD
218 *   CLC PAD,XAAAA(2) TEST RESULT
219 *   BNE MALT4
220 *   LIO X5151,RDAR LOAD 2501 LSR WITH -5151-
221 *   SNS PAD,RDAR STORE 2501 LSR INTO PAD
222 *   CLC PAD,X5151(2) TEST RESULT
223 *   BNE MALT4
224 *   LIO X3C3C,RDAR LOAD 2501 LSR WITH -3C3C-
225 *   SNS PAD,RDAR STORE 2501 LSR INTO PAD
226 *   CLC PAD,X3C3C(2) TEST RESULT
227 *   BE LINK

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DATE 29AUG75
EC NO. 827804

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PAGE 2A

IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248210
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FD60 LSR FEATURE TEST MODEL 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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2192 FO 7D 1B          228
229 HALT6 HPL X'18',TENS 64 ERROR HALT
230 *
231
232
233 *****
234 * ROUTINE 5 PREFIX 1442 CARD READ PUNCH *****
235 RT05 DC XLI'05' ROUTINE NUMBER
236 DC XLI'00' FLAGS
237 DC AL2(RT06) ADDRESS OF NEXT ROUTINE PREFIX
238 *****
239 TBN SPLT51-1,ASSIGN CK FOR AND BRANCH IF UOT INDICATES
240 BF LINK LINK 1442 IS NOT ATTACHED
241 MVC PAD,X0000(2) ZERO THE STORAGE AREA
242 LIO XFFFF,RPDAR LOAD 1442 LSR WITH -FFFF-
243 SNS PAD,RPDAR STORE 1442 LSR INTO PAD
244 CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
245 BNE HALT5 WAS SELECTED CORRECTLY
246 LIO X0000,RPDAR LOAD 1442 LSR WITH -0000-
247 SNS PAD,RPDAR STORE 1442 LSR INTO PAD
248 CLC PAD,X0000(2) TEST RESULT
249 BNE HALT5
250 LIO XAAAA,RPDAR LOAD 1442 LSR WITH -AAAA-
251 SNS PAD,RPDAR STORE 1442 LSR INTO PAD
252 CLC PAD,XAAAA(2) TEST RESULT
253 BNE HALT5
254 LIO X5151,RPDAR LOAD 1442 LSR WITH -5151-
255 SNS PAD,RPDAR STORE 1442 LSR INTO PAD
256 CLC PAD,X5151(2) TEST RESULT
257 BNE HALT5
258 LIO X5454,RPDAR LOAD 1442 LSR WITH -5454-
259 SNS PAD,RPDAR STORE 1442 LSR INTO PAD
260 CLC PAD,X5454(2) TEST RESULT
261 BE LINK
262
263 HALT5 HPL X'5D',TENS 65 ERROR HALT
264 *
265
266 *****
267 * ROUTINE 6 PREFIX 3410/3411 TAPE *****
268 RT06 DC XLI'06' ROUTINE NUMBER
269 DC XLI'00' FLAGS
270 DC AL2(RT07) ADDRESS OF NEXT ROUTINE PREFIX
271 *****
272 TBN SPUT'0-1,ASSIGN CK FOR AND BRANCH IF UOT INDICATES
273 BF LINK LINK TAPE IS NOT ATTACHED
274 MVC PAD,X0000(2) ZERO THE STORAGE AREA
275 LIO XFFFF,MTAR LOAD TAPE LSR WITH -FFFF-
276 SNS PAD,MTAR STORE TAPE LSR INTO PAD
277 CLC PAD,MTAR CONTINUE WITH TEST IF LSR
278 PAD,XFFFF(2) WAS SELECTED CORRECTLY
279 BNE HALT6 LOAD TAPE LSR WITH -0000-
280 LIO X0000,MTAR STORE TAPE LSR INTO PAD
281 SNS PAD,MTAR TEST RESULT
282 CLC PAD,X0000(2)
283 BNE HALT6
284 LIO XAAAA,MTAR LOAD TAPE LSR WITH -AAAA-
285 SNS PAD,MTAR STORE TAPE LSR INTO PAD
286 CLC PAD,XAAAA(2) TEST RESULT
287 BNE HALT6
288 LIO X5151,MTAR LOAD TAPE LSR WITH -5151-
289 SNS PAD,MTAR STORE TAPE LSR INTO PAD
290 CLC PAD,X5151(2) TEST RESULT
291 BNE HALT6
292 LIO X6464,MTAR LOAD TAPE LSR WITH -6464-
293 SNS PAD,MTAR STORE TAPE LSR INTO PAD

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FD60 LSR FEATURE TEST MODEL 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2266 OD 01 2809 281D 294 CLC PAD,X6464(2) TEST RESULT
226C CO 81 0216 295 BE LINK
2270 FO 7D 7D 296 HALT6 HPL X'7D',TENS 66 ERROR HALT
297 *
298

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

FD60 LSR FEATURE TEST MODEL 12

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

FD60 LSR FEATURE TEST MODEL 12

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

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```

300 *****
301 * ROUTINE 7 PREFIX BSCA-1
302 *****
2273 07 2273 RT07 DC XL1'07' ROUTINE NUMBER
2274 00 2274 DC XL1'00' FLAGS
2275 22E2 2276 DC AL2(RT08) ADDRESS OF NEXT ROUTINE PREFIX
306 *****
307 TBM SPUT80-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
308 BF LINK BSCA IS NOT ATTACHED
309 MVC PAD,X0000(2) ZERO THE STORAGE AREA
310 LIO XFFFF,BSCAR1 LOAD BSCA LSR WITH -FFFF-
311 SNS PAD,BSCAR1 STORE BSCA LSR INTO PAD
312 CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
313 HALT7 WAS SELECTED CORRECTLY
314 LIO X0000,BSCAR1 LOAD BSCA LSR WITH -0000-
315 SNS PAD,BSCAR1 STORE BSCA LSR INTO PAD
316 CLC PAD,X0000(2) TEST RESULT
317 BNE HALT7
318 LIO XAAAA,BSCAR1 LOAD BSCA LSR WITH -AAAA-
319 SNS PAD,BSCAR1 STORE BSCA LSR INTO PAD
320 CLC PAD,XAAAA(2) TEST RESULT
321 LIO X5151,BSCAR1 LOAD BSCA LSR WITH -5151-
322 SNS PAD,BSCAR1 STORE BSCA LSR INTO PAD
323 CLC PAD,X5151(2) TEST RESULT
324 LIO X8484,BSCAR1 LOAD BSCA LSR WITH -8484-
325 SNS PAD,BSCAR1 STORE BSCA LSR INTO PAD
326 CLC PAD,X8484(2) TEST RESULT
327 BE LINK
328
329
330
331 HALT7 HPL X'07',TENS 67 ERROR HALT
332 *
333
334 *****
335 * ROUTINE 8 PREFIX BSCA-2 OR DA
336 *****
22E2 08 22E2 RT08 DC XL1'08' ROUTINE NUMBER
22E3 00 22E3 DC XL1'00' FLAGS
22E4 2355 22E5 DC AL2(RT09) ADDRESS OF NEXT ROUTINE PREFIX
340 *****
341 TBF SPUT88-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
342 TBF SPUT89-1,ASSIGN DA OR
343 BT LINK BSCA-2 IS NOT ATTACHED
344 MVC PAD,X0000(2) ZERO THE STORAGE AREA
345 LIO XFFFF,BSCAR2 LOAD BSCA LSR WITH -FFFF-
346 SNS PAD,BSCAR2 STORE BSCA LSR INTO PAD
347 CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
348 HALT8 WAS SELECTED CORRECTLY
349 LIO X0000,BSCAR2 LOAD BSCA LSR WITH -0000-
350 SNS PAD,BSCAR2 STORE BSCA LSR INTO PAD
351 CLC PAD,X0000(2) TEST RESULT
352 BNE HALT8
353 LIO XAAAA,BSCAR2 LOAD BSCA LSR WITH -AAAA-
354 SNS PAD,BSCAR2 STORE BSCA LSR INTO PAD
355 CLC PAD,XAAAA(2) TEST RESULT
356 HALT8
357 LIO X5151,BSCAR2 LOAD BSCA LSR WITH -5151-
358 SNS PAD,BSCAR2 STORE BSCA LSR INTO PAD
359 CLC PAD,X5151(2) TEST RESULT
360 BNE HALT8
361 LIO X8C8C,BSCAR2 LOAD BSCA LSR WITH -8C8C-
362 SNS PAD,BSCAR2 STORE BSCA LSR INTO PAD
363 CLC PAD,X8C8C(2) TEST RESULT
364 BE LINK
365
366 HALT8 HPL X'7F',TENS 68 ERROR HALT

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```

367 *
368
369 *****
370 * ROUTINE 9 PREFIX 1403 OR 5203 PRINTER
371 *****
372 RT09 DC XL1'09' ROUTINE NUMBER
373 DC XL1'00' FLAGS
374 DC AL2(RTOA) ADDRESS OF NEXT ROUTINE PREFIX
375 *****
376 TBF SPUTE1-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
377 TBF SPUTE0-1,ASSIGN 5203 OK
378 BT LINK 1403 IS NOT ATTACHED
379 MVC PAD,X0000(2) ZERO THE STORAGE AREA
380 LIO XFFFF,LPIAR LOAD 1403 LSR WITH -FFFF-
381 SNS PAD,LPIAR STORE 1403 LSR INTO PAD
382 CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
383 BNE HALT8 WAS SELECTED CORRECTLY
384 LIO X0000,LPIAR LOAD 1403 LSR WITH -0000-
385 SNS PAD,LPIAR STORE 1403 LSR INTO PAD
386 CLC PAD,X0000(2) TEST RESULT
387 BNE HALT8
388 LIO XAAAA,LPIAR LOAD 1403 LSR WITH -AAAA-
389 SNS PAD,LPIAR STORE 1403 LSR INTO PAD
390 CLC PAD,XAAAA(2) TEST RESULT
391 BNE HALT8
392 LIO X5151,LPIAR LOAD 1403 LSR WITH -5151-
393 SNS PAD,LPIAR STORE 1403 LSR INTO PAD
394 CLC PAD,X5151(2) TEST RESULT
395 BNE HALT8
396 LIO XE4E4,LPIAR LOAD 1403 LSR WITH -E4E4-
397 SNS PAD,LPIAR STORE 1403 LSR INTO PAD
398 CLC PAD,XE4E4(2) TEST RESULT
399 BNE HALT8
400 LIO XFFFF,LPDAR LOAD 1403 LSR WITH -FFFF-
401 SNS PAD,LPDAR STORE 1403 LSR INTO PAD
402 CLC PAD,XFFFF(2) CONTINUE WITH TEST IF LSR
403 BNE HALT8 WAS SELECTED CORRECTLY
404 LIO X0000,LPDAR LOAD 1403 LSR WITH -0000-
405 SNS PAD,LPDAR STORE 1403 LSR INTO PAD
406 CLC PAD,X0000(2) TEST RESULT
407 BNE HALT8
408 LIO XAAAA,LPDAR LOAD 1403 LSR WITH -AAAA-
409 SNS PAD,LPDAR STORE 1403 LSR INTO PAD
410 CLC PAD,XAAAA(2) TEST RESULT
411 BNE HALT8
412 LIO X5151,LPDAR LOAD 1403 LSR WITH -5151-
413 SNS PAD,LPDAR STORE 1403 LSR INTO PAD
414 CLC PAD,X5151(2) TEST RESULT
415 BNE HALT8
416 LIO XE6E6,LPDAR LOAD 1403 LSR WITH -E6E6-
417 SNS PAD,LPDAR STORE 1403 LSR INTO PAD
418 CLC PAD,XE6E6(2) TEST RESULT
419 BE LINK
420
421 HALT8 HPL X'79',TENS 6B ERROR HALT
422 *
423
424 *****
425 * ROUTINE A PREFIX 5424 NFCU
426 *****
427 RTOA DC XL1'0A' ROUTINE NUMBER
428 DC XL1'00' FLAGS
429 DC AL2(RTOB) ADDRESS OF NEXT ROUTINE PREFIX
430 *****
431 TBM SPUTF0-1,ASSIGN CK FOR AND BRANCH IF UDT INDICATES
432 BF LINK 5424 IS NOT ATTACHED

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FD60 LSR FEATURE TEST MODEL 12

Table with columns: ERR LOC, OBJECT CODE, ADDR, STMT, SOURCE STATEMENT. Contains assembly code for routine B PREFIX 3741, including instructions like MVC, LIO, XFFFF, MPTAR, etc.

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FD60 LSR FEATURE TEST MODEL 12

Table with columns: ERR LOC, OBJECT CODE, ADDR, STMT, SOURCE STATEMENT. Contains assembly code for routine C PREFIX 3340 DISK, including instructions like RTOB, DC, XL1'OB', etc.

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FD60 LSR FEATURE TEST MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2814 3434      2815 703 X3434 DC XL2'3434'
2816 4444      2817 704 X4444 DC XL2'4444'
2818 3C3C      2819 705 X3C3C DC XL2'3C3C'
281A 5454      281D 706 X5454 DC XL2'5454'
281C 6464      281D 707 X6464 DC XL2'6464'
281E 8484      281F 708 X8484 DC XL2'8484'
2820 C8C8      2821 709 XC8C8 DC XL2'8C8C'
2822 C4C4      2823 710 XC4C4 DC XL2'C4C4'
2824 C6C6      2825 711 XC6C6 DC XL2'C6C6'
2826 E4E4      2827 712 XE4E4 DC XL2'E4E4'
2828 E6E6      2829 713 XE6E6 DC X'2'E6E6'
282A F4F4      282B 714 XF4F4 DC XL2'F4F4'
282C F5F5      282D 715 XF5F5 DC XL2'F5F5'
282E F6F6      282F 716 XF6F6 DC XL2'F6F6'
2830 27D4      2831 717 RESTRT DC AL2(ABEXIT)
2832 C961D640D3E2D940 284A 718 ABMESS DC CL25'I/O LSR TEST **BYPASSED**
283A E3C5E2E340C5CC2 718
2842 E8D7C1E2E2C5C45C 718
284A 5C 718
284B E3D640D3D6C1C440 2876 719 ABM2 DC CL44'TO LOAD FD6 VIA DCP SET SWIT/HES TO **DFD6**
2853 C6C4F640E5C9C140 719
285B C4C3D740E2C5E340 719
2863 E2E6C9E3C3C8C5E2 719
286B 40E3D640C5C5CC4C6 719
2873 C4F65C5C 719
2877 C961D640D3E2D940 288B 720 NRMESS DC CL21'I/O LSR TEST COMPLETE*
287F E3C5E2E340C3D6D4 720
2887 D7D3C5E3C5 720
721 *
722
0222 723 HALT EQU X'222'
021A 724 PRINT EQU X'21A'
020D 725 SBYTES EQU X'20D'
0001 726 SSWZF EQU X'01'
0001 727 XR1 EQU 1
0216 728 LINK EQU X'216'
022A 729 LOAD EQU X'22A'
002D 730 ASSIGN EQU X'20'
007D 731 TENS EQU X'7D'
732
001B 733 CRTAR EQU X'1B'
002B 734 SAB EQU X'2B'
0034 735 SCDAR EQU X'34'
0044 736 DKDAR EQU X'44'
003C 737 RDAR EQU X'3C'
0054 738 RPDAR EQU X'54'
0064 739 MTAR EQU X'64'
0084 740 BSCAR1 EQU X'84'
008C 741 BSCAR2 EQU X'8C'
00A4 742 DFDR EQU X'A4'
00A6 743 DFCR EQU X'A6'
00C4 744 DDDR EQU X'C4'
00C6 745 DDCR EQU X'C6'
00E4 746 LPDAR EQU X'E4'
00E6 747 LPDAR EQU X'E6'
00F4 748 MPTAR EQU X'F4'
00F5 749 MRDAR EQU X'F5'
00F6 750 MPCAR EQU X'F6'
036F 751 X0 EQU X'6F'
0003 752 X1 EQU X'03'
0076 753 X2 EQU X'76'
0057 754 X3 EQU X'57'
001B 755 X4 EQU X'1B'
005D 756 X5 EQU X'5D'
007D 757 X6 EQU X'7D'
0007 758 X7 EQU X'07'
007F 759 X8 EQU X'7F'
001F 760 X9 EQU X'1F'
    
```

FD60 LSR FEATURE TEST MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

003F 761 XA EQU X'3F'
0079 762 XB EQU X'79'
0070 763 XC EQU X'70'
0073 764 XD EQU X'73'
007C 765 XE EQU X'7C'
003C 766 XF EQU X'3C'
0010 767 PHRP EQU X'10'
0008 768 PRIV EQU X'08'
0007 769 TENS7 EQU X'07'
007F 770 TENS8 EQU X'7F'
00C0 771 SSWLOP EQU X'CO'
0208 772 SBYTE1 EQU X'0208'
FFFF 773 END
    
```

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OBJECT CARD LISTING

| CL 1 THROUGH 16 | CL 17 THROUGH 32 | CL 33 THROUGH 48 | CL 49 THROUGH 64 | CL 65 THROUGH 80 | CL 81 THROUGH 96 |
|--------------------|---------------------|-------------------|-------------------|--------------------|-------------------|
| T+SK\$K-IR"KN | B<-&YDLC4H"U("K- | IRAG"KNB<-&YH3C | 4R"U("K-IRB?"KN | B<-MYCLC5H"U("K- | IR"4"1:*FD600021 |
| T+SLOO"DV&TG5H"Z | O"K-IC&DYBK-.O"D | V&TG5H"20"K-IC&D | YBK-10"DV&TG5H&D | O"K-IC&DYBK-JO"D | V&TD"1Q8FD600022 |
| T+SMJ"K-<\|MYB&4 | AR"UY.*"AIMH1"S- | (<\|QYB&4AR"UYC* | AIMH1"S-<\|QYB&4 | AR"UYB2"AIMH1"S- | \|<10"3HFD600023 |
| T+SN<H"U("K-IR" | "KNB<-QYDLC6H"U | ("K-IRAG"KNB<-Q | Y.3C6H"U("K-IRB" | "-&HC2G50B0"V_C- | -BSU"#:2FD600024 |
| T+SOG01"BE-OAR"U | YB3EDH"40JB-IC&D | YBK-10"DV&LEDH"Z | OJB-IC&DYBK-.O"D | V&LEDH"20JB-IC&D | YBK-NT&FD600025 |
| T+S"BC2"AI\$D1JB- | J<D&YB&4AR"UYD* | AI\$D1JB-P<D&YB&4 | AR"UYE2BA"/\$0-62 | <"BR"+B"R.<B&"/Q | <"K-5LMFD600026 |
| T+SP"BK-<*&YCLC | DR"U("K-IR"7"KR | :<*&YB3CCH"U("K- | IR"?"KR:<*&YC3C | DR"U("K-IR"7"KR | :<*&5.<FD600027 |
| T+SQB&RADO1B-IC&D | YBK-JO"DW;TGDH&K | O1B-IC&DYBK-TO"D | W;TGFH"401S-IC&D | YBK-10"DW;TGFH"Z | O1S-5SHFD600028 |
| T+SR3B&4AR"UYB2 | AIXY11S-\|<<QYB&4 | AR"UYC2"AIXY11S- | J<<QYB&4AR"UYD* | AIXY11S-V<<QYB&4 | AR"U"7-3FD600029 |
| T+SE>HBP"-&HO2G2 | CC&C"3--B-"UBE | E<B&YB&4AR"UYD*2 | AIZ,0A0<8H"YJOI" | W&3"4R"U("K-IRAP | "-KQ";83FD600030 |
| T+S\$Z\$H"G)T--B/L | "UB\$<<COYB&4AR"U | YF*BAI&30A5*8H"Y | POI"W9LAMH"U("K- | IRAP?"-K\$V2"*\$+B | RF&""2Q-FD600031 |
| T+S*UUB\$=<F&YB&4 | AR"UYG*BAI?#0A54 | 8H"Y)0I"XE3BDH"U | ("K-IRAP"-K*P2) | *+K"FHCU-BS"DB* | 4CH0"/*FD600032 |
| T+S)-R"U("K-IRBG | "-K*42" *G+B"R.<B | &I5301B-IC&DYBK- | TO"DXOCCFH"U("K- | IRBP"-K)2AG2+K | RH3U"JO"FD600033 |
| T+S;EM"Y20A"X/TC | UH"U("K-IRB-"K; | C<+QYB&4AR"UYR*B | A1B\$0A328H"YWOI" | X>3C4R"U("K-IRB?" | "K*";,QFD600034 |
| T+S-N>CC5H"U("K- | IRB7"K;B<\|QYB&4 | AR"UY.2BAI#70A7U | 8H"YZOI"X#TADR"U | ("K-IRAP"-K->2G" | "OH*";8HFD600035 |
| T+S-&"/DAFK/ROH* | BFY*2HG\$"/OHS"EC | "/2-C+*BB H&C&B | G"/YGEKS.OH*8H76 | SOH*BR-*****" | DDVD"6CDFD600036 |
| T+S/.MJ&\$(CJDJCO | 2NEJURHKDTH3D1<\$ | F9+LW97L4"-P6"S- | M20G0& I56MCT1;. | T&E1*0>TPO;.S1*J | *P+<"=3<FD600037 |
| T+SSF5UCL5&GD&<\$ | D"UCV2*E"1< PE+. | E84CS9&XT02TEBUC | T5UA*P<LF1 R*P<V | /5UCLB_V"82PS84C | C5_E"008FD600038 |
| TABS.5" E82M | | | | |7Q-FD600039 |
| E"1*E7*=-DC*PH\$ | =*7M&FC | "*F&""ASC""R"A | SO""Q |14500630750 | 82675=HUF'D600040 |

LAST PAGE

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FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

```

ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
2 *
3   DECK 1
4   SEQ 0
5 FE1 START 0
6   TREP
7   ORG X'0A00'
8
9 *****
10 * SYSTEM/3 CPU MODULE FOR SYSTEM TEST
11 *****
12 * SECTION PREFACE
13 *
14 *
15 *
16 *
17 *
18 *
19 *
20 *
21 *****
22 * ROUTINE PREFACE
23 *
24 *
25 *
26 *
27 *
28 *****

```

LAST CHG : 12:11 75

| | | | | | |
|-----------|------|----|----|------------|---------------------------------|
| 0A00 FE10 | 0A01 | 14 | DC | XL2'FE10' | PROGRAM ID |
| 0A02 00 | 0A02 | 15 | DC | XL1'80' | SECTION FLAGS |
| 0A03 01 | 0A03 | 16 | DC | XL1'01' | ROUTINE NO. |
| 0A04 C000 | 0A05 | 17 | DC | XI2'00' | RESERVED |
| 0A06 0A0A | 0A07 | 18 | DC | AL2(TST01) | ADDRESS OF FIRST ROUTINE PREFIX |
| 0A08 FFFF | 0A09 | 19 | DC | XL2'FFFF' | FILLER |

| | | | | | | |
|-----------|------|----|-------|-----------|---------------|----------------|
| 0A0A 01 | 0A0A | 24 | TST01 | DC | XL1'01' | ROUTINE NUMBER |
| 0A0B 00 | 0A0B | 25 | DC | XL1'00' | ROUTINE FLAGS | |
| 0A0C FFFF | 0A0D | 26 | DC | XL2'FFFF' | | |

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

```

ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
30 TST01A B TEST
31   TBN CPU,X'80'
32   JF TST01B
33   L ERRINT,IAR0
34   MVI BRANCH+1,X'80'
35   SIO 0,0
36   L ADRY,P1IAR
37   L ACRZ,P2IAR
38 DPY L ACRX,P2IAR
39 CPZ APL 0
40   J DF2
41
42 DFX B HALT
43   DC XL2'FE32'
44 *
45
46 DP2 SIO X'06',Y'0'
47   L INTPT,IAR0
48   L ACRA,P1IAR
49   L ADRB,P1IAR
50   L AERC,P2IAR
51 DPA L ACRE,P2IAR
52 CFC APL 0
53 ERANCH B DFC
54
55   B HALT
56   DC XL2'FE31'
57 *
58
59 DPB MVI BRANCH+1,X'87'
60
61 TST01B EQU *
62
63 A L CCRSIZ,3
64   CLI CCRSIZ,X'FF'
65   JNE B
66   L ZERO,3
67 B A NEG128,3
68   JZ TEST2
69   CLC 127(128,XR2),127(XR1)
70   B EXIT
71   B
72 TEST2 EQU *
73   MVI TSTFLD,0
74   TBN TSTFLD,X'FF'
75   JF **9
76   B HALT
77   DC XL2'FE01'
78
79   TBN TSTFLD,X'FF'
80   JT **9
81   B HALT
82   DC XL2'FE02'
83
84   MVI TSTFLD,X'FF'
85   TBN TSTFLD,X'FF'
86   BF **10
87   B HALT
88   DC XL2'FE03'
89
90   TBN TSTFLD,X'FF'
91   JT **9
92   B HALT
93   DC XL2'FE04'
94
95   MVI TSTFLD,0
96   SBN TSTFLD,X'FF'
97   TEN TSTFLD,X'FF'

```

TEST FOR VALID DCP ENTRY IN DATA SW
TEST FOR DUAL PROGRAM FEATURE
BYPASS IF NOT PRESENT
LOAD INTERRUPT IAR FOR ERROR
SET BRANCH INST. TO NOP
DISABLE DUAL PGM. & INTERPT KEY
LOAD PROGRAM LEVEL 1 IAR
LOAD PROGRAM LEVEL 2 IAR
LOAD PROGRAM LEVEL 2 IAR
ADVANCE PROGRAM LEVEL
TO NEXT TEST

GO HALT -0C32- BECAUSE APL INSTR
CAUSED PROGRAM ADVANCE WHEN NOT
ENABLED.

ENABLE DUAL PGM. & INTERPT KEY
LOAD INTERRUPT LEVEL 0 IAR
LOAD PROGRAM LEVEL 1 IAR
LOAD PROGRAM LEVEL 1 IAR
LOAD PROGRAM LEVEL 2 IAR
LOAD PROGRAM LEVEL 2 IAR
ADVANCE PROGRAM LEVEL

GO TO HALT -0C31- BECAUSE APL DTD
NOT CAUSE AN ADVANCE WHEN DUAL
PROGRAM WAS ENABLED.

SET BRANCH TO UNCONDITIONAL

LOAD CORE SIZE IN XR1 & XR2
.CHECK IF CPU HAS 64K OF CORE.
IF NOT, CONTINUE NORMALLY. IF
YES, ENTER X'0000' IN XR1 & XR2
.SUBTRACT 128 BY ADDING X'FF80'
.IF ALL CORE TESTED, END TEST.
IF NOT, CHECK PARITY OF 128
BYTES AND CHECK WITH SUPERVISOR
BEFORE CHECKING NEXT 128 BYTES.

SET TEST FIELD TO ZERO
TEST ALL BITS FOR ON
BYPASS HALT IF ALL OFF
TO HALT IF ANY ON
HALT ID

TEST ALL BITS FOR OFF
BYPASS HALT IF ALL OFF
TO HALT IF ANY ON
HALT ID

SET TEST FIELD TO *FF*
TEST ALL BITS FOR OFF
BYPASS HALT IF ALL ON
TO HALT IF ANY TEST OFF
HALT ID

TEST ALL BITS FOR ON
BYPASS HALT IF ALL ON
TO HALT IF ANY TEST OFF
HALT ID

SET TEST FIELD TO ZERO
SET ALL BITS ON
TEST ALL BITS FOR ON

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

| ERR LOC OBJECT CODE | ADDR STMT SOURCE STATEMENT |
|----------------------|---|
| 0C95 F2 88 00 | 234 JOZ **3 RESET DECIMAL OVERFLOW |
| 0C98 3C D9 0DB2 | 235 MVI WORK,X'D9' SET WORK TO MINUS DECIMAL 9 |
| 0C9C 06 00 0DB2 0D93 | 236 AZ WORK(1),XD9(1) ADD MINUS DEC. 9 TO WCRK |
| 0CA2 F2 88 06 | 237 JOZ **9 JUMP OVER HALT IF DECIMAL OVER FLOW |
| 0CA5 C0 87 0222 | 238 B HALT TO HALT IF ERROR |
| 0CA9 FE16 | 239 DC XL2*FE16' HALT ID |
| 0CAB 3C D9 0DB2 | 241 MVI WORK,X'D9' SET WORK TO MINUS DECIMAL 9 |
| 0CAF 06 00 0DB2 0D93 | 242 AZ WORK(1),XD9(1) ADD MINUS DEC. 9 TO WORK |
| 0CB5 C0 88 0CBF | 243 BOZ **10 BRANCH OVER HALT IF DECIMAL OVERFLOW |
| 0CB9 C0 87 0222 | 244 B HALT TO HALT IF ERROR |
| 0CBD FE17 | 245 DC XL2*FE17' HALT ID |
| 0CBF C0 08 OCC9 | 247 BNOZ **10 BRANCH OVER HALT IF NO OVERFLOW |
| 0CC3 C0 87 0222 | 248 E HALT TO HALT IF ERROR |
| 0CC7 FE18 | 249 DC XL2*FE18' HALT ID |
| 0CC9 F2 08 06 | 251 JNOZ **9 JUMP OVER HALT IF NO OVERFLOW |
| 0CCC C0 87 0222 | 252 B HALT TO HALT IF ERROR |
| 0CD0 FE19 | 253 CC XL2*FE19' HALT ID |
| 0CD2 0C 01 0DB3 0C99 | 255 MVI WORK+1(2),X2020 SET WORK TO HEX-2020- |
| 0CD8 0A 01 0DB3 0D95 | 256 ED WCRK+1(2),XE1F0 EDIT |
| 0CDE 0D 01 0DB3 0D97 | 257 CLC WCRK+1(2),XF1F0 CHECK RESULT |
| 0CE4 F2 81 06 | 258 JE **9 JUMP OVER HALT IF OK |
| 0CE7 C0 87 0222 | 259 B HALT TO HALT IF ERROR |
| 0CEB FE1A | 260 DC XL2*FE1A' HALT ID |
| 0CED 3C F0 0DD2 | 262 MVI WORK+32,C*0' SET A NUMERIC VALUE AT END OF FLD |
| 0CF1 0F 1F 0DD1 0DD1 | 263 SLC WORK+31(32),WORK+31 ZERO WORK |
| 0CF7 3C FF 0DFB | 264 MVI WORK+73,X'FF' |
| 0CFB 0C 1D 0DFA 0DFB | 265 MVC WORK+72(30),WORK+73 COMPARE FIELD |
| 0DC1 0B 1E 0DB2 0D92 | 266 ITC WORK(31),XFF INSERT FF |
| 0D07 34 08 0DD4 | 267 ST WCRK+34,ARR SAVE ARR |
| 0D08 0D 1E 0DD0 0DFB | 268 CLC WORK+30(31),WCRK+73 CHECK |
| 0D11 F2 81 06 | 269 JE **9 JUMP OVER HALT IF OK |
| 0D14 C0 87 0222 | 270 B HALT TO HALT IF ERROR |
| 0D18 FE1C | 271 DC XL2*FE1C' HALT ID |
| 0D1A 0D 01 0DD4 0D9F | 272 CLC WCRK+34(2),WORK31 CHECK ARR VALUE AFTER THE ITC |
| 0D20 F2 81 06 | 273 JE **9 JUMP OVER HALT IF SET CORRECTLY |
| 0D23 C0 87 0222 | 274 E HALT TO HALT IF NOT |
| 0D27 FE1E | 275 DC XL2*FE1E' HALT ID |
| 0D29 C0 87 0D31 | 277 B EXIT TO SUPERVISOR |
| 0D2D C0 87 0A0E | 278 B TST01A |
| 0D31 34 08 0D40 | 279 EXIT ST BR+3,ARR SAVE EXIT ADDRESS |
| 0D35 3D FE 0A00 | 280 CLI X'0A00',X'FE' |
| 0D39 C0 01 0A0A | 281 BNE ENTRY |
| 0D3D C0 87 0000 | 282 ER B *-* |
| 0D41 34 20 0D81 | 284 INTOK ST P1SAV,X*20' SAVE P1-IAR |
| 0D45 34 40 0D83 | 285 ST P2SAV,X*40' SAVE P2-IAR |
| 0D49 35 60 0D7F | 287 L BADINT,X*60' LOAD P1 & P2 IARS TO ADDR OF SETARR |
| 0D4D F1 00 00 | 289 AFL 0 TRY TO ADVANCE PROG LEVEL IN INT LEV |
| 0D50 C0 80 0D69 | 291 NCCCP EC INTERR,X*80' NO-OP BRANCH TO TEST IAR/ARR SELECT |
| 0D54 C0 87 0D5E | 293 UNCOND B NEWLD UNCONDITIONAL BRANCH TO TEST |
| 0D5E F2 87 0E | 294 J INTERR IAR/ARR SELECT |
| 0D5B F3 00 06 | 296 NEWLD SIO 6,0 ENABLE INTERRUPTS & DUAL PROG MODE |
| 0D5E 35 20 0D81 | 298 L P1SAV,X*20' RESTORE P1-IAR |
| 0D62 35 40 0D83 | 299 L P2SAV,X*40' RESTORE P2-IAR |
| 0D66 F2 87 04 | 301 J RESET GO RESET THE INTERRUPT. |

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

| ERR LOC OBJECT CODE | ADDR STMT SOURCE STATEMENT |
|-----------------------|--|
| 0D69 35 60 0D7F | 302 INTERR L BADINT,X*60' LOAD P1-IAR & P2-IAR WITH THE ADDRESS OF SETARR INSTRUCTION. |
| 0D6D F3 00 05 | 305 RESETT SIC 5,0 RESET & DISABLE INTERRUPTS |
| 0D70 C0 87 0222 | 307 SETARR B HALT GO TO HALT -FE89- IF INT LEV 0 ERR |
| 0D74 FE89 | 308 DC XL2*FE89' HALT ID |
| 0D76 C0 87 0D69 | 310 B INTERR RESETT FAILED. TRY AGAIN |
| 0D7A 0D41 | 0D7B 311 INTPT DC AL2(INTCK) |
| 0D7C 0D69 | 0C7D 312 ERR INT DC AL2(INTERR) |
| 0D7E 0D70 | 0C7F 313 BADINT DC AL2(SETARR) |
| 0D80 | 0D81 314 P1SAV DS CL2 |
| 0D82 | 0C83 315 P2SAV DS CL2 |
| 0D84 F1F2F3F4F5F6F7F8 | 0D8D 316 LNTS DC CL10'1234567890' |
| 0D8C F9F0 | 316 |
| 0D8E F1 | 0D8E 317 CEONE DC CL1*1' |
| 0D8F 0000 | 0D90 318 ZERC DC XL2*0' |
| 0D91 FFFF | 0D92 319 XFF DC XL2'FFFF' |
| 0D93 D9 | 0D93 320 X09 DC XL1*09' |
| 0D94 E1F0 | 0D95 321 XE1F0 DC XL2'E1F0' |
| 0D96 F1F0 | 0D97 322 XF1F0 DC XL2'F1F0' |
| 0D98 2020 | 0D99 323 X2020 DC XL2*2020' |
| 0D9A 0DE2 | 0D9B 324 WORK0 DC AL2(WORK) |
| 0D9C 0DB7 | 0D9D 325 WORK5 FC AL2(WORK+5) |
| 0D9E 0DD1 | 0D9F 326 WORK31 DC AL2(WORK+31) |
| 0DA0 0DFF | 0DA1 327 MINUS2 DC XL2*00FE' |
| 0DA2 FF80 | 0DA3 328 NEG128 DC XL2'FF80' |
| 0DA4 0000 | 0DA5 329 REGEAV DC XL2*0' |
| 0DA6 0A36 | 0DA7 330 ACRX DC AL2(DPX) |
| 0DAB 0A2C | 0DA9 331 ADRY DC AL2(DPY) |
| 0DAA 0A30 | 0DAB 332 ADZ DC AL2(DPZ) |
| 0DAC 0A4F | 0DAD 333 ACFA DC AL2(DPA) |
| 0DAE 0A60 | 0DAF 334 ADRE DC AL2(DPB) |
| 0DB0 0A53 | 0DB1 335 ADRC DC AL2(DPC) |
| 0DB2 | 0DB2 336 WORK EQU * |
| | 0DFB 337 DS CL74 |
| | 0001 338 XR1 EQU 01 |
| | 0002 339 XR2 EQU 02 |
| | 0008 340 ARR EQU 08 |
| | 0080 341 IAR0 EQU X*80' |
| | 0020 342 P1IAR EQU X*20' |
| | 0040 343 P2IAR EQU X*40' |
| | 0203 344 CORSIZ EQU X*203' |
| | 0204 345 CPU EQU X*204' |
| | 0A0A 346 ENTRY EQU X*00A' |
| | 0222 347 HALT EQU X*222' |
| | 0212 348 TEST EQU X*212' |
| | 0DB2 349 TSTFLD EQU WCRK |
| | 0A0E 350 END TST01A |

LOAD P1-IAR & P2-IAR WITH THE ADDRESS OF SETARR INSTRUCTION.
RESET & DISABLE INTERRUPTS
GO TO HALT -FE89- IF INT LEV 0 ERR
RESETT FAILED. TRY AGAIN

PROGRAM LEVEL 1 IAR
PROGRAM LEVEL 2 IAR

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

CROSS-REFERENCE

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| A | A | 004 | 0A64 | 0063 | |
| ACRA | A | 002 | 0DAD | 0333 | 0048 |
| ADRB | A | 002 | 0DAF | 0334 | 0049 0051 |
| ACPC | A | 002 | 0DB1 | 0335 | 0050 |
| ADRX | A | 002 | 0DA7 | 0330 | 0038 |
| ADRY | A | 002 | 0DA9 | 0331 | 0036 |
| ACRZ | A | 002 | 0DAE | 0332 | 0037 |
| ARR | C | 001 | 0008 | 0340 | 0267 0279 |
| B | A | 004 | 0A73 | 0067 | 0065 0071 |
| BADINT | A | 002 | 0D7F | 0313 | 0287 0302 |
| BR | A | 004 | 0D3D | 0282 | 0279* |
| BRANCH | A | 004 | 0A56 | 0053 | 0034* 0055* |
| CCRSIZ | C | 001 | 0203 | 0344 | 0063 0064 |
| CPU | C | 001 | 0204 | 0345 | 0031 |
| CECNE | A | 001 | 0D8E | 0317 | 0124 0125 |
| DFA | A | 004 | 0A4F | 0051 | 0333 |
| DFB | A | 004 | 0A60 | 0059 | 0334 |
| DPC | A | 003 | 0A53 | 0052 | 0053 0335 |
| DPX | A | 004 | 0A36 | 0042 | 0330 |
| DPY | A | 004 | 0A2C | 0038 | 0331 |
| DPZ | A | 003 | 0A30 | 0039 | 0332 |
| DP2 | A | 003 | 0A3C | 0046 | 0040 |
| ENTRY | C | 001 | 0A0A | 0346 | 0281 |
| ERRINT | A | 002 | 0D7D | 0312 | 0033 |
| EXIT | A | 004 | 0D31 | 0279 | 0070 0121 0182 0277 |
| FE1 | A | 001 | 0000 | 0005 | |
| HALT | C | 001 | 0222 | 0347 | 0042 0055 0076 0081 0087 0092 0099 0106 0113 0119 0130 0138 0147 0151 0159 0167 0174 0196 0202 0208 0214 0222 0231 0238 0244 0248 0252 0259 0270 0274 0307 0033* 0047* |
| IAR0 | C | 001 | 0080 | 0341 | 0291 0294 0310 0312 |
| INTERR | A | 004 | 0D69 | 0302 | 0311 |
| INTOK | A | 004 | 0D41 | 0284 | 0047 |
| INTRPT | A | 002 | 0D78 | 0311 | 0181 |
| LOAD1 | A | 003 | 0BD7 | 0176 | 0187 |
| LOAD2 | A | 003 | 0BEC | 0184 | 0180 0186 |
| MINUS2 | A | 002 | 0DA1 | 0327 | |
| MVI1 | A | 003 | 0B98 | 0155 | |
| MVI2 | A | 003 | 0BAC | 01E3 | |
| NEG128 | A | 002 | 0DA3 | 0328 | 0067 |
| NEWLD | A | 003 | 0D5B | 029E | 0293 |
| NDDOP | A | 004 | 0D5C | 0291 | |
| P1IAR | C | 001 | 0020 | 0342 | 0036* 0048* 0049* |
| P1SAV | A | 002 | 0D81 | 0314 | 02E4* 0298 |
| P2IAR | C | 001 | 0040 | 0343 | 0037* 0038* 0050* 0051* |
| P2SAV | A | 002 | 0D83 | 0315 | 0285* 0299 |
| PEGSAV | A | 002 | 0DA5 | 0329 | 0179* 0180 0185* 0186 0216* 0219* 0220 0225* 0228* 0229 |
| RESETT | A | 003 | 0D6D | 0305 | 0301 |
| SETARR | A | 004 | 0D70 | 0307 | 0313 |
| TEST | C | 001 | 0212 | 0348 | 0030 |
| TEST2 | A | 001 | 0A86 | 0072 | 0068 |
| TSTFLD | A | 001 | 0DB2 | 0349 | 0073* 0074 0079 0084* 0085 0090 0095* 0096* 0097 0102* 0103* 0104 0109* 0110* 0111 0115* 0116* 0117 |
| TST01 | A | 001 | 0A0A | 0024 | 0018 |
| TST01A | A | 004 | 0A0E | 0030 | 0278 0250 |
| TST01B | A | 001 | 0A64 | 0061 | 0032 |
| UNCND | A | 004 | 0D54 | 0293 | |
| UNITS | A | 010 | 0D8D | 0216 | 0123 0127 0135 0136 0123* 0124* 0125* 0126* 0127* 0128 0133* 0134 0134* 0135* 0136 0143* 0144* 0145 0149 0157 0165 0171* 0172 0191* 0192* 0193 0193* 0194 0199 0199* 0200 0205 0205* 0206 0211 0211* 0212 0217 0226 0235* 0236* 0241* 0242* 0255* 0256* 0257 0262* 0263 0263* 0264* 0265 0265* 0266* 0267* 0268 0268 0272 0324 0325 0326 0349 |
| WORK | A | 001 | 0DB2 | 0336 | |
| WRK0 | A | 002 | 0D9E | 0324 | 0220 0229 |
| WRK31 | A | 002 | 0D9F | 0326 | 0272 |
| WRK5 | A | 002 | 0D9C | 0325 | 0154 0162 |
| XD9 | A | 001 | 0D93 | 0320 | 0236 0242 |

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| XE1F0 | A | 002 | 0D95 | 0321 | 0256 |
| XFF | A | 002 | 0D92 | 0319 | 0141 0145 0216 0225 0266 |
| XF1F0 | A | 002 | 0D97 | 0322 | 0257 |
| XR1 | C | 001 | 0001 | 0338 | 0069 0141* 0143 0154* 0155 0170* 0171 0177* 0178 0178* 0179 0217* |
| XR2 | C | 001 | 0002 | 0339 | 0218 0227* 0228 0069 0142* 0144 0162* 0163 0183* 0184 0184* 0185 0218* 0219 0226* |
| X2020 | A | 002 | 0D99 | 0323 | 0255 |
| ZERO | A | 002 | 0D90 | 0318 | 0066 0142 0149 0172 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FE10 FE1 - CPU MODULE FOR SYSTEM TEST MOD 12

OBJECT CARD LISTING

THE CHARACTER . INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

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.GBK GBD . . . . . PN 42 48253 EC 827836 . FE1 CPU MODULE 5 412 . . . . . MOD 12 84888488 . FE040 0 . . . . . FE100000
T( Y4"/E & B-. "MOD "" /OHK+H BA|HEK30 CP48- Z P80 (K (DLN CE% 5C 6X8E 8Y* .2% XHA0GRZ0FE100001
T<OZYAXEG S.=<?< . ATO CPXEH 6_(K (. 2N CSDEE E78E . OH*HM88G S.=<L2 GEV*5 OHC|C >IA4 REJD(#J-FE100002
T<OD*OHCE-DD(E< (UCOCCE|2-82)-7* "CH*(K*BGXK8 . 6 2+|8(X7HEAXBG S. = LX"CS.2C 11B . #F 4I6SHFE100003
T<O.6AXBG S.= T3 "CSH9*0620I H_XB G S.= 3T"CS.2C 8 /OHS"-EE 62+78 (XTT"CS. D 1.KU *D-8HEZ4FE100004
T<-XCB_X /OHS"-M B*062+*8(XTX"CA. C . 70H*EH7BF| . (XTY CSH" 62BYD FOM*BH78G BUVHJ* LC0XA3LDFE100005
T.OX3||F(XTX CSH "062BYCFOM*EH78 HOH*(E6E-CSX(TEQ -CSX(T-8-CSX(TT3 6CSHD B8DH8C8G/O QEO*CA YFE100006
T.O_T 62C00*806 2C+D.J2EG S.=BL3 ECSY<ACE9CSYFB 6 :CGO(B 6:CO32-68 /OHS B-WFS *F/O <E 8B"DOFE100007
T<E>N"-YE 66K(EH (UC6AC8<4 -65C8D (X06K8YDFOM*BH78 .C6D(_66E8YDFOM* EH78<(E6C BOUE1M JCEUE1J FE100008
T<O7ICRE8"6 "66 78YDFOM*BH78((EH (X82E C6CC8-2-68 /OHS"-8E 6 ( D (X04AC8<(U 3K4 *E6-A7. FE100009
T<-78BYDFOM*BH78 |0-D (HA T6ACEM ( 66VCEG 67PO-H " +HB T6CEM( 6E VCEG 67% CH>.B- )FJ* LJ6*FE100010
T<E0>OH*(L0|CSH 88 63E (X-63|-8 (X7FAAXBG S.=D - ACSH(X34|CS.2-UB /OHS"/D HB6SEJD |B0*CP08FE100011
T<E1-B <(X-63|E (X7FAAXBG S.=D-- BC8+(X34|CS.2-68 /OHS"/<< 66VCR. E 6624-M .2%ZGA- DE6MCOY<FE100012
T<E2K C6CEM( 66 VCR72-68 /OHS"/E < 66VCR.B -62E-D ( D(ZE4ACE4(W"V AAXBG SH FS-UGJU PE--D)I<FE100013
T<-3E"/P25 8E66 2A- (X-6LBY-FOM* EH78C|(U(X-0 CSF (U8BFC." /OHS"/- B 31OH*B 82VHJ8 SC-0H6T8FE100014
T<E37I7E08--FOM* BH78FC D(X06RE-D (X06NC6D(X06PEYD FOM*BH78E|| (4-B -C)D(4L0 <B88GJX PEJD|#AAFE100015
T< 4Y*07#CA4(-7 #E18(X-6K( -(5 4 :C) (=HAAAXBG S. =G 4AC)E(X"HAAXB G S.=G- XIJ-DD-B <E 8B48<FE100016
T<-58OH*(K*8GB-B 4B E |HEH < AB-. /C (B (-LJ CO< 50 5"8E OH (E*B GCN72/O#3 E8DH18 #E0*CO#MFE100017
TH05" 05H 6A(M (-"HGACN-CP#3 P /CHS"YX /05ZCMD (E650 . . . . . THJ8 )D UE=B*FE100018
T.6618-. 2|PE"NT 9B|D |"6:G08- -H 62CS*(4EC="B . . . . . Y6BSOH< Z|EM HMO . . . . . KXZI2M TF1UP;Z FE100019
EB-9#E7*-DC#PHS "7#6F| | C F% ASC R A S0 Q . . . . . 09100630751 21975#.0FE100020

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LAST PAGE



FFA0 DCP BOOTSTRAP ONE SECTOR LOADER FOR 3340 - MOD 15

FFA0 DCP BOOTSTRAP ONE SECTOR LOADER FOR 3340 - MOD 15

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

00C2 135 TBUSY EQU X'C2'
      136
00C4 137 LDDDR EQU X'C4'
00C6 138 LDDCR EQU X'C6'
0031 139 MAXREC EQU 49
      140
      140
08EF 141 END EQU 9-1
0842 142 END LOOP

```

```

ATTACHMENT BUSY
LIO DISK DRIVE DATA REGISTER
LIO DISK DRIVE CONTROL REGISTER

```

CROSS-REFERENCE

```

SYMBOL T LEN VALUE DEFN REFERENCES
ARR C 001 0008 0118 0099* 0100 0101* 0102
BR A 004 088F 0073 0072*
CFINC A 001 088D 0089 0084
CFMAIN A 001 0800 0018 0006 0011 0011 0020 0039 0043 0055 0058* 0064* 0082* 0083 0085*
      0086* 0087
CFMANS A 002 080B 0020 0047 0051 0066
CLEAR A 001 0810 0027 0012
DOSEK A 003 0855 0046 0042
DOSIO A 003 08DA 0107 0104*
DSKERR A 003 08C0 0092 0041 0088 0108
END A 001 08EF 0141 0011 0011 0011*
MH C 001 003B 0121 0092
M7 C 001 0007 0120 0092
INPUT C 001 0200 0119 0021
INPUTB A 002 0E0D 0021 0040 0059 0106
LDDCR C 001 00C6 0138 0047* 0051* 0059* 0066*
LDDDR C 001 00C4 0137 0106*
LOAD A 006 0000 0011
LOADAA A 001 000F 0015 0011
LOADE A 004 0893 0076 0071
LOOP A 004 0842 0039 0090 0093 0142
MAXREC C 001 0031 0139 0083
MOVE A 005 089F 0079 0076* 0077* 0078*
NOSEK A 001 0879 0063 0044 0056
NUM256 A 002 08E9 0113 0031 0035
ONE A 002 080F 0022 0082 0086 0099 0101
ONESEC A 001 08E7 0112 0078
QDIAG C 001 C107 0132
QREAD C 001 C100 0131 0068
QRECAL C 001 C001 0129
QRHA C 001 C101 0130 0053
QSEK C 001 C000 0128 0049 0061
SIO A 003 08C6 0099 0048 0052 0060 0067
SIOR A 004 08E3 0110 0102*
SIOSET A 005 0802 0104 0100*
SKI A 003 084C 0042 0046*
STATUS A 002 08EF 0115
TBUSY C 001 00C2 0135 0109
TNR C 001 00C0 0134 0041 0108
XR1 C 001 0001 0116 0006 0039* 0040 0041 0043 0046 0047 0048 0051 0052 0055 0058
      0059 0060 0064 0066 0067 0072 0076 0077 0078 0078 0082 0083
      0085 0086 0087 0088 0090 0093 0099 0100 0101 0102 0104 0106
      0108 0109
XR2 C 001 0002 0117 0040* 0070 0076 0077 0079
ZRO A 006 081A 0030 0031* 0032 0033
ZRQA A 006 082E 0034 0035* 0036 0037
ZZZZ A 001 00C0 0007

```

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FFA0 DCP BOOTSTRAP CNE SECTOR LOADER FOR 3340 - MOD 15

OBJECT CARD LISTING

THE CHARACTER . INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

GBK GED PN 55 58910 EC 824829 3340 DCP BCCTSTR AP LCADER-MOD 15 84888488 FFA00000

TC- +C+EM#OC=0+9 MD|=2)-L 00-FFA00001

T+--: C ACC D - - L1 G#B <"/#G#B<"/18#G#B ; (-)B+U#BE-#OHE HF-3#A#B-#0BABCD H:LA 2L<FFA00002

T+ /5 E-CCMEH.3M AB AE -7J0CC2/OR SP2 KJBA4511-7 E/E# GGFB#BG1XD A-EM B-D- D #*0 (4H# =ZVFFA00003

T+5012 1#*0 .4H#FOEE#18C2 EV < RMA#BEC A# CH CE ET NE Y#*% ** DB AE-|-LDEBYH + D 2.#FFA00004

T+T.APE A -|-JE D4#G 4H#BCC3(4+) B)-|-) TO)-|-) T ML G# A11 73 C JOCCJO_7 /0 A D #SYFFA00005

T DT? 19<FFA00006

EBD1#E7#=-DC#PH8 =#7#6F| | C FX ASC R A SO 0 13270908741 20474-8#FFA00007

----- LAST PAGE -----



FFB0 DCP LOADER FOR 3340 DISK - MOD 12

EPR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2 *                                     LAST CHG :08:08 75
3 DECK 4
4 SEQ 0
5 FFB START 0
6 TREP
7 ORG X'017' TO MISS DCP'S RESTART ROUTINE
8 *****
9 * CONTROL PROGRAM LOADER *
10 *****
11 *
12 * THIS PROGRAM MODULE LOADS THE CONTROL PROGRAM, INCLUDING ITS SEC-
13 * TION REFERENCE TABLE. A ONE SECTOR BOOTSTRAP LOADER READS THIS
14 * LOADER INTO CORE & BRANCHES TO IT. LOAD CARDS RECOGNIZED BY THE
15 * DCP LOADER INCLUDE
16 *
17 * TEXT
18 * END
19 * CPU
20 * UDT
21 *
22 * OTHER CARDS CAUSE HC HALT
23 *
24 *****
25
0017 40404040 001A 26 ID DC CL4' *
001B 27 ENT2 EQU * DCP ENTERS HERE FOR ALL B LOAD EXCEPT
28 * READ A RECORD (BIT 3)
29 ST RETURN+3,ARR SAVE RETURN ADDRESS
30 B UNPACK UNPACK PROGRAM ID AS PASSED
0023 31 DC IL1'2' BY PROGRAM VIA DCP.
0025 32 DC AL2(PARMS)
0027 33 DC AL2(ID)
34 MVC CFMAIN+9(10),CFVTOC+9 FORCE SEEK TO VTOC
35 TBN LDFLAG,BIT6 IF SEEK-TO-VTOC FLAG, THEN QUIT
36 JT RETURN RETURN TO DCP
37
0035 C0 87 0100 38 SCAN B READ *READ* SEEKS FIRST THEN READS
0039 OD 02 0886 001A 39 CLC INPUT+VID(3),ID COMPARE ID TO VTOC FOR A MATCH
003F F2 81 1C 40 JE IDFND JUMP IF PROPER VTOC IS FOUND
0042 OD FE 097E 097F 41 CLC INPUT+254(255),INPUT+255 IF ALL CHAR SAME, ASSUME THEY'RE
0048 C0 01 0035 42 BNE SCAN ALL ZERO MEANING END OF VTOC
43
004C 38 01 01FD 44 TBN LDFLAG,BIT7 SEE IF LOADING ALL SECTIONS FOR ONE
0050 F2 10 07 45 JT LDR DEVICE (EXAMPLE DE10)
46
0053 35 08 01FF 47 L PARMS,ARR PUT UNFOUND PROGRAM IN ARR FOR DISPLY
0057 F0 38 73 48 HPL HD,HH HD HALT, PROGRAM NOT FOUND
005A C0 87 000C 49 LDR B *-+ | BRANCHES TO DCP TO LOAD NEXT PROGRAM
005D 50 XREF1 EQU *-1 | REFERENCE FILLED IN WHEN DCP LOADS
51
52
005E 0C 04 01C0 088E 005E 53 IDFND EQU *
54 MVC CFMAIN+5(5),INPUT+VADDR MOVE DISK ADDR INTO CTRL FLD
55
56 *****
57 *
58 * THIS LOOP READS AND LOADS RECORDS.
59 * IF BIT 2 OR 3 IS ON, IT READS ONLY 1 RECORD AND RETURNS.
60 *
61 * NOTE ---
62 * THE INSTRUCTION LABELED 'RETURN' FALLS THROUGH
63 * DURING DCP LOADING. AFTER LOADING IT IS THE RETURN TO DCP.
64 * IT IS SAVED AND RESTORED ONCE IN THE 'FIG' ROUTINE.
65 *
66 * THE INSTRUCTION LABELED 'CKCOMA' LINKS TO CKCOM1 DURING DCP
67 * LOADING. AFTER LOADING IT IS ALTERED TO LINK TO NORMAL SECTION

```

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

68 * LOADER.
69 *
70
0064 C0 87 0100 71 PGMLD B READ READ A RECORD
0068 39 30 01FD 72 LDFLAG,BIT2+BIT3 SHOULD ONLY 1 RECORD BE READ ?
006C C0 10 0074 73 BT CONTNU CONTINUE IF BIT2 AND 3 OFF.
0070 C0 87 0074 74 RETURN B **4 (***) BRANCH TO CALLER (SEE NOTE ABOVE)
75
76 *
77 * -----
78 * - 'T' -
79 CONTNU CLI 0(,XR1),C'T' IS IT A TEXT RECORD ?
0074 7D E3 00 80 CKCCMA BNE CKCOM1 (***) IF NOT, TRY COMMENT. (SEE NOTE ABOVE)
81
0078 1C 02 0088 03 82 MVC MOVE+3(3),3(,XR1) PUT 'TO' ADDR AND LENGTH INTO MOVE
0080 1C 00 008C 01 83 MVC MOVE+4(1),1(,XR1) ALSO MOVE IN LENGTH AGAIN.
0085 D2 01 04 84 LA 4(,XR1),XR1 BUMP OVER THE 'T' ETC.
85
0088 1C 00 0000 00 86 MOVE MVC **-(***)**-(,XR1) MOVES THE TEXT INTO STORAGE
87
008D C0 87 0064 88 B PGMLD CONTINUE LOADING
89
90 ** THE FOLLOWING CODING COMPLETES THE SECTION LOADER. IT IS
91 ** BYPASSED DURING DCP LOADING. ONCE THE CONTROL PROGRAM IS LOADED,
92 ** LINKAGES ARE SET UP SO THAT A BRANCH TO THE END CARD ROUTINE WILL
93 ** BE SUBSTITUTED FOR THE DCP LOADER RESIDING AT HEX -A00-
94
95 *
96 * -----
97 * - '**' -
98 CKCOM CLI 0(,XR1),C'*' IS IT A COMMENT CARD ?
99 JNE CKSSWX IF NOT, TRY 'SSW' CARD
100 B PRINT PRINT RECORD JUST READ
009B 101 DC XLI'21'
102 B PGMLD
103
104 *
105 * -----
106 * - 'SSW' -
107 CKSSWX CLI 0(,XR1),C'S' IS IT A SSW RECORD ?
108 JNE CKE IF NO, CHECK FOR E (END)
109 SSWPD SLC SBYTES(4),SBYTES CLEAR SSW 10-2F
110 CLI 4(,XR1),C' ' IF NO SSW'S, CLEAR ALL AND QUIT
111 BE PGMLD
112
113 LA 5(,XR1),XR1 POINT AT 1ST SSW
114 SSLOOP ST SADDR,XR1 SET UP THAT ADDR IN PACK
115 B PACK PACK SSW
009E 116 DC IL1'2'
00C0 117 SADDR DC AL2(***) ADDR OF SSW IN RECORD JUST READ
00C2 118 XREF5 DC AL2(***) ADDR IN DCP TO PUT SSW FOR SSW
119 * ROUTINE. FILLED IN AT LOAD TIME
120 B *-+ | LINKS TO DCP TO TURN THAT SSW.
00C6 121 XREF4 EQU *-1 | FILLED IN AT LOAD TIME.
122
123 CLI 1(,XR1),C',' IF COMMA, THEN HANDLE NEXT SSW
124 LA 3(,XR1),XR1 BUMP TO NEXT SSW (JUST IN CASE)
125 BE SSLOOP LOOK 'TIL ALL SSW HANDLED
126
127 *
128 * -----
129 * - 'E' -
130 CKE CLI 0(,XR1),C'E' IS IT AN END RECORD ?
131 BNE PGMLD IGNORE IT IF IT IS NOT 'E' CARD
132
133 TBN LOFLAG,BIT5 SEE IF 'SKIP HA HALT' BIT IS ON
134 BF X'90,' IF NOT, GO TO END CARD ROUTINE
135 B RETURN IF SO, RETURN TO DCP

```


FFB0 DCP LOADER FOR 3340 DISK - MOD 12

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

136
136
136
137 *****
138 * THIS ROUTINE ENTERED TO READ A SINGLE RECORD.
139 *
140 * HOWEVER, IF BIT 2, 4, OR 5 IS ON ALSO, THEN THE CALLING PROGRAM
141 * HAS PASSED THE ADDRESS OF A DISK CONTROL FIELD TO BE USED FOR THE
142 * FUNCTION.
143
00E4 34 08 0073 144 RECARD ST RETURN+3,ARR SAVE ADDRESS RECALL REGISTER
00E8 39 2C 01FD 145 TBF LDFLAG,BIT2+BIT4+BITS CHECK BITS WHICH SAY DISK ADR PASSED
00FC F2 10 0D 146 JT JUSTRD IF ALL OFF, READ RECORD AND RETURN
00EF 3B 10 01FD 147 SBF LDFLAG,BIT3 TURN OFF BIT 3 SO IT WON'T CAUSE
148 * JUST ONE RECORD TO BE READ.
00F3 35 01 01FF 149 L PARMS,XR1 POINT AT HIS CONTROL FIELD (WITH XR1)
00F7 1C 04 01C0 00 150 MVC CFMAIN+5(5),0(,XR1) PUT HIS CCHHR INTO DCP CONTROL FIELD
00FC C0 87 0064 151 JUSTRD B PGMLOD GO READ.

```

```

153 *
154 * I/O FOR WINCHESTER
155 *
156 * READ
157 *
0100 158 READ EQU *
159 ST READR+3,ARR SET UP RETURN
160 LIO CFMANB,LDDCR POINT TO MAIN CONTROL FIELD
161 B SIO SEEK AS SPECIFIED IN CONTROL FIELD
010D 162 DC AL2(QSEEK)
163
164 MVI CFMAIN+9,0 FORCE READING OF ONLY ONE RECORD
165 B SIO READ THE RECORD
0117 166 DC AL2(QREAD)
167 ALC CFMAIN+5(1),ONE BUMP RECORD # ONE.
168 CLI CFMAIN+5,MAXREC REC # READY TO GO BACK TO 1 ?
169 JL CFINC
170 MVI CFMAIN+5,1 FORCE REC # TO 1 AND
171 ALC CFMAIN+4(1),ONE BUMP HEAD #
172 CLI CFMAIN+4,20 DID HEAD GO TO 20 ?
173 JL CFINC IF NOT, JUMP OUT
174 MVI CFMAIN+4,0 FORCE HEAD # TO ZERO AND
175 ALC CFMAIN+2(1),ONE BUMP CYLINDER
0140 176 CFINC EQU *
177 MVI CFMAIN,0 RESET *FLAG* IN CASE ALT TRK WAS READ
178 READR B ** RETURN TO CALLER
179
180 *
181 * SIO
182 *
0148 34 08 0171 183 SIO ST SIOR+3,ARR SAVE RETURN
014C 35 01 0171 184 L SIOR+3,XR1 POINT AT PARMS
0150 0E 01 0171 01D6 185 ALC SIOR+3(2),TWO BUMP PAST PARMS (FOR RETURN)
0156 1C 01 0165 01 186 MVC DOSIO+2(2),1(,XR1) SET UP SIO
015B C2 01 C880 187 LA INPUT,XR1 FORCE XR1 TO X'880'
015F 31 C4 01D2 188 LIO INPUTB,LDDDR POINT TO READ FIELD
189
0163 F3 00 00 190 DOSIO SIO **,*-** SIO TO WINCHESTER
0166 C1 C2 0166 191 TIO *,TBUSY HANG ON BUSY
016A C1 C0 0172 192 TIO WINERR,TNR CHECK FOR AN ERROR.
016E C0 87 0000 193 SIOR B ** RETURN TO CALLER
194
195 ***
196 * WINCHESTER ERROR (AND ALTERNATES) HANDLING ROUTINE.
197 *
198 ***
199 WINERR B **4
200 LIO INPUTB,LDDDR READ DIAG.
201 SIO X'07',X'C1' SIO DIAG
202 TIO *,TBUSY
203 TBF INPUT,TRKEND TRACK CONDITION CHECK OR
204 TBF INPUT+1,OPINC OPERATION INCOMPLETE ?
205 JF ALT IF EITHER IS ON, GO HANDLE ALT TRK
206 HTH7 HPL H7,HH H7 ERROR HALT, DUE TO TIO NR/ERR
207 B LDR GO BACK TO DCP LOADER
208 * HANDLE ALTERNATE ....
0193 209 ALT EQU *
210 MVC ALTR+3(2),SIOR+3 PICK UP RETURN ADDRESS FROM SIO SUB
211 B SIO READ HA RC COUNT (FOR ADDR OF ALT)
019E 212 DC AL2(QRHA) READS FCCMHR ...
213 LIO INPUTB,LDDCR POINT TO 'INPUT' AS CONTROL FIELD
214 B SIO SEEK TO ALTERNATE
01A8 215 DC AL2(QSEEK)
216 MVI CFMAIN,BIT7 FORCE FLAG PORTION OF CONTROL FIELD.
217 LIO CFMANB,LDDCR POINT TO MAIN CONTROL FIELD.
218 B SIO SIO TO READ (FROM ALTERNATE TRACK)

```

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

01B5 C100 01B6 219 DC AL2(QREAD)
01B7 C0 87 0000 220 ALTR B *--*
221
221

RETURN AS IF FROM SID SUBROUTINE

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

223 *****
224 *
225 * LOADER DC'S *
226 * *
227 *****
228
228
01B8 0000030000010C01 01B8 229 CFMAIN EQU * FFCCCHMMHRRKLDLNLN
01C3 0000 01C4 230 DC XL10'00000300000100010000' STARTS AT DCP CYLINDER
230
231
231
01C5 0000020000010001 01C5 232 CFVTOC EQU * FFCCCHMMHRRKLDLNLN POINTS TO FIRST VTOC
01CD 0000 01CE 233 DC XL10'00000200000100010000'
233
234
234
01CF 01B8 01D0 235 CFMAN@ DC AL2(CFMAIN)
01D1 0880 01D2 236 INPUT@ DC AL2(INPUT)
01D3 0001 01D4 237 ONE DC XL2'0001'
01D5 0002 01D6 238 TWO DC XL2'0002'
239
FFDD 240 ORG X'FFFF'-X'1F9'+* IF ORG FLAGGED (E), STORAGE OVERLAY.
01F9 01F9 ORG X'1F9' ORG FOR ABSOLUTE DC'S
242
01F9 0000 01FA 243 DC XL2'0000' RESERVED
01FB 0000 01FC 244 DC XL2'0000' RESERVED
01FD 00 01FD 245 LDFLAG DC XL1'00' FLAG AS PASSED TO DCP (B LOAD)
01FE 0C74 01FF 246 PARMS DC AL2(BEGIN) (SEE NOTE BELOW)
247
248 * 'PARMS' IS USED FOR THE FOLLOWING:
249 * 1. ONE TIME BY 'FFA' TO BRANCH TO 'BEGIN' IN 'FFB'
250 * 2. HOLDS TWO LINKAGE ADDRESSES TO BE PICKED UP BY DCP FOR LINKAGE
251 * INTO 'FFB'. THE ADDRESSES TAKE UP 4 BYTES AND ARE LOADED INTO
252 * X'1F0'-X'1FF' BY THE 'BEGIN' ROUTINE OF 'FFB'
253 * 3. FINALLY, DURING NORMAL OPERATION, 'PARMS' HOLDS PARAMETERS
254 * PASSED TO DCP (VIA B LOAD) OR IT MAY HOLD 'DXXX' TYPE ENTRIES
255 * FROM THE CONSOLE SWITCHES.

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

```

ERR LOC OBJFCT CODE    ADDR STMT SOURCE STATEMENT
0A00                    257     ORG   X'A00'
                      258
                      259 *    DUMMY SECTION AND ROUTINE PREFACE
                      260
0A00 FFFB              OA01 261     DC   XL2'FFFB'    ID
0A02 80                OA02 262     DC   XL1'80'     FLAGS, NO SPUT
0A03 01                OA03 263     DC   XL1'01'    ROUTINE NO.
0A04 0000              OA05 264     DC   XL2'0'     RESERVED
0A06 0A0A              OA07 265     DC   AL2('RTN01) ADDRESS OF 1ST ROUTINE
0A08 0000              OA09 266     DC   XL2'0'     RESERVED
                                267
0A0A 01                OA0A 268 RTN01  DC   XL1'01'    ROUTINE NO.
0A0B 00                OA0B 269     DC   XL1'0'     FLAGS
0A0C FFFF              OA0D 270     DC   XL2'FFFF'   LAST ROUTINE
                                271
0A0E C0 87 0216        272     B     LINK      RETURN TO DCP
                                273
0A12 0001              OA13 274 ONEL   DC   IL2'1'
0A14 09                OA14 275 NINE   DC   XL1'09'
0A15 00                OA15 276 DEV    DC   XL1'0'
0A16 0000              OA17 277 MASK   DC   XL2'0'
0A18 C3C8C1C9D5        OA1C 278 CHAIN  DC   CL5'CHAIN'
0A1D 0889              OA1E 279 INADR1 DC   AL2(INPUT+9)
                                280
                                281 *
                                282 *
                                283 *
                                284 *
0A1F 7D 5C 00          285 CKCOM1 CLI 0(.XR1).C*' * BRANCH IF NOT COMMENT CARD
0A22 F2 01 15          286         JNE  CKEND
                                287 * BEFORE GOING TO DO OVERLAYS, HANDLE CONFIGURATION RECORDS
                                288
0A25 C0 87 0A6C        289     B     FIG      DD CONFIGURATION.
                                290
0A29 38 01 0208        291     TBN   SBYTE0.SSW07 GO READ NEXT CARD
0A2D C0 10 0064        292     BT    PGMLOD   PRINT THE COMMENT RECORD
0A31 C0 87 021A        293     B
0A35 21                OA35 294     DC   XL1'21'
0A36 CC 87 0064        295     B     PGMLOD
                                296 *
                                297 *
                                298 *
                                299 *
0A3A 7D C5 00          299 CKEND  CLI 0(.XR1).C'E' JUMP IF END CARD
0A3D F2 81 0A          300     JE    ISEND
0A40 F0 39 6F          301     HPL  H0,HH   HALT HQ TO SHOW CARD READ WAS INVALID
0A43 FC 6F 03          302     MPL  H1,H0   SECONDARY HALT UNKNOWN RECORD READ
0A46 C0 87 0064        303     B     PGMLOD   GO GET NEXT RECORD
                                304 *
0A4A C0 87 0A6C        OA4A 304 ISEND  EQU * GO CONFIGURE IN CASE NO COMMENT CARDS
                                305     B     FIG
0A4E OC 01 0050 1FFF   306 ISEDA  MVC XREF1(2),X'1FFF'
0A54 OC 01 00C6 1FF9   307     MVC  XREF4(2),X'1FF9'
0A5A OC 01 00C2 1FF7   308     MVC  XREF5(2),X'1FF7'
0A60 C2 01 0091        309     LA   CKCOM,XR1
0A64 34 01 007A        310     ST   CKCOMA+3,XR1
0A68 35 10 1FFB        311     L    XREF3,IAR GO BEGIN DCP
                                312
                                313 *****
                                314 * FIG *
                                315 *
                                316 *
                                317 *****
                                318 *
                                319 * THIS ROUTINE READS THE 4 CONFIG SECTORS
                                320 * FROM DISK AND PROCESSES THEM
                                321 * CYL 3 HEAD 0 REC 1 CPU RECORD
                                322 * UDT RECORD
                                323 * CHAIN IMAGE -OPTIONAL

```

```

ERR LOC OBJFCT CODE    ADDR STMT SOURCE STATEMENT
                                324 *
                                325 *
                                326 *****
                                327
                                327
0A6C 34 08 0C38        OA6C 328 FIG   EQU * FOR RETURN
0A70 C0 07 0C38        329     ST   FIGR+5,ARR DO CONFIG ONLY ONCE
0A74 3C 87 0A71        330 FIG1  BC   FIGR,X'07'
0A78 0C 5F 7DFD 08DF  331     MVI  FIGI+1,X'87'
0A7E 0C 01 0C51 0073  332     MVC  ADDR+95(96),INPUT+95 SAVE CONTENTS OF READ BUFFER
0A84 0C 09 0C4F 01C4  333     MVC  RTSAVE(2),RETURN+3 SAVE **4 ADDRESS OF 'RETURN'
0A8A 0C 09 01C4 0C45  334     MVC  CFSAVE+9(10),CFMAIN+9 SAVE THE PRESENT CONTROL FIELD
0A90 3C 10 01FD        335     MVC  CFMAIN+9(10),CFFIG+9 SET UP FOR READ FROM CONFIG AREA
0A94 C0 87 00E4        336     MVI  LDFLAG,X'10' FORCE LOADER TO READ 1 REC & RETURN
                                337     B     RECARD READ A RECORD
                                338
                                339 *
                                340 *
                                341 *
                                342 CKCPU  CLI 0(.XR1).C'C' BRANCH IF NOT CPU DEFINITION CARD
                                343     JE   ISC
                                344     B   LDRBAD
                                345     HPL H0,HH BAD CPU RECORD
                                346     HPL H2,HH
                                347     B   NEXT1
0A98 7D C3 00          348 ISC   MVC SMOD(1),X'1' PUT SYSTEM MODEL INTO SRT
0A9B F2 81 0E          349     CLI 10(.XR1).C'F' IS THIS 96 OR 128K
0A9E C0 87 0C52        350     JE   NOX      IF NO NO EXPAND
0AA2 F0 38 6F          351     MVC 31(25,XR1).30(.XR1) FORCE CPU M,SSSS,P TO ...
0AA5 F0 38 76          352     MVI 6(.XR1).C'0' ... CPU M,0SSSS,P
0AA8 C0 87 0B0D        353 NOX   EQU *
0AAC 1C 00 0200 04     354     MVI 5(.XR1).C'0' FORCE 0 IN PLACE OF COMMA
0AB1 7D C6 0A          355     B     PACK PACK STORAGE SIZE
0AB4 F2 81 07          356     DC   IL1'6'
0AB7 5C 18 1F 1E      357     DC   AL2(INPUT+10)
0ABB 7C F0 06          358     DC   AL2(SIZE)
                                359 * CPU MODEL AND STORAGE IS DONE, NOW DO OPTIONS
0ABE 7C F0 05          360     MVI CPU,0 CLEAR OUT CPU OPTIONS
0AC1 C0 87 0226        361 CPUOP MVI MASC+1,X'01' BEGIN OPTION MASK AT 01
0AC5 06                362 CPULP AZ 12(1,XR1).XF1 BUMP OPTION FIELD BY 1
0AC6 088A              363     CLI 12(.XR1).X'F9' MASK IS OK WHEN OPTION FIELD=F9
0AC8 0203              364     JE   MASC
                                365     ALC  MASC+1(1),MASC+1 SHIFT MASK BIT LEFT ONE.
0ACA 3C 00 0204        366     B     CPULP
0ACE 3C 01 0AE9        367 XF1   DC   XL1'F1' SET ON CPU OPTION (OR 0)
0AD2 46 00 0C 0AE7    368 MASC  SBN CPU, *- INCREMENT TO NEXT OPTION, HANDLE
0AD7 7D F9 0C          369     LA 1(.XR1),XR1 MULTIPLE OPTIONS.
0ADA F2 81 0B          370     CLI 12(.XR1).C' QUIT IF BLANK.
0ADD 0E 00 0AE9 0AE9  371     JE  OPDON
0AD3 C0 87 0AD2        372     B     CPULP
0AE7 F1                373 OPDON LA INPUT,XR1 PUT XR1 BACK AS FOUND
0AEB 3A 00 0204        374     CLI 4(.XR1).C'G'
0AFC D2 01 01          375     JE   NEXT1
0AEF 7D 40 0C          376     HPL H0,HH YES, GO READ NEXT CARD
0AF2 F2 81 04          377     HPL H0,HH *NO. CARD SET UP IMPROPERLY
0AF5 C0 87 0ACE        378     MVI CPU,C'G' SECONDARY HALT, CPU CARD SET UP WRONG
0AF9 C2 01 0880        379 NEXT1 EQU * FORCE MODEL G
0AFD 7D C7 04          380     B     RECARD READ A RECORD
0B00 F2 81 0A          381 *
0B03 F0 38 6F          382 *
0B06 F0 5F 7D          383 *
0B09 3C C7 0204        384 *
                                385 CKUDT CLI 0(.XR1).C'U' BRANCH IF NOT UDT CARD
0B0D C0 87 00E4        386     JE   ISU
                                387     B   LDRBAD BAD UDT CARD
                                388     HPL H0,HH
                                389     HPL H2,HH

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FFB0 DCP LOADER FOR 3340 DISK - MOD 12

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0002 522 TRKEND EQU X'02'
0001 524 OPINC EQU X'01'
006F 525 MD EQU X'6F'
0003 526 H1 EQU X'03'
0076 527 H2 EQU X'76'
0057 528 H3 EQU X'57'
0018 529 H4 EQU X'18'
005D 530 H5 EQU X'5D'
007D 531 H6 EQU X'7D'
0007 532 H7 EQU X'07'
007F 533 H8 EQU X'7F'
005F 534 H9 EQU X'5F'
006C 535 HC EQU X'6C'
0073 536 HD EQU X'73'
003B 537 HH EQU X'3B'
008D 538 BIT0 EQU X'8D'
004D 539 BIT1 EQU X'4D'
002D 540 BIT2 EQU X'2D'
001D 541 BIT3 EQU X'1D'
0008 542 BIT4 EQU X'08'
0004 543 BIT5 EQU X'04'
0002 544 BIT6 EQU X'02'
0001 545 BIT7 EQU X'01'
0006 546 VID EQU 6
000A 547 HLAST EQU 10
000E 548 VADDR EQU 14
7F80 549 ADDR2 EQU X'7F80'
550 *
020D 551 SBYTES EQU X'20D'
0031 552 MAXREC EQU 49
553
554 *****
555 *
556 * WINCHESTER INSTRUCTION EQUATES
557 *
558 *****
559
C000 560 QSEEK EQU X'C000'
C001 561 QRECAL EQU X'C001'
C101 562 QRMA EQU X'C101'
C100 563 QREAD EQU X'C100'
C107 564 QDIAG EQU X'C107'
565
00C0 566 TNR EQU X'C0'
00C2 567 TBSY EQU X'C2'
568
00C4 569 LDDDR EQU X'C4'
00C6 570 LDDCR EQU X'C6'
571
572 *
573 ** EXECUTION ENTRY POINT.
574 *
575 BEGIN MVI X'97F',C'
576 MVC X'97E'(255),X'97F'
577 MVC X'87F'(4),X'880'
578 B PGMLOD
00C9 579 DC AL2(RECARD)
00CB 580 ENTRYS DC AL2(ENT2)
0074 581 END BEGIN

MASK FOR TRACK CONDITION CHECK
MASK FOR OPERATION INCOMPLETE

HALT DISPLAY CODE -H-

DISPLACEMENT IN VTOC FOR PROGRAM ID
HEAD 0-9=VTOC, 10 IS PAST END
DISPLACEMENT IN VTOC OF DISK ADDRESS
FOR BUFFER SAVE DURING 'FIG'. SAME
AS 2ND CARD BUFFER FOR FDO AND FEO
SSW BYTE
NUMBER +1 OF RECORDS USED PER TRACK

SEEK
RECALIBRATE
READ HA, RO, COUNT EVEN
READ KEY DATA
READ DIAGNOSTIC SENSE (24 BYTES)

NOT READY / ERROR (UNIT CHECK)
ATTACHMENT BUSY

LID DISK DRIVE DATA REGISTER
LID DISK DRIVE CONTROL REGISTER

CLEAR PRINT IMAGE AND DATA FIELDS

GO BEGIN LOADING
ENTRY POINT FOR DCP TO READ A RECORD
ENTRY POINT FROM DCP TO LOAD PGM ETC

CROSS-REFERENCE

Table with columns: SYMBOL, T, LEN, VALUE, DEFN, REFERENCES. Contains entries like ADDR2, ALT, ALTR, ARR, BEGIN, BIT0, BIT1, BIT2, BIT3, BIT4, BIT5, BIT6, BIT7, CFFIG, CFMAIN, CFMANB, CFSAVE, CFVTOC, CHAIN, CHECKD, CKCHN, CKCOM, CKCLMA, CKCOM1, CKCPU, CKF, CKEND, CKSSW, CKSSWX, CKUDT, CONTNU, CPU, CPULP, CPUOP, DEFINE, DEV, DOSIO, ENTRYS, ENT2, FFB, FIG, FIGR, FIG1, HC, HD, HH, HLAST, MTH7, H0, H1, H2, H3, H4, H5, H6, H7, H8, H9, IAR, ID, IDFND, INADR1, INPUT.

0074 3C 40 097F
007B 0C FE 097E 097F
007E 0C 03 087F 0880
0084 00 87 0064
0088 00E8
008A 001B

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

FFB0 DCP LOADER FOR 3340 DISK - MOD 12

OBJECT CARD LISTING

OBJECT CARD LISTING

THE CHARACTER . INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

GBK GBC PN 42 48237 EC 827804 FFB- DCP LOADER FOR 3340 MOD 12 84888488 FFB00000

T+-AJEDA EC6H G| /OH; -G* AV<BEG D *88 -G*0/ #0H* A 4BBHQ F?HAG 7 =BPBI-0 A CMB EG *8/ M/HFFB00001

T+-BCA3MH ~"0+7| /O C EA0 S+0H* A CU0 ~7 D A40H*)G7T < AB/0* -B . 10 H0A4-DDG S0EFFF00002

T+-CG0H* RGS* |H AE*BG /Y/OH* RG7 S |HAPO2C -4BCPS A<BA FLK EMA EC OH*BI-H OH* G4 E9EFFF00003

T+-DBE0GK E| -EB 6~*M 0 D RC-D ~7 U UA0H* *C6H GK 9. G*2/ (+1 A*LM A ~0*A G <BG FE 4B D GB8FFF00004

T+-D+J3GF)C /OE HO 0 GD0H*AK<D C- A0 GM|LDA0|H BF30A * + F*)G *E F*0YHH| A708 \$4)S%FFF00005

T+-EB)E0 F#0H* C6H PD5 E81C-D A*EGOG DAR0GB &S <*EA*?< <GB 0S A0 E20H* <BG PU 11 D *L4FFF00006

T+-F347|AA0GB PA 9 -S +GDH~H0A* #A0BG EY< EF: PG /DEH06D11-GK0H* AK< | DA>3GF)C /OD 6&MFFF00007

TH-GOK<D 0H* 0 E A H D E S%~ A H *-<FFF00008

TA-G* <|)E%FFF00009

T+-Y:"> E B-Y D *H* /OH0 D I 00TA2)MHSP5 * |HAE*BGW08 &H HDA R<BG /Y/OH* RG4 NZ%FFF00010

T+-Z516C2-E.0+6" 0S0| /0A0H*H* 0 A EA~"00A <Q~E0 A <H~"0HA ID4 EA :|J ~3EHC? A00 B|H* *Z<FFF00011

T+-D0BXDKP7"~B|0 < E1J G<<B01| *E <BEGDCDM0D G'0H* 9G7C |HACXBGCE. 0+6"0+7\$ /0X(G B E *DYFFF00012

T+-...*QH0YDGP A- ~GX30AX30A*BG SQ FBHYB 30 -E0 E. ZJ-)*=E32-EK + .ZB>X /0.K0LY -E ~HXFFF00013

T+-XW4-DA~M <0YD DCH*H3XHABHA*10L 2-E.0+6"0S74010H D0H* 9G7U |HACXB GCE.0+6"0+7\$ /0? T~M :QUFFF00014

T+- / "HAA-0_ V0 BP*HAAL&AB3# /OH W - B/PB -H?E-H C>A ABZ HBC_?0F' POH*.884 YN0YD G7E 6.*FFF00015

T+->* < AB40C HES%| \$0 _HA P5 - |HA *HA P5 |H AKP5. |HAA*HA %B GB3J*0 C2 -N+ HEGX QB%FFF00016

T+-7P0 < EYPB/(| HD*HBB-8AB/* HE00GB:M< ?DB/Q < ?GB/;: F: . /0_#Y 8<37A T. -E% ESMFFF00017

T+-0K80BGCE.0+6" 0S57 /OCUL&EGB/3 2 J| /OH0V #BG) *0 72 E00"0/80H* 9G7S |HAE-0E -4 BC00 7J0FFF00018

T+-1(ECBG**< EC FG*X /0BWC UA1 1 |C D *01JCE0H77" ~CH**<E%BG < COD E MA4FFF00019

T+-2H C&HCFU 0C0H2|+DB|LYE T0 :- H30H* 0C ~0 <S3M&G*40E V%|B 1~V%<H~05 OH* R 504FFF00020

T -2.9 S ***** SLOFFB00021

ECGJ*E7*~DC*PH\$ =*7M&F| | C F* ASC R A S0 Q ***** 09520630750 90375:RYFFF00022

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
0126 OC CD 01FF IFF  209 MVC X'1FF'(X200-ENDCLR),X'1FFF' CLEAR REST OF THIS SEGMENT
012C C2 07 0088      210 B NEXTR RE-ENTER LOADER
0130 0100              0131 211 NUM256 DC XL2'0100'
                                0132 212 ENDCLR EQU *
0200                     213 ORG X'200'
                                0200 214 X200 EQU *
                                215
                                215
                                216 ORG CLRCOR
0108                     217 B NEXTR CONTINUE LOADING, GET NEXT RECORD
0108 CO 07 0088      218 CKREP LA INPUT,XR1 RELOAD XR1 TO BUFFER BEGINNING
010C C2 01 0080      219 CLI O(,XR1),C'R' BRANCH IF NOT REPLACE CARD
0110 7D 09 00              220 CKCOM1 BNE CKCOMA
0113 CO 01 0A0F      221 ** NOTE - BRANCH ADDRESS OF PREVIOUS BRANCH IS ALTERED AFTER DCP
                                222 ** LOADING COMPLETE. THIS OVERLAY PREPARES THE LOADER FOR
                                223 ** HANDLING SECTIONS.
0117 CO 07 0226      224 B PACK GO PACK ADDRESS
0118 04              0118 225 DC IL1'4'
011C 0885              011D 226 DC AL2(INPUT+5)
011E 013A              011F 227 DC AL2(DEST)
0120 7D C5 01          228 CLI 1(,XR1),C'E' BRANCH IF NOT PATCH EXECUTE CARD
0123 F2 01 06          229 JNE AJDEST
0126 B5 01 DE          230 L DEST(,XR2),XR1 BRANCH TO CARD ADDRESS IF IT IS
0129 D0 07 00          231 B O(,XR1)
012C D2 01 08          232 AJDEST LA 8(,XR1),XR1 POINT AT FIRST BYTE
012F B4 01 DC          233 NEXT ST SRCE(,XR2),XR1 SET UP SOURCE ADDRESS
0132 CO 07 0226      234 B PACK GO PACK THIS BYTE
0136 02              0136 235 DC IL1'2'
0137 0000              0138 236 SRCE DC AL2(*-*)
0139 0000              013A 237 DEST DC AL2(*-*)
0138 AE 01 DE 2C      238 ALC DEST(2,XR2),N1(,XR2) INCREMENT DESTINATION ADDRESS
013F 7D 40 01          239 CKBLK CLI 1(,XR1),C' ' GO READ NEXT CARD IF BLANK FOUND
0142 E0 01 2F          240 BE NEXTR(,XR2)
0145 D2 01 01          241 LA 1(,XR1),XR1 INCREMENT TO NEXT COLUMN
0148 7D 68 00          242 CLI O(,XR1),C', ' JUMP OVER ANY COMMAS
0148 E0 01 E3          243 BE CKBLK(,XR2)
014E D2 01 01          244 LA 1(,XR1),XR1 POINT AT 2ND DIGIT
0151 E0 07 D3          245 B NEXT(,XR2) GO PACK THIS BYTE
                                246
                                246
                                246
                                246
                                246
                                247 ** THE FOLLOWING CODING COMPLETES THE SECTION LOADER. IT IS
                                248 ** BYPASSED DURING DCP LOADING. ONCE THE CONTROL PROGRAM IS LOADED,
                                249 ** LINKAGES ARE SET UP SO THAT THIS ROUTINE WILL BE SUBSTI-
                                250 ** TUTED FOR THE DCP LOADER ROUTINE RESIDING AT HEX -A00-.
0154 7D 5C 00          251
                                252 CKCOM CLI O(,XR1),C' ** BRANCH IF THIS IS NOT A COMMENT
0157 F2 01 0F          253 JNE CHKSSW CARD
015A 38 01 0208      254 TBN SBYTE0,SSW07 BYPASS PRINTING IF SSW07 IS ON
015E E0 10 2F          255 BT NEXTR(,XR2)
0161 CO 07 021A      256 B PRINT PRINT CONTENTS OF THIS CARD
0165 21              0165 257 DC XL1'21'
0166 E0 07 2F          258 B NEXTR(,XR2) GO READ NEXT CARD
                                259
                                260 CHKSSW CLC 2(3,XR1),SSW BRANCH IF NOT SENSE SWITCH CARD
0169 4D 02 02 05D2    261 BNE CHKEND
016E CO 01 019A      262 SLC SBYTE5(4),SBYTES CLEAR SECTION SENSE SWITCHES
0172 0F 03 020D 020D  263 ISSW LA 5(,XR1),XR1 POINT XR1 AT FIRST SSW NUM
0178 D2 01 05          264 CHKSSO ST SADDR,XR1 SET UP POINTER TO THIS NUMBER
0178 34 01 0185      265 B PACK GO PACK THIS NUMBER
017F CO 07 0226      0183 266 DC IL1'2'
0183 02              0185 267 SADDR DC AL2(*-*)
0184 0000              0187 268 DC AL2(DATSSW)
0186 0412              269 B SETSSW
0188 CO 07 0413

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
018C 7D 68 01          270 CLI 1(,XR1),C', ' CHECK FOR MORE ENTRIES
018F D2 01 03          271 LA 3(,XR1),XR1 POINT TO NEXT NUMBER
0192 C0 07 0178      272 BE CHKSSO CONTINUE UNTIL CARD DONE
0196 CO 07 0088      273 B NEXTR WHEN DONE, GO READ NEXT CARD
019A 7D C5 00          274 CHKEND CLI O(,XR1),C'E' GO READ NEXT CARD IF NOT END
019D E0 01 2F          275 BNE NEXTR(,XR2)
01A0 38 04 01FD      276 TBN FLAG,BIT5
01A4 D0 90 81          277 BF 129(,XR1) BRANCH TO X'901'
01A7 CO 07 0000      278 LDX B *-+
                                01AA 279 LDX@ EQU *-1
                                280 LDPT2 ST LDX@,ARR
                                281 B CDREAD
                                282 TBF FLAG,BIT0+BIT2+BIT4+BITS
01AB 34 08 01AA      283 BT RED(,XR2)
01AF CO 07 0060      284 B UNPACK
01B3 39 AC 01FD      01BE 285 DC XL1'2'
01B7 E0 10 33          01C0 286 DC AL2(DTABLE+1)
01BA CO 07 021E      01C2 287 DC AL2(LDWORK)
01BE 02              288 CLC LDWORK(3),90(,XR1) CHECK ID (COL. 89-91)
01BF 01FF              289 JNE HLTHD
01C1 005D              290 CLC DECO(4),95(,XR1) CHECK FOR CARD 0
01C3 1D 02 005D 5A    291 JE OK
01C8 F2 01 10          292 CLC DEC1(4),95(,XR1) CHECK FOR CARD 1
01CB 1D 03 01F4 5F    293 JE OK
01D0 F2 81 13          294 HLTHD L DTABLE+1,ARR
01D3 1D 03 01F5 5F    295 HPL HD,HH
01D8 F2 81 08          296 B LDPT2+4
01DB 35 08 01FF      297 OK TBN FLAG,BIT2
01DF F0 38 73          298 LDX B
01E2 CO 07 01AF      299 B RED(,XR2)
01E6 38 20 01FD      01F4 300 DECO DC DL4'0' DECO MUST START AT X'1F1'
01EA CO 10 01A7      01F5 301 DEC1 DC DL1'1'
01EE E0 87 33          302 ORG X'FFFF'-X'1FC' ** IF THIS ORG FLAGGED, ORG OVERLAYED
01F1 F0F0F0F0          303 ORG X'1FC'
01F5 F1              01FD 304 DC AL2(CDREAD) MUST BE AT X'1FC'
FFF9                  01FE 305 DC AL2(LDPT2) MUST BE AT X'1FE'
01FC 0060
01FE 01AB

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-------------|------|---------|------------------|
| | | 442 | MVI | LPIMAG+120,X'FF' |
| | | 443 | NOCHG | J RDCD |
| | | 444 | | |
| | | 445 | CKEND | CLI O(,XR1),C'E' |
| | | 446 | BE | ISENL |
| | | 447 | HPL | HO,HH |
| | | 448 | HPL | H1,HO |
| | | 449 | b | NEXTR |
| | | 450 | ISEND | EQU * |
| | | 451 | HGO | CL1 UTAB,X'AO' |
| | | 452 | JNE | LDROK |
| | | 453 | HPL | HO,HH |
| | | 454 | HPL | H5,HO |
| | | 455 | B | HGO |
| | | 456 | LDROK | EQU * |
| | | 457 | | |
| | | 458 | LA | CKCOM,XR1 |
| | | 459 | ST | CKCOM1+3,XR1 |
| | | 460 | B | BEGIN |
| | | 461 | | |
| | | 462 | OKCTR | B PACK |
| | | 463 | DC | IL1'48' |
| | | 464 | DC | AL2(INPUT+47) |
| | | 465 | IMGADR | DC XL2'800' |
| | | 466 | ALC | IMGADR(1),N24 |
| | | 467 | SLC | CHCTR(1),ONE |
| | | 468 | BNH | NEXTR(,XR2) |
| | | 469 | RDCD | B CDREAD |
| | | 470 | B | OKCTR |
| | | 471 | SSWD | DC CL3'SSM' |
| | | 472 | INADR1 | DC AL2(INPUT+9) |
| | | 473 | | |
| | | 473 | | |
| | | 473 | | |
| | | 474 | | |
| | | 475 | EQUATES | ***** |
| | | 476 | | ***** |
| | | 477 | INPUT | EQU X'880' |
| | | 478 | STATUS | EQU CDREAD-1 |
| | | 479 | LDWORK | EQU CDREAD-3 |
| | | 480 | UDT1 | EQU X'249' |
| | | 481 | UDT2 | EQU X'261' |
| | | 482 | IPL | EQU X'40' |
| | | 483 | NORM | EQU X'0' |
| | | 484 | READ | EQU X'F1' |

SET FLAG FOR 120 CHAR CHAIN
ENTER LOOP TO LOAD CHAIN CARDS.

IF END CARD CONTINUE

UNDEFINED CARD ENCOUNTERED IN DCP
SECONDARY HALT -- INVALID OR BLANK CARD
TO GET NEXT RECORD

IF THIS IS DEFINED AS DISK, HALT HO

HO HALT FOR INVALID RECORD
SECONDARY HALT FOR UDT LOADER WRONG AT END CARD

CONNECT REST OF LOADER

GO BEGIN DCP

PACK THIS PRINT IMAGE DATA CARD
INTO PROPER LOCATION

ADJUST POINTER FOR NEXT CARD
DECREMENT CARD COUNTER
GO READ NEXT CARD IF IMAGE COMPLETE
GO READ NEXT IMAGE CARD AND RETURN
GO BACK AND PROCESS THE CARD

LAST BYTE OF 8TH UDT ENTRY
LAST BYTE OF 16TH UDT ENTRY
MFCU CONTROL CODE - IPL MODE
MFCU CONTROL CODE - NORMAL MODE
MFCU READ Q CODE

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-------------|------|------------------|--|
| | | 486 | | ORG X'200' |
| | | 487 | | ***** |
| | | 488 | | SECTION REFERENCE TABLE |
| | | 489 | | ***** |
| | | 490 | | * |
| | | 491 | | THE DATA IN THIS TABLE PROVIDES THE DIAGNOSTIC SECTION/CONTROL |
| | | 492 | | PROGRAM INTERFACE. IT IS LOADED BY THESE METHODS-- |
| | | 493 | | * |
| | | 494 | | CONTROL PROGRAM EXECUTION |
| | | 495 | | CONTROL PROGRAM ASSEMBLY |
| | | 496 | | UDT CARDS |
| | | 497 | | * |
| | | 498 | | ***** |
| | | 499 | | |
| | | 500 | | * |
| | | 501 | ** | SRT DATA |
| | | 502 | | * |
| | | 503 | SMOD | DC XL1'0' |
| | | 504 | | DC XL1'0' |
| | | 505 | SIZE | DC XL2'0' |
| | | 506 | CPU | DC XL1'0' |
| | | 507 | | DC XL1'0' |
| | | 508 | PGCKA | DC XL2'0' |
| | | 509 | | * |
| | | 510 | LBASE | EQU * |
| | | 511 | SBYTE0 | DC XL1'0' |
| | | 512 | SBYTE1 | DC XL1'0' |
| | | 513 | SBYTE2 | DC XL1'0' |
| | | 514 | SBYTE3 | DC XL1'0' |
| | | 515 | SBYTE4 | DC XL1'0' |
| | | 516 | SBYTE5 | DC XL1'0' |
| | | 517 | RPFx | DC XL4'0' |
| | | 518 | | |
| | | 519 | | * |
| | | 520 | ** | ASSEMBLED TRANSFER TABLE |
| | | 521 | | * |
| | | 522 | TEST | L TRI,IAR |
| | | 523 | LINK | L TR2,IAR |
| | | 524 | PRINT | L TR3,IAR |
| | | 525 | UNPACK | L TR4,IAR |
| | | 526 | HALT | L TR5,IAR |
| | | 527 | PACK | L TR6,IAR |
| | | 528 | LOAD | L TR7,IAR |
| | | 529 | LMSGa | DC AL2(LMSG) |
| | | 530 | ITR6 | DC AL2(IRPACK) |
| | | 531 | | * |
| | | 532 | ** | UNIT DEFINITION TABLE |
| | | 533 | | * |
| | | 534 | UTAB | EQU * |
| | | 535 | | DC XL54'00' 18 X 3 = 54 USABLE UDT ENTRIES |
| | | 0232 | 0000000000000000 | |
| | | 023A | 0000000000000000 | |
| | | 0242 | 0000000000000000 | |
| | | 024A | 0000000000000000 | |
| | | 0252 | 0000000000000000 | |
| | | 025A | 0000000000000000 | |
| | | 0262 | 000000000000 | |
| | | 0268 | 0010 | DC XL2'0010' SIGNALS LAST ENTRY (NOT USABLE ITSELF) |

SYSTEM MODEL
USED FOR STORAGE BEYOND 64K
CORE SIZE IN HEX
CPU OPTIONAL FEATURES

ADDRESS OF RELOCATED PROGRAM
CHECK ROUTINE.

COMMON (DCP) SENSE SWITCHES

SECTION SENSE SWITCHES

CURRENT ROUTINE PREFIX

LINKAGE TO READ CONSOLE SWITCHES
LINKAGE TO CHAIN ROUTINE/SECTION
LINKAGE TO PRINT MESSAGE
LINKAGE TO UNPACK DATA
LINKAGE TO HALT
LINKAGE TO PACK DATA
LINKAGE TO LOAD A NEW SECTION

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
*****
538 *****
539 * LOAD ***** LOAD *
540 *****
541 *
542 * SUBROUTINE TO LOAD PROGRAMS OR DATA RECORDS FROM THE LOADING
543 * DEVICE. ENTRY TO THIS SUBROUTINE IS MADE AS FOLLOWS--
544 *
545 *      B      LOAD      WHERE LOAD IS EQUATED TO X'22A'
546 *      *DC    XL1'FLAGS'
547 *      **DC   XL2'DXXX'      XXX - PROGRAM ID (OR DISK ADDR)
548 *
549 *      FLAG BIT ON
550 *      NONE      - NORMAL TERMINATION
551 *      0         - HE HALT,LOAD XXX, HA HALT AND GIVE XXX
552 *                CONTROL
553 *      1         - ABNORMAL TERMINATION
554 * IF BIT 3     --- 2 - READ FIRST RECORD OF XXX INTO X'880' AND
555 * IS ON WITH   RETURN CONTROL
556 * 2,4,OR 5,   . . . 3 - READ NEXT SEQUENTIAL RECORD INTO X'880'
557 * THEN PARM   AND RETURN CONTROL
558 * IS DISK     --- 4 - LOAD XXX AND GIVE XXX CONTROL
559 * ADDR NOT    --- 5 - LOAD XXX AND RETURN CONTROL
560 * PGM ID.     6     - SEEK TO VTOC AND RETURN CONTROL
561 *
562 *      *NOTE FLAG BYTE, NOT MORE THAN ONE BIT CAN BE SET ON
563 *      **NOTE PROGRAM ID IS ONLY INCLUDED IF BIT 0,2,4, OR 5
564 *      IS ON
565 *
566 *****
0208 567 USING LBASE,XR2
00FD 568 FO EQU X'FD'
00FA 569 F1 EQU X'FA'
00F1 570 F4 EQU X'F1'
026A 34 02 02A4
026E C2 02 0208
0272 B4 08 A0
0275 B4 01 98
0278 E0 87 0A
027B B5 01 A0
027E 8E 01 A0 039F
0283 1C 02 01FF 02
0288 79 24 00
028B F2 10 05
028E 8E 01 A0 0341
0293 78 10 00
0296 F2 90 10
0299 C0 87 0000
029D C2 01 0000
02A1 C2 02 0000
02A5 C0 87 0000
02A9 590 LD1 EQU *
591 TBF 01,XR1,BIT2+BIT4+BITS+BIT6 FLAG BIT 2,4,5, OR 6 ON?
592 JF LE2 IF ANY ON, GO ENTER LOADER
593
594 SBN RLFLGS(,XR2),BIT0 SET ERROR BIT IF ABNORMAL
595 TBN 01,XR1,BIT1 TERMINATION
596 JT PTMSG
597 SFF RLFLGS(,XR2),BIT0 OTHERWISE, TURN IT OFF
598 TBN SBYTE0(,XR2),SSW01 LOOP ON ROUTINE IF SSW 01 IS ON
599 BT LNK1A
600 TBN SBYTE0(,XR2),SSW00 LOOP ON SECTION IF SSW00 SET
601 PTZERO BT 0
602 PTMSG B RPRINT
603 ITR3 EQU *-1 PRINT SECTION TERMINATE MSG
02CC 604 RLFLGS DC XL1'C7'
02CE 605 DC IL1'16'

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
*****
02CF 05A7 02D0 606 DC AL2(TMSG)
02D1 FF00 02D2 607 DC XL2'FF00'
02D3 3C 07 7ECF 608 MVI ERSSW+1,X'07' SET UP TO ERASE ON CRT
02D7 B8 01 00 609 TBN SBYTE0(,XR2),SSW07 BYPASS HALT IF SSW07 ON
02DA F2 10 06 610 JT RLD2
02DD F0 3B 7C 611 HLTF HPL HE,HH HALT TO INDICATE SECTION COMPLETED
02E0 E0 87 0A 612 B TEST(,XR2) GO CHECK DATA SWITCHES
02E3 B8 40 01 613 RLD2 TBN SBYTE1(,XR2),SSW09 IF SSW09 IS ON,
02E6 F2 10 04 614 JT LE1 THEN DON'T CLR SECT. SWITCHES
02E9 AF 03 05 05 615 SLC SBYTE5(4,XR2),SBYTE5(,XR2) CLEAR SECTION SSW
02EA 616 THREE EQU *-3
617 LE1 TBN 0(,XR1),BIT0 FLAG BIT 0 ON
618 JT LE2 IF ON
619 XREF1 LA LBASE,XR2
620 B TEST(,XR2) FOR -HD- HALT
621 LX1 LA DTABLE-1,XR1 INSTRUCTION MAY BE ALTERED
622 PTR EQU *-1
623 TBN 0(,XR1),BIT7 FOR CARD SYS (J LE2) ....
0301 624 LX2 EQU * .. THIS REFERS TO PREVIOUS INSTRUCTION
625 JF CHKF4
626 ALC 2(1,XR1),LONE(,XR2)
627 TBN 2(,XR1),X'0F'
628 JF MOVID
629 SBF 2(,XR1),X'0F'
630 CHKF4 CLI PTR(,XR2),F4
631 JNE STEP
632 HLTC1 HPL HC,HH
633 B TEST(,XR2)
634 MVI PTR(,XR2),FO
635 STEP SLC PTR(1,XR2),THREE(,XR2)
636 MOVID L PTR(,XR2),XR1
637 CLC 2(2,XR1),PTZERO+3(,XR2)
638 BE HLTC1
639 MVC DTABLE+1(3),2(,XR1)
640 LE2 B *-1
0337 641 ENTRY2 EQU *-1
642 B LODEM

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000 644 MZZ EQU 00
0001 645 MZN EQU 01
0002 646 MNZ EQU 02
0003 647 MNN EQU 03
033C 00 033C 648 CTR DC XL1'0'
033D FFFF 033E 649 NEG1 DC XL2'FFFF'
033F 00 033F 650 DC XL1'00'
0340 0002 0341 651 TWO DC IL2'2'
        652 *
        653 CMPK ST CMPKX@,ARR
        654 B SAVREG
        655 L ARRSV,XR2
        656 LA CTR,XR1
033C 657 USING CTR,XR1
        658 ALC ARRSV(2,XR1),FIVE(,XR1)
        659 MVC CTR(1,XR1),00(,XR2)
        660 MVC DEST1(2,XR1),4(,XR2)
        661 MVC DEST2(2,XR1),4(,XR2)
        662 L 2(,XR2),XR2
        663 B *-
0368 664 CMPKX@ EQU *-1
0368 665 TEMP EQU *-1
    
```

SPARE BYTE NOT USED,MUST BE
LOCATED HERE TO GENERATE
THE CONSTANT FIVE

SAVE REGISTERS
PICK UP RETURN @
LOAD BASE @

AJUST RETURN @
MOVE LENGTH BYTE
MOVE TO @
MOVE TO @
PICK UP FROM @

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

667 *****
668 * UNPACK ***** UNPACK *
669 *****
670 *
671 * SUBROUTINE TO CONVERT PACKED HEXADECIMAL DATA TO PRINTABLE
672 * EBCDIC. TWO PRINT CHARACTERS, 0-F, RESULT FROM EACH SOURCE BYTE.
673 * LINKAGE TO THIS SUBROUTINE IS AS FOLLOWS--
674 *
675 * B UNPACK WHERE UNPACK IS EQUATED TO X'21E'
676 * DC XL1'LENGTH OF HEX FIELD IN BYTES'
677 * DC AL2(FROM ADDRESS -RIGHTMOST BYTE-)
678 * DC AL2(TO ADDRESS -RIGHTMOST BYTE-)
679 *
680 *****
681 RUNPK ST ARRSV,ARR
682 B CMPK
683 UNPK1 MVI MVX1(,XR1),MNN DO NUMERIC
684 UNPK2 MVX TEMPI(0,XR1),0(,XR2)
0375 685 MVX1 EQU *-3
686 SBN TEMPI(,XR1),X'FO' SET FOR 0-9
687 CLI TEMPI(,XR1),X'FA' CHECK FOR A-F
688 JL UNPK3
689 SLC TEMPI(1,XR1),X39(,XR1) SUBTRACT X'39' IF A-F
690 UNPK3 MVI *-*,0
0386 691 TEMPI EQU *-3
0388 692 DEST1 EQU *-1
693 ALC DEST1(2,XR1),NEGI(,XR1) DECREMENT TO ADDRESS
694 CLI MVX1(,XR1),MNN CHECK FOR ZONE DONE
038F 695 X39 EQU *-1
696 JE UNPK4 DO ZONE
697 MVI MVX1(,XR1),MNN
698 B UNPK2(,XR1)
699 UNPK4 A NEGI(,XR1),XR2 DECREMENT FROM @
700 ALC CTR(1,XR1),NEGI-1(,XR1) DECREMENT LENGTH & CHECK FOR 0
039F 701 ONE EQU *-1
702 BNZ UNPK1(,XR1) NO
703 B LDREG(,XR1) YES
704 *
705 SAVREG ST SR1+3,ARR SAVE RETURN @
706 ST LDREG+3,XR1 SAVE XR1
707 ST SR2+3,XR2 SAVE XR2
708 B RTEST CHECK DATA SWITCHES
709 SR1 B *-
    
```

```

0369 34 08 0408
036D C0 87 0342
0371 7C 03 39
0374 68 00 4A 00
    
```

```

0378 7A F0 4A
037B 7D FA 4A
037E F2 82 04
0381 5F 00 4A 53
0385 3C 00 0000
    
```

```

0389 5E 01 4C 02
038D 7D 02 39
    
```

```

0390 F2 81 06
0393 7C 02 39
0396 D0 87 38
0399 76 02 02
039C 5E 00 00 01
    
```

```

03A0 D0 01 35
03A3 D0 87 C1
    
```

```

03A6 34 08 0389
03AA 34 01 0400
03AE 34 02 0404
03B2 C0 87 0444
03B6 C0 87 0000
    
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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
711 *****
712 * PACK ***** PACK *
713 *****
714 *
715 * SUBROUTINE TO CONVERT EBCDIC DIGITS 0-F TO PACKED HEXADECIMAL
716 * DATA. LINKAGE TO THIS SUBROUTINE IS AS FOLLOWS--
717 *
718 *      b      PACK
719 *      DC      XL1'LENGTH'
720 *      DC      AL2(FROM ADDRESS -RIGHTMOST BYTE-)
721 *      DC      AL2( TO ADDRESS -RIGHTMOST BYTE-)
722 *****
03BA 34 08 0408 723 RPACK ST ARRSV,ARR
03BE C0 87 0342 724      B      CMPK
03C2 78 01 00    725      TBN    CTR(,XR1),X'01'      CHECK FOR ODD LENGTH
03C5 F2 90 05    726      JF      PK1                      OKAY IF EVEN LENGTH
03C8 4F 00 00 039F 727      SLC    CTR(,XR1),ONE          SUBTRACT 1 IF ODD LENGTH
03CD 7C 03 A3    728 PK1 MVI MVX2(,XR1),MNN          DO NUMERIC
03D0 6C 00 2C 00 729 PK2 MVC TEMP(,XR1),O(1,XR2)      PACK BYTE INTO HIGH HALF BYTE
03D4 7D F0 2C    730      CLI    TEMP(,XR1),X'F0'      CHECK FOR 0-9
03D7 F2 02 04    731      JNL    PK3                      JUMP IF 0-9
03DA 5E 00 2C E5 732      ALC    TEMP(1,XR1),NINE(,XR1)  AJUST FOR A-F
03DE 18 00 C000 2C 733 PK3 MVX *-*(0),TEMP(,XR1)      MOVE HALF BYTE TO @
03DF 734 MVX2 EQU *-4
03E1 735 DEST2 EQU *-2
736      A      NEG1(,XR1),XR2          DECREMENT FROM @
737      CLI    MVX2(,XR1),MZN          CHECK FOR ZONE DONE
738      JE      PK4                      JUMP IF DONE
739      MVI    MVX2(,XR1),MZN          DO ZONE
740      B      PK2(,XR1)
741 PK4 ALC DEST2(2,XR1),NEG1(,XR1)      DECRGMENT TO @
742      SLC    CTR(1,XR1),TWO(,XR1)    CHECK FOR END
03F9 743 FIVE EQU *-1
744      BNZ    PK1(,XR1)
745 LDREG LA *-*,XR1
746 SR2 LA *-*,XR2
747      B      *-*
0408 748 ARRSV EQU *-1
RETURN TO SECTION

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
750 *****
751 * TEST ***** TEST *
752 *****
753 *
754 * SUBROUTINE USED TO READ CONSOLE SWITCHES AND TEST FOR VALIDITY
755 * POSITIONS. ONCE ONE OF THE FOLLOWING VALIDITY CONDITIONS IS
756 * ENCOUNTERED, ENTRIES ARE ACCEPTED UNTIL THE VALIDITY SWITCH IS
757 * CHANGED.
758 *
759 *      FOXX - TURN OFF SSW XX.
760 *      F1XX - TURN ON SSW XX.
761 *      F2XX - GO TO ROUTINE XX.
762 *      EEXX - TERMINATE SECTION.
763 *      DXXO EXECUTE ALL PROGRAMS FOR DEVICE XX -DISK-.
764 *      DXXX - EXECUTE SECTION XXX
765 *
766 *****
0409 80 0409 767 TBASE EQU *
040A 402010080402 0409 768 SETO DC XL1'80'
0410 01 040F 769 DC XL6'402010080402' : ALL TOGETHER
0411 0000 0410 770 DC XL1'01' :
0412 771 DATSWS DC XL2'0' : READIN AREA FOR DATA SWITCHES
0409 772 USING SETO,XR1
0414 773 TONE EQU *-1
0412 774 XREF5 EQU DATSWS
0413 775 XREF4 EQU *
776 SETSSW ST VXRI+3,XR1
777 LA SETO,XR1
778 ST SETSX(,XR1),ARR
779 MNN CHKSS1+3(,XR1),DATSWS(,XR1) FORM CORRECT BIT PATTERN
0421 780 NINE EQU *-1
781 SBF CHKSS1+3(,XR1),X'F8' TO SET A BIT ON IN
782 CHKSS1 MVC C:KSS2+1(1,XR1),*-(,XR1) SBYTE THRU SBYTES
783 ALC DATSWS(,XR1),DATSWS(,XR1)
784 MNZ CHKSS2+2(,XR1),DATSWS(,XR1)
785 LA SBYTE0,XR1
0435 786 MODIFY EQU *
787 CHKSS2 SBN *-*(,XR1),*-*
788 SBF MODIFY,X'01'
789 VXRI LA *-*,XR1
790 B *-*
0443 791 SETSX( EQU *-1
0001 792 DROP XR1
0411 793 USING DATSWS-1,XR2
794 RTEST ST TEXIT1+3,XR2 SAVE INDEX REGS AND SET UP BASE
795 LA DATSWS-1,XR2
796 ST TEXIT+3(,XR2),XR1
797 ST TEXE+3(,XR2),ARR LOAD RETURN BRANCH
798 B TRYFDD SEE IF FDD LOADED
799 TSTOVL J TEXIT ( SNS DATSWS(,XR2),0 ) READ SWITCH
800 CLI DATSWS-1(,XR2),X'ED'
801 JH TEST1
802 TBN DATSWS-1(,XR2),X'DO'
803 JT TEST1 FOR CARD SYS ( JT 0 )
0464 804 TSTDSK EQU *-1
805 TEXIT LA *-*,XR1 RESTORE INDEX REGS AND EXIT
806 TEXIT1 LA *-*,XR2 SUBROUTINE
807 TESTE B *-*
0471 808 DC XL1'40' ABNORMAL TERMINATION
0472 809 TEST1 EQU *
810
811 HLTA MVI THLT+2(,XR2),HF HALT TO NOTE VALID SW ENTRY
812 J THLT
813
814 TEST2 CLI THLT+2(,XR2),HP FORCE ALTERNATING HALT CODES OF
815 JE TEST3 -HP- AND -HU- (HP FIRST)
816 HLTB MVI THLT+2(,XR2),HP
817 J THLT

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0484 BC 6B 78 0483 818 T3 EQU *-1
0487 FO 3B 00 819 TEST3 MVI THLT+2(,XR2),HU
048A B0 00 01 820 THLT HPL *-*,HH HALT -HP- OR -HU- FOR SWITCH ENTRY
048D B8 D0 00 822 823 TSTCRD EQU SNS DATSWS(,XR2),X'0' READ DATA SWITCHES
0490 B9 20 00 824 824 TBN DATSWS-1(,XR2),X'D0' FOR CARD SYS (J TEST7)
0493 F2 90 23 825 825 TBF DATSWS-1(,XR2),X'20'
826 826 JF TEST7
827 827
828 * D FOUND IN LEFTMOST SWITCH SO ZERO TABLE
829 LA FLAG-3,XR1 POINT AT TABLE
830 MVI PTR,FO
831 SLG 02(12,XR1),02(,XR1)
832 ST DADDR(,XR2),XR1
833 TEST5A LA *-*,XR1 LOAD DISK LOAD TABLE POINTER
04A8 834 DADDR EQU *-1
835 TEST6 MVC 2(3,XR1),DATSWS(,XR2) MOVE DATA TO DISK LOAD TABLE
04AD 79 0F 02 836 836 TBF 2(,XR1),X'0F' CHECK FOR DXXX
04B0 F2 10 03 837 837 JT TEST6A
04B3 7B 01 00 838 838 SBF 0(,XR1),X'01' TURN BIT7 OFF
04B6 839 TEST6A EQU *
840 B TEST2(,XR2) GO ALLOW NEXT ENTRY
841 TEST7 CLI DATSWS-1(,XR2),X'EE'
842 JNE TEST7A
843 MVC TESTE+3(2,XR2),ITR7
844 B TEST2(,XR2) GO ALLOW NEXT ENTRY
04C7 845 TEST7A EQU *
846 CLI DATSWS-1(,XR2),X'F1'
847 JE TEST8
848 CLI DATSWS-1(,XR2),X'F0'
849 JNE TEST11
850 SBN MODIFY(,XR2),X'01' CHANGE TO SET BITS OFF
851 TEST8 CLI DATSWS(,XR2),X'30' MAKE SURE SSW NUM IS 00-2F
852 JL TEST9
853 HLTD HPL H2,HH *ERROR-SSW # HIGHER THAN X-2F-
854 * OR *INVALID RTN SELECT OPTION
04E2 855 B TEST2(,XR2) GO ALLOW NEXT ENTRY
856 TEST9 EQU *
857 B SETSSW(,XR2)
858 B TEST2(,XR2) GO ALLOW NEXT ENTRY
859 TEST11 CLI DATSWS-1(,XR2),X'F2'
860 BNE TEXT(,XR2)
861 L FRTN,XR1 START CHECKING WITH FIRST ROUTINE
862 MVC RNUM(1),0(,XR1) LOAD CURRENT RTN NUM WITH FIRST ONE
863 TEST12 CLC RNUM(1),0(,XR1) IS THIS RTN PREFIX CORRECT
864 JE TEST14 YES - BRANCH
865 TEST13 HPL H3,HH *RTN NUMBER OUT OF SEQUENCE
866 B TEST2(,XR2) GO ALLO: ENTRY AGAIN
867 TEST14 CLC DATSWS(1,XR2),0(,XR1) BRANCH IF THIS IS SELECTED
868 JE TEST16 ROUTINE
869 CLI 2(,XR1),X'FF' CHECK FOR LAST ROUTINE INDICATION
870 BE HLTD YES, BRANCH TO ERROR HALT
871 ALC RNUM(1),TONE(,XR2) INCREMENT ROUTINE NUMBER
872 L 3(,XR1),XR1 LOAD ADDRESS OF NEXT RTN PREFIX
873 B TEST12(,XR2) GO CHECK THIS RTN NUM
874 TEST16 MVC RPFx(4),3(,XR1) SAVE ROUTINE PREFIX
875 LA 4(,XR1),XR1 LOAD ADDRESS OF FIRST INSTRUCTION
876 ST TESTE+3(,XR2),XR1 IN SUBROUTINE EXIT
877 ST LNK6+3,XR1 SET UP LINK EXIT IN CASE LOOPING
878 B TEST2(,XR2) GO ALLOW NEXT ENTRY
0002 879 DROP XR2

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
881 *****
882 * LINK ***** LINK *
883 *****
884 *
885 * SUBROUTINE TO PROVIDE ROUTINE TO ROUTINE AND SECTION TO SECTION *
886 * LINKAGE. THE CONTROL PROGRAM USES THE ROUTINE PREFIX AS AN *
887 * INTERFACE BETWEEN DIAGNOSTIC SECTION AND CONTROL PROGRAM. *
888 *
889 *****
890
891 RLINK ST LNK5+3,XR1 SAVE XR1
892
893 LNK1 B RTEST GO CHECK DATA SWITCHES
0537 894 ITR1 EQU *-1
895 TBN SBYTE0,SSW01 PROVIDE LOOP ON ROUTINE IF SSW01 ON
896 JF LNK2
897 LNK1A CLI RNUM,X'01' IF FIRST RTN BEING RUN, TO
898 BE 0 PPGRAM RESTART
899 J LNK5
900
901 LNK2 CLI RPFx-1,X'FF' IS THIS LAST ROUTINE
902 JNE LNK3 NO, GO ON TO CHECK FURTHER
903
904 TBN SBYTE0,SSW00 TEST FOR LOOP ON SECTION
905 BT 0 YES, GO RESTART PROGRAM
906 B RLOAD NO, GO LOAD NEXT SECTION
055C 907 ITR7 EQU *-1
055D 908 DC XLI'0'
909
910 LNK3 L RPFx,XR1 SET UP TO GO TO NEXT ROUTINE
911 ALC RNUM(1),ONE INCREMENT ROUTINE NUMBER AND
912 CLC RNUM(1),0(,XR1) CHECK AGAINST RTN PREFIX
913 JE LNK4
914 HLTE HPL H3,HH *RTN NUM IN RTN PREFIX OUT OF ORDER
915 B LNK1 GO CHECK FOR DATA SWITCH VERIFICA-
916 * TION
917
918 LNK4 MVC RPFx(4),3(,XR1) SET UP CURRENT ROUTINE PREFIX
919 TBN SBYTE0,SSW02 CHECK FOR BYPASS MANUAL INTERV RTNS
920 TBN 1(,XR1),BIT0 CHK RTN PREFIX MANUAL INTERV FLAG
921 BT LNK2 SKIP ROUTINE IF BOTH CONDITIONS TRUE
922
923 LA 4(,XR1),XR1
924 ST LNK6+3,XR1
925 LNK5 LA *-*,XR1
926 LNK6 B *-*
927 LOAD ROUTINE STARTING ADDR
RESTORE INDEX REGS
EXIT SUBROUTINE

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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929 *****
930 * PRINT *****
931 *****
932 * LINKAGE TO PRINT IS AS FOLLOWS--
933 *
934 * b PRINT WHERE PRINT IS EQUATED TO 1304
935 * DC XL1'FLAGS'
936 * 1*DC IL1'LENGTH -MAXIMUM OF 91-'
937 * 1*DC AL2(ADDRESS OF LAST CHARACTER OF PRINT FIELD)
938 * 2,1*DC XL2'MESSAGE IDENTIFICATION'
939 * FLAGS
940 * BIT 0 - DEFINES THIS AS AN ERROR PRINTOUT
941 * 1 - FIRST LINE OF MESSAGE -HEADING PRINTED-
942 * 2 - PRINT FROM DCP PRINT AREA.
943 * 3 - SPACE ONLY
944 * 4 - RESERVED
945 * 5 - BITS 5-7 MUST CONTAIN THE NUMBER OF
946 * 6 - SPACES DESIRED. FOR A PRINT, -001-
947 * 7 - MUST BE ENTERED TO PRINT AND SPACE TO
948 * THE NEXT LINE. -000- MAY BE ENTERED
949 * TO PROVIDE FOR MULTIPLE OPERATIONS ON
950 * THE SAME LINE.
951 *
952 * 1*NOTE - THESE PARAMETERS MUST BE ABSENT FOR SPACE
953 * ONLY OPERATIONS.
954 *
955 * 2*NOTE - THE MESSAGE IDENTIFICATION IS IMCLUDED
956 * ONLY FOR A FIRST LINE PRINTOUT. THE FOUR
957 * DIGIT IDENTIFICATION REFERS TO A TABLE OF
958 * ERROR DESCRIPTIONS OR PRINTOUT DEFINITION.
959 *
960 * OPTIONS--- SSW03 - BYPASS ERROR PRINT.
961 * SSW04 - BYPASS NON-ERROR PRINT.
962 * SSW05 - USE ALTERNATE PRINTER
963 *
964 *****
05B7 965 USING PR3,XR2
05A7 966 TMSG DC CL18'SECTION TERMINATED'
966
05B5 967 LMSG DC CL14'SECTION LOADED'
967
05B7 968 PR3 DC AL2(PLINE)
05B8 969 HDG1 EQU *
05D3 970 HDG DC CL28' ID XXXX. PROG UUXX-RR. SSW5'
970
05D2 971 SSW EQU *-2
05D4 972 NSPACE DC XL1'0'
05D6 973 SNUM DC XL2'0'
05D7 974 PTAGS DC XL1'0'
975 RPRINT ST PRTE2+3,XR2
976 LA PR3,XR2
977 RPONE ST PRTE1+3,XR1
978 ST PRINTE+3,ARR
979 L PRINTE+3,XR1
980 MVI Lpdata+132,C' '
981
982 MVC PTAGS(1,XR2),O(,XR1)
983 MVI HDG1(,XR2),C' '
984 TBN O(,XR1),BIT0
985 JF PRT2
986 MVI HDG1(,XR2),C' *'
987 TBF SBYTE0,SSW03
988 J PRT2A
989 PRT2 TBF SBYTE0,SSW04
990 PRT2A JF PREFIX

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991 MVC NSPACE(1,XR2),O(,XR1) LOAD SPACE COUNTER
992 SBF NSPACE(,XR2),X'F8' LIMIT TO SEVEN
993 MVI PRT6+1,96 SET UP COUNT FOR CONSOLE I/O
994
995 TBN O(,XR1),BIT3 BRANCH IF THIS IS SPACE ONLY OP
996 JT PRT7
997 TBN O(,XR1),BIT2 SKIP SETUP IF DATA FIELD READY
998 JT PRT6A
999 B PRTN DUMMY COMMAND TO MAKE SURE NO BUSY
062A 1000 DUMCOM DC XL2'E000'
1001 MVC Lpdata+131(132),Lpdata+132 BLANK PRINT BUF
1002 TBN O(,XR1),BIT1 SKIP HDG PRINT IF NOT CALLED FOR
1003 JF PRT5
1004 LA 5(,XR1),XR1 SET UP TO UNPACK MESSAGE
1005 ST IDADDR(,XR2),XR1 IDENTIFIER
1006 B UNPACK UNPACK IT FOR PRINTING
0641 1007 DC IL1'2'
0643 1008 IDADDR DC XL2'0'
0645 1009 DC AL2(HDG1+7)
1010 B UNPACK PUT PROG IDENT IN PRINTOUT
064A 1011 DC IL1'2'
064C 1012 DC AL2(PROGID)
064E 1013 DC AL2(HDG1+18)
1014 B UNPACK PUT ROUTINE NUM IN HEADING LINE
0653 1015 DC IL1'1'
0655 1016 DC AL2(RNUM)
0657 1017 DC AL2(HDG1+21)
1018 B PRTN SPACE BEFORE PRINTING HEADING
065D 1019 SPBFHG DC XL2'E001'
1020 MVC PLINE+27(28),HDG(,XR2) MOVE HEADER LINE TO PRINT FIELD
1021
1022 ** SET UP SENSE SWITCH PRINTOUT
1023 LA 2LINE+28,XR1 SET UP PRINT FIELD POINTER
1024 MVI SNUM(,XR2),0 SET SWITCH # TO 0
1025 CHKSWS ALC SBYTE5(6),SBYTE5 ADD SENSE BYTES
1026 JNOL NEXTSS TEST FOR NO OVERFLOW
1027 SBM SBYTES,X'01'
1028 LA 3(,XR1),XR1 SET UP PRINT FIELD #
1029 ST SDEST(,XR2),XR1
1030 B RUMPK UNPACK SSM # INTO PRINT FIELD
0680 1031 ITR4 EQU *-1
0681 1032 XONE DC IL1'1'
0683 1033 DC AL2(SNUM)
0685 1034 SDEST DC XL2'009A'
1035 MVI 1(,XR1),C' ' PLACE # INTO PRINT FIELD
1036 ALC SNUM(1,XR2),XONE(,XR2) UP SWITCH #
1037 CLI SNUM(,XR2),X'30' CHECK FOR LAST SSM
1038 BL CHKSWS(,XR2) BRANCH IF LOW
1039 MVI 1(,XR1),C' ' CLEAR THE LAST COMMA
1040 CRTCHG MVI PRT6+1,X'7F' - PUT ACTUAL LENGTH OF LINE INTO
1041 ALC PRT6+1(1),SDEST(,XR2) - PRT6+1 FOR THE KEYBOARD PRINTER
1042 B PRTN GO PRINT THIS HEADING
06A4 1043 PRTHG DC XL2'E200'
1044 B PRTN
06AA 1045 DC XL2'E001'
1046
1047 PRT5 MVC PRT6+1(1),1(,XR1) SET UP MOVE WHICH WILL LOAD THE
1048 SLC PRT6+1(1),ONE PRINTOUT POINTED TO BY PARAMETER
1049 JL PRT7 SKIP PRINTING IF COUNT IS ZERO
1050 MVC PRT6+5(2),3(,XR1)
1051 MVC PRT6+3(2),PR3(,XR2)
1052 ALC PRT6+3(1),1(,XR1)
1053 PRT6 MVC PRT6+3(1),1(,XR1)
1054 PRT6A B PRTN SET UP PRINT LINE
1055 DC XL2'E200' PRINT THE LINE
06D3 1056
1057 PRT7 SLC NSPACE(1,XR2),RPONE+1(,XR2) SPACE PRINTER DESIRED
1058 JL PRTXIT NUMBER OF TIMES

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| ERR LOC OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------------------|------|------|--------|-----------|
| | 02CC | 1317 | TR3 | EQU ITR3 |
| | 0480 | 1318 | TR4 | EQU ITR4 |
| | 078B | 1319 | TR5 | EQU ITR5 |
| | 0231 | 1320 | TR6 | EQU ITR6 |
| | 055C | 1321 | TR7 | EQU ITR7 |

| ERR LOC OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------------------|------|--------------|------------------|--|
| FFF | 1323 | ORG | X'FFFF'-X'A00'+* | IF FLAGGED, X'A00' BEING OVERLAYED |
| | 1324 | ***** | | |
| | 1325 | * XREF ***** | | |
| | 1326 | ***** | | |
| 1FEE | 1327 | ORG | X'1FEE' | |
| 1FEE | 0000 | 1FEF | 1328 | DC XL2'0000' USED TO PASS DISK ADDR OF 'FC0' TO '143' FOR THE CE TO CHANGE UDT AND CPU |
| | 1329 | * | | |
| | 1330 | | | |
| 1FF0 | CO | 87 | OE8C | 1331 b BEGIN IN CORE AT IPL TIME, AND THEN START AT THIS ADDRESS TO GET A NEW PRINT OUT OF THE SYSTEM DATA. THIS ADDRESS SHOULD NOT BE CHANGED, SINCE OTHER RELEASE DOCUMENTATION TELL THE CE TO USE THIS ADDRESS. |
| | 1332 | * | | |
| | 1333 | * | | |
| | 1334 | * | | |
| | 1335 | * | | |
| | 1336 | * | | |
| 1FF4 | 0000 | 1FF5 | 1337 | DC XL2'0000' ADDRESS TO LINK FROM DCP CALLED PROGRAMS |
| 1FF6 | 0412 | 1FF7 | 1338 | DC AL2(XREF5) LOCATION FOR SSW VALUE |
| 1FF8 | 0413 | 1FF9 | 1339 | DC AL2(XREF4) SUBRTM TO SET SSW |
| 1FFA | 0E8C | 1FFB | 1340 | DC AL2(XREF3) LOADER BRANCH @ WHEN DCP IS LOADED |
| 1FFC | 13C0 | 1FFD | 1341 | DC AL2(XREF2) LOADER BRANCH @ WHEN LOADING DCP |
| 1FFE | 02F3 | 1FFF | 1342 | DC AL2(XREF1) LOADER RETURN IF NOT IN VTCC |
| | | | 1343 | |
| | | | 1344 | ORG ALTPRT+X'700' THIS ORG TIED TO ORG AT END OF ROUTINE |
| | | | 1345 | |
| | | | 1346 | ***** |
| | | | 1347 | * EQUATES ***** |
| | | | 1348 | ***** |
| 0010 | 1349 | IAR | EQU | X'10' INSTRUCTION ADDRESS REGISTER |
| 0008 | 1350 | ARR | EQU | X'08' ADDRESS RECALL REGISTER |
| 0004 | 1351 | PSR | EQU | X'04' PROGRAM STATUS REGISTER |
| 0081 | 1352 | P7IAR | EQU | X'81' PROGRAM CHECK REGISTER |
| 0001 | 1353 | XR1 | EQU | 1 INDEX REGISTER 1 |
| 0002 | 1354 | XR2 | EQU | 2 INDEX REGISTER 2 |
| 087C | 1355 | LPDATA | EQU | X'87C' 22LC PRINT DATA AREA |
| 0880 | 1356 | PLINE | EQU | X'880' START OF DCP PRINT LINE |
| 0A00 | 1357 | SPT | EQU | X'A00' SECTION PREFACE TABLE |
| 0A01 | 1358 | PROGID | EQU | X'A01' SPT - 2ND BYTE OF PGH IDENTIFICATION |
| 0A02 | 1359 | SPFLGS | EQU | X'A02' SPT - FLAGS |
| 0A07 | 1360 | FRTN | EQU | X'A07' SPT - ADDR OF 1ST RTN PREFIX |
| 0A0A | 1361 | SPUDT | EQU | X'A0A' SPT - UNIT DEFN TABLE |
| 0018 | 1362 | SIOI | EQU | X'18' SIO IMMEDIATE TO CRT |
| 0879 | 1363 | CRTFLG | EQU | X'0879' FLAG SAYS 32XX MICRO LOADED OK |
| | | | 1364 | |
| | | | 1365 | ** COMMON SENSE SWITCHES |
| | | | 1366 | |
| 0080 | 1367 | SSW00 | EQU | X'80' LOOP ON SECTION |
| 0040 | 1368 | SSW01 | EQU | X'40' LOOP ON ROUTINE |
| 0020 | 1369 | SSW02 | EQU | X'20' BYPASS MANUAL INTERV RTNS |
| 0010 | 1370 | SSW03 | EQU | X'10' BYPASS ERROR PRINT |
| 0008 | 1371 | SSW04 | EQU | X'08' BYPASS NON-ERROR PRINT |
| 0004 | 1372 | SSW05 | EQU | X'04' USE MFCU AS PRINT DEVICE |
| 0002 | 1373 | SSW06 | EQU | X'02' HALT ON ERROR |
| 0001 | 1374 | SSW07 | EQU | X'01' LICKETY SPLIT |
| 0080 | 1375 | SSW08 | EQU | X'80' USE 5203 RIGHT CARRIAGE |
| 0040 | 1376 | SSW09 | EQU | X'40' INHIBIT SECT. SSW CLEARING |
| 0020 | 1377 | SSW0A | EQU | X'20' |
| 0010 | 1378 | SSW0B | EQU | X'10' |
| 0008 | 1379 | SSW0C | EQU | X'08' |
| 0004 | 1380 | SSW0D | EQU | X'04' |
| 0002 | 1381 | SSW0E | EQU | X'02' |
| 0001 | 1382 | SSW0F | EQU | X'01' |
| 0001 | 1383 | SSW2F | EQU | X'01' |
| | | | 1384 | |
| 0080 | 1385 | BIT0 | EQU | X'80' |
| 0040 | 1386 | BIT1 | EQU | X'40' |
| 0020 | 1387 | BIT2 | EQU | X'20' |
| 0010 | 1388 | BIT3 | EQU | X'10' |
| 0008 | 1389 | BIT4 | EQU | X'08' |
| 0004 | 1390 | BIT5 | EQU | X'04' |

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| ERR LOC OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------------------|------|--------|------------------|
| 0002 | 1391 | BIT6 | EQU X'02' |
| 0001 | 1392 | BIT7 | EQU X'01' |
| | 1393 | | |
| 006F | 1394 | H0 | EQU X'6F' |
| 0003 | 1395 | H1 | EQU X'03' |
| 0076 | 1396 | H2 | EQU X'76' |
| 0057 | 1397 | H3 | EQU X'57' |
| 001B | 1398 | H4 | EQU X'1B' |
| 005D | 1399 | H5 | EQU X'5D' |
| 007D | 1400 | H6 | EQU X'7D' |
| 0007 | 1401 | H7 | EQU X'07' |
| 007F | 1402 | H8 | EQU X'7F' |
| 005F | 1403 | H9 | EQU X'5F' |
| 003F | 1404 | HA | EQU X'3F' |
| 0079 | 1405 | HB | EQU X'79' |
| 006C | 1406 | HC | EQU X'6C' |
| 0073 | 1407 | HD | EQU X'73' |
| 007C | 1408 | HE | EQU X'7C' |
| 003C | 1409 | HF | EQU X'3C' |
| 003B | 1410 | HH | EQU X'3B' |
| 0068 | 1411 | HL | EQU X'68' |
| 006B | 1412 | HU | EQU X'6B' |
| 003E | 1413 | HP | EQU X'3E' |
| | 1414 | | |
| 01FD | 1415 | FLAG | EQU X'1FD' |
| 01FE | 1416 | DTABLE | EQU X'1FE' |

TABLE OF HALT CODES - 0-F & H

HALT DISPLAY CODE -5-

HALT DISPLAY CODE -L-
HALT DISPLAY CODE -U-
HALT DISPLAY CODE -P-

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

| ERR LOC OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------------------|------|--------|--|
| | 1418 | ** | THE FOLLOWING INSTRUCTIONS ARE PERFORMED AFTER INITIAL DCP |
| | 1419 | ** | LOADING ONLY. THEY ARE OVERLAID BY THE PROGRAM SECTIONS. |
| OE8C | 1420 | XREF3 | EQU * |
| OE8C | 1421 | BEGIN | EQU * |
| | 1422 | MVC | 16(17),GOLOAD+16 STORE A PROGRAM RESTART AT 0000 |
| | 1423 | B | FIXMOB |
| OE96 | 1424 | BEGINA | EQU * |
| | 1425 | | |
| | 1426 | ***** | ***** |
| | 1427 | * | |
| | 1428 | * | PRINT CPU AND UDT INFORMATION |
| | 1429 | * | |
| | 1430 | * | |
| | 1431 | ***** | ***** |
| | 1432 | | |
| | 1433 | B | PRINT SPACE PRINTER |
| | 1434 | DC | XL1'11' |
| OE9A | 1435 | MVC | LINE1-16(1),SMOD PUT MODEL ID IN PRINTOUT |
| | 1436 | MVI | CTR,X'0' |
| | 1437 | CLL | SIZE-1,X'FF' |
| | 1438 | JNE | NOT64 |
| | 1439 | MVI | CTR,16 |
| | 1440 | J | DOSZ |
| | 1441 | NOT64 | MNZ |
| | 1442 | | CTR,SIZE-1 PUT CORE SIZE IN PRINTOUT |
| | 1443 | DOSZ | ZAZ |
| | 1444 | FINDSZ | AZ |
| | 1445 | SLC | CTR(1),ONE |
| | 1446 | BNZ | FINDSZ |
| | 1447 | * | SET UP CPU OPTIONS IF ANY. |
| | 1448 | MVC | LINE1A(16),LINE1A+1 CLEAR OPTIONS IN LINE FOR 1FFO ENTRY |
| | 1449 | MVC | OPBUF(1),CPU PUT CPU OPTIONS IN WORK AREA |
| | 1450 | MVI | POP+1,X'87' |
| | 1451 | LA | LINE1A-15,XR2 ASSUME NO OPTIONS, THUS NO OPT PRINT |
| | 1452 | LA | OPPTAB,XR1 POINT AT PRINT LINE WHERE OPTS GO |
| | 1453 | OPLOOP | ALC |
| | 1454 | BNOL | NOTOP |
| | 1455 | MVC | O(1,XR2),O(,XR1) SHIFT LEFT 1 |
| | 1456 | LA | 2(,XR2),XR2 MOVE OPT NUMBER INTO; LINE |
| | 1457 | MVI | POP+1,X'07' |
| | 1458 | NOTOP | EQU * |
| | 1459 | LA | 1(,XR1),XR1 BUMP TO NEXT OPTION NUMBER IN TAB |
| | 1460 | CLL | O(,XR1),C'Q' IF IT IS A 'Q', QUIT |
| | 1461 | JE | POP |
| | 1462 | B | OPLOOP |
| | 1463 | POP | JC |
| | 1464 | B | NOPOP,--* |
| | 1465 | DC | PRINT |
| | 1466 | DC | XL1'02' |
| | 1467 | DC | IL1'59' |
| | 1468 | J | AL2(LINE1A) |
| | 1469 | NOPOP | EQU * |
| | 1470 | B | PRINT |
| | 1471 | DC | XL1'01' |
| | 1472 | DC | IL1'23' |
| | 1473 | DC | AL2(LINE1) |
| | 1474 | | |
| | 1475 | WASPOP | EQU * |
| | 1476 | B | PRINT |
| | 1477 | DC | XL1'01' |
| | 1478 | DC | IL1'51' |
| | 1479 | DC | AL2(DASH) |
| | 1480 | B | PRINT |
| | 1481 | DC | XL1'01' |
| | 1482 | DC | IL1'51' |
| | 1483 | DC | AL2(LINE2) |
| | 1484 | B | PRINT |
| | 1485 | DC | XL1'01' |

PRINT ---'S.
PRINT UNIT DEFINITION TABLE HEADING

PRINT CPU LINE WITH OUT OPTIONS

DO ALL 8
JUMP TO REGULAR ONLY OR FALL TO OPT
PRINT CPU LINE WITH OPTIONS

BUMP TO NEXT OPTION NUMBER IN TAB
IF IT IS A 'Q', QUIT

CAUSE NO-OP JUMP FOR PRINTING
MOVE OPT NUMBER INTO; LINE
BUMP TO NEXT LINE POSITION
POINT AT OPT NUMBERS.
SHIFT LEFT 1
POINT AT PRINT LINE WHERE OPTS GO
ASSUME NO OPTIONS, THUS NO OPT PRINT
PUT CPU OPTIONS IN WORK AREA
CLEAR OPTIONS IN LINE FOR 1FFO ENTRY

PUT CORE SIZE IN PRINTOUT

PUT MODEL ID IN PRINTOUT

PRINT CPU AND UDT INFORMATION

STORE A PROGRAM RESTART AT 0000

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

| ERR LOC OBJECT CODE | ADDR STMT SOURCE STATEMENT |
|----------------------|---------------------------------------|
| OF34 33 | OF34 1486 DC IL1'51' |
| OF35 12F7 | OF36 1487 DC AL2(DASH) |
| | 1488 |
| OF37 C2 01 0232 | 1489 LA UTAB,XR1 |
| OF38 3C 01 1207 | 1490 MVI FLAGS,1 |
| OF3F 7D 00 00 | 1491 UDTLP CLI 0(,XR1),X'0' |
| OF42 F2 81 8E | 1492 JE NOUNIT |
| OF45 34 01 0F4F | 1493 ST UADDR,XR1 |
| OF49 C0 87 021E | 1494 B UNPACK |
| OF4D 01 | OF4D 1495 DC IL1'1' |
| OF4E 000G | OF4F 1496 UADDR DC AL2(*-*) |
| OF50 0883 | OF51 1497 DC AL2(PLINE+3) |
| OF52 C2 02 0884 | 1498 LA PLINE+4,XR2 |
| OF56 BC 60 00 | 1499 MVI 0(,XR2),C'-' |
| OF59 0C 01 1203 039F | 1500 MVC MASK(2),ONE |
| OF5F 3C 00 1204 | 1501 MVI OPNUM,0 |
| OF63 0C 00 0F70 1202 | 1502 UDTLP1 MVC CHK1+1(1),MASK-1 |
| OF69 0C 00 0F73 1203 | 1503 MVC CHK2+1(1),MASK |
| OF6F 79 00 01 | 1504 CHK1 TBF 1(,XR1),*-> |
| OF72 79 00 02 | 1505 CHK2 TBF 2(,XR1),*-> |
| OF75 F2 10 16 | 1506 JT NEXTOP |
| OF78 8C 00 01 1204 | 1507 MVC 1(1,XR2),OPNUM |
| OF7D 8A F0 01 | 1508 SBN 1(,XR2),X'FO' |
| OF80 8D FA 01 | 1509 CLI 1(,XR2),X'FA' |
| OF83 F2 82 05 | 1510 JL *+8 |
| OF86 8E 00 01 11FB | 1511 ALC 1(1,XR2),XC7 |
| OF88 E2 02 01 | 1512 LA 1(,XR2),XR2 |
| OF8E 0E 01 1203 1203 | 1513 NEXTOP ALC MASK(2),MASK |
| OF94 0E 00 1204 039F | 1514 ALC OPNUM(1),ONE |
| OF9A 3D 0C 1204 | 1515 CLI OPNUM,X'OC' |
| OF9E C0 82 0F63 | 1516 BL UDTLP1 |
| | 1517 |
| OFA2 3D 01 1207 | 1518 CLI FLAGS,1 |
| OFA6 F2 01 0C | 1519 JNE CKPTR |
| OFA9 8C 05 09 1213 | 1520 MVC 9(6,XR2),LDR |
| OFAE 3C 02 1207 | 1521 MVI FLAGS,2 |
| OFB2 F2 87 10 | 1522 J PRUDT |
| | 1523 |
| OFB5 3D 02 1207 | 1524 CKPTR CLI FLAGS,2 |
| OFB9 F2 01 09 | 1525 JNE PRUDT |
| OFBC 8C 06 0A 121A | 1526 MVC 10(7,XR2),PRNTR |
| OFc1 3C 00 1207 | 1527 MVI FLAGS,0 |
| | 1528 |
| OFc5 0C 19 12A3 089A | 1529 PRUDT MVC LINE3(26),PLINE+26 |
| OFc8 C0 87 021A | 1530 B PRINT |
| OFcF 01 | OFcF 1531 DC XL1'01' |
| OFd0 1A | OFd0 1532 DC IL1'26' |
| OFd1 12A3 | OFd2 1533 DC AL2(LINE3) |
| | 1534 |
| OFd3 78 10 01 | 1535 NOUNIT TBN 1(,XR1),X'10' |
| OFd6 D2 01 03 | 1536 LA 3(,XR1),XR1 |
| OFd9 C0 90 0F3F | 1537 BF UDTLP |
| | 1538 |
| | 1539 ***** |
| | 1540 * |
| | 1541 * DO MISCELLANEOUS DCP PRINTOUTS |
| | 1542 * |
| | 1543 * |
| | 1544 ***** |
| | 1545 |
| OFdD C0 87 021A | 1546 B PRINT SPACE PRINTER |
| OFE1 11 | OFE1 1547 DC XL1'11' |
| OFE2 C0 87 02'A | 1548 B PRINT |
| OFE6 05 | OFE6 1549 DC XL1'05' |
| OFE7 21 | OFE7 1550 DC IL1'33' |
| OFE8 12C4 | OFE9 1551 DC AL2(LINE4) |
| OFEA C0 87 138D | 1552 B CHKID |

PRINT ---'S

LOAD UDT POINTER
INDICATE SETUP FOR FIRST ENTRY
SKIP ENTRY IF NO DEVICE CODE

UNPACK DEVICE IDENTIFICATION

POINT XR2 AT PRINT LINE
PUT DASH AFTER DEVICE ID
INITIALIZE DATA FIELDS

SET UP MASKS TO CHECK OPTION BIT

CHECK THIS BIT

BRANCH IF OFF
PUT PRINTABLE OPTION NUMBER INTO
PRINT LINE

POINT AT NEXT PRINT SLOT
SET UP TO CHECK NEXT OPTION BIT

CONTINUE UNTIL ALL OPTIONS CHECKED

BRANCH IF NOT FIRST UDT ENTRY
INDICATE THAT THIS IS LOADING DEVICE
INDICATE SECOND UDT ENTRY
GO PRINT THIS ENTRY

BRANCH IF NOT SECOND UDT ENTRY
INDICATE THAT THIS IS PRINTER
FIRST 2 ENTRIES HAVE BEEN HANDLED

SET UP AND PRINT LINE

CHECK FOR LAST ENTRY

SPACE PRINTER

'DCP IS LOADED'

TEST FOR TAPE ON SYSTEM

| ERR LOC OBJECT CODE | ADDR STMT SOURCE STATEMENT |
|---------------------|----------------------------|
| OFE6 70 | OFE6 1553 DC XL1'70' |
| OFEF F2 01 27 | 1554 JNE TSTO7 |
| | 1555 |
| OFF2 C0 87 138D | 1556 B CHKID |
| OFF6 A0 | OFF6 1557 DC XL1'AO' |
| OFF7 F2 01 1F | 1558 JNE TSTO7 |
| | 1559 |
| OFFA C2 01 0232 | 1560 LA UTAB,XR1 |
| OFFE 7D A0 00 | 1561 CLI 0(,XR1),X'AO' |
| 1001 F2 01 15 | 1562 JNE TSTO7 |
| | 1563 |
| 1004 C0 87 1367 | 1564 XM B PTX |
| 1008 C0 87 021A | 1565 B PRINT |
| 100C 01 | 100C 1566 DC XL1'01' |
| 100D 3C | 100D 1567 DC IL1'60' |
| 100E 1332 | 100F 1568 DC AL2(XM1) |
| 1010 C0 87 1367 | 1569 B PTX |
| 1014 C0 87 021A | 1570 B PRINT |
| 1018 14 | 1018 1571 DC XL1'14' |

JUMP IF IT IS NOT

TEST FOR 5444 ON SYSTEM

JUMP IF IT IS NOT

POINT AT X'232'

IF 5444, PRINT TAPE MESSAGE

PRINT LINE OF '-'

PRINT MESSAGE TO DUMP TAPE ERROR ST.

PRINT LINE OF '-'

SPACE 4

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
1573 *****
1574 *
1575 * CHECK FOR MODEL G
1576 *
1577 *****
1578
1019 1579 TST07 EQU *
1580 CLI SMOD,C'G' TEST FOR RUNNING ON MODEL 'G'
1581 BNE DOHA BRANCH IF NOT
1582 CLI UTAB,X'40' TEST FOR LOADING FROM 3741
1583 JE FD6D IF TRUE GO SET UP FOR LOADING
1584 TBN UTAB+1,X'80' TEST FOR LOADING FROM DISK
1585 BF DOHA IF NOT, HALT HA
1586
1587 *****
1588 *
1589 * LOAD AND EXECUTE ANY PROGRAMS WHICH MUST BE
1590 *
1591 * RUN AT DCP LOAD TIME
1592 *
1593 * FD6 - RUNS ON ALL MODEL G SYSTEMS
1594 *
1595 *****
1596
1030 1597 ISAO LA X'0232',XR1 SET-UP XR1 ADDRESS FOR UTAB TABLE *GC*
1034 1598 CLI O(XR1),X'AO' SEE IF DISK IS A 5444 *GC*
1037 1599 JNE ISA1 JUMP IF NOT A 5444 DISK *GC*
103A 1600 MVI DKFLAG,X'AO' IDENTIFY IT A 5444 DISK *GC*
1601
103E 1602 ISA1 B SEARCH GO GET DISK ADDR OF PROGRAMS *GC*
1603
1042 1604 TBN SRFLAG,BIT2 SEE IF FD6 FOUND ON DISK
1046 1605 JF FD6RTN IF NOT, DON'T RUN
1606 *****
1607 * TEST UDT TABLE FOR DISK FILE 3340 OR DISK FILE 5444
1608 *****
1609 CLI DKFLAG,X'AO' SEE IF DISK IS A 5444
1610 JE FD6D JUMP IF IS
1611 MVC ADR143(2),CCHH02 MOVE IN ADDRESS OF 3340 CCHHR (143)
1612 MVC X'1FEF'(2),CCHH12 MOVE IN ADDRESS OF 3340 CCHHR (FCO)
1613 MVC FD62(2),CCHH22 MOVE IN ADDRESS OF 3340 CCHHR (FD6)
1062 1614 FD6D EQU *
1615 *****
1616 MVC X'1FF5'(2),FD6ADR SET UP FOR FD6 TO COME BACK
1617 SBN SBYTE5,SSW2F SET ON SSW 2F TO SHOW FD6 TO LINK BACK
1618 B LOAD LOAD AND RUN LSR TESTS
1070 1619 FLG1 DC XL1'08'
1071 1620 FD62 DC XL2'DFD6' DISK ADDRESS FILLED IN BY 'SEARCH' RTN
1073 1621 FD6ADR DC AL2(FD6RTN)
1075 1622 FD6RTN EQU *
1623 MVC 16(17),GOLOAD+16 RETURN HERE FROM FD6 STORE A PROGRAM RESTART AT 0000
107B 1624 TSTFD6 MVI X'1FD',X'10' RESET FLAG BIT FOR LOAD RTN

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
1626 *****
1627 *
1628 * R U N 1 4 3 (MICRO CODE LOADER)
1629 *
1630 *****
1631
107F 1632 TBN SRFLAG,BIT0+BIT1 IF 143 OR FCO NOT FOUND DON'T RUN 143
1083 1633 BF DOHA IF NOT, DON'T RUN
1087 1634 MVC X'1FF5'(2),RTN143 SET UP FOR 143 TO COME BACK
108D 1635 SBN SBYTE5,SSW2F SET ON SSW 2F TO SHOW 143 TO LINK BACK
1636
1091 1637 B LOAD LOAD 143 AND EXECUTE
1095 1638 DC XL1'18' LOAD PGM AT SPECIFIED ADDR AND GIVE CONTROL
1097 1639 ADR143 DC AL2(*-*) DISK ADDR OF 143 FILLED IN ABOVE
1099 1640 RTN143 DC AL2(MICRTN)
109A 1641 MICRTN EQU * RETURN HERE FROM 143
1642 MVC 16(17),GOLOAD+16 STORE A PROGRAM RESTART AT 0000
1643 B BLKCR T TO BLANK CRT
1644
1645 *****
1646 *
1647 * S E A R C H SEARCH VTDCS FOR FD6,143,FCO AND INSERT
1648 * DISK ADDRESSES IN 'B LOAD'
1649 *****
1650
1651 SEARCH ST SRX+3,ARR SET BRANCH TO LOAD FLAG BITS
1652 MVI FLG1,X'18' SET TO ZERO AS FLAG
1653 MVI X'1FEE',0 SET FLAG TO ZERO (SUPPORT INSTR AT '1FF0')
1654 MVI SRFLAG,0 SEEK TO VTDC AND CHECK FOR PROGRAM 143
1655 B LOAD
1088 1656 DC XL1'02'
1657 LA X'880',XR1 LOAD XR1 AS POINTER TO VTDC RECORD
1658
1659 READRC B LOAD
10C1 1660 DC XL1'10' TO READ NEXT RECORD INTO X'880'
1661 CLI O(XR1),X'FF' TEST FOR END OF VTDC
1662 BE NE2 JUMP IF YES
1663 CLI O(XR1),0 TEST FOR END OF VTDC
1664 BE NE2 JUMP IF YES
1665 CLC 2(3,XR1),ACTKON TEST FOR AN ACTIVE VTDC ENTRY
1666 BNE NE2 JUMP IF NOT 'ACT'
1667
1668 CLI UTAB,X'C1' CHANGE DISPLACEMENT OF ID IN VTDC
1669 JE ISWIN ENTRY IF THIS IS 5444.
1670 MVI MVCID+4,ID5444 IF 3340, LEAVE DISPLACEMENT AS IS
10E4 1671 ISWIN EQU *
1672 MVCID MVC VTID(3),ID3340(XR1) MOVE ID INTO TEMP AREA
1673
1674 TRYFD6 CLC VTID(3),FD6KON LOOK FOR ID OF FD6 *GCDP
1675 JNE TRYOUT
1676 MVC FD62(2),VTAD(XR1) MOVE IN DISK ADDR OF FD6 (5444)
1677 MVC CCHH2(5),VT33(XR1) MOVE IN CCHHR ADDR FROM VTDC (3340)
1678 SBN SRFLAG,BIT2 INDICATE FD6 FOUND
1100 1679 TRYOUT EQU *
1680 TBN SRFLAG,BIT2 SEE IF FOUND YET
1681 BF READRC GO LOAD 143 ETC
1682 SRX B *-* RETURN TO CALLER SECTION
1683 TRY143 CLC VTID(3),MICLDR ID OF MICROCODE LOADER (143) *GCDP
1684 JNE TRYFCO READ AGAIN IF ID NOT FOUND
1685 MVC ADR143(2),VTAD(XR1) MOVE IN DISK ADDR FROM VTDC (5444)
1686 MVC CCHH0(5),VT33(XR1) MOVE IN CCHHR ADDR FROM VTDC (3340)
1687 SBN SRFLAG,BIT0 INDICATE 143 FOUND
1688
1689 TRYFCO CLC VTID(3),MICDAT ID OF MICROCODE DATA (FCU) *GCDP
1690 BNE TRYFD6 READ AGAIN IF ID NOT FOUND
1691 MVC X'1FEF'(2),VTAD(XR1) MOVE IN DISK ADDR FROM VTDC (5444)
1692 MVC CCHH1(5),VT33(XR1) MOVE IN CCHHR ADDR FROM VTDC (3340)

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
1137 3A 40 113C      1693  SBN  SRFLAG,BIT1      INDICATE FCO FOUND
0007 1694 ID5444 EQU 7      DISPLACEMENT OF ID IN 5444 VTOC
0006 1695 ID3340 EQU 6      DISPLACEMENT OF ID IN 3340 VTOC
0004 1696 VTAD EQU 4      LOCATION IN VTOC OF 5444 ADDRESS
000E 1697 VT33 EQU 14     LOCATION IN VTOC OF 3340 ADDRESS CCHHR
113B FF             113B 1698 DKFLAG DC XL1'FF' *GC*
113C 00             113C 1699 SRFLAG DC XL1'00' BIT 0 - 143
1700 *             BIT 1 - FCO
1701 *             BIT 2 - FD6
1702
113D 1703 VTEND EQU *      ENTER HERE ON LAST VTOC AND NOT ALL PGMS FOUND
1704 TBN SRFLAG,BIT0      DID 143 GET IN ?
1705 JT NE1
1144 0C 02 133D 135D 1706 MVC IDLOST(3),MICLDR MOVE '143' INTO MESSAGE
1707 B PRINT
114E 02             114E 1708 DC XL1'02'
114F 1E             114F 1709 DC IL1'30' PROGRAM XXX NOT FOUND ON DISK
1150 1350           1151 1710 DC AL2(NOTFND)
1711
1152 3B 40 113C     1712 NE1 TBN SRFLAG,BIT1      DID FCO GET IN ?
1156 F2 10 0E      1713 JT NE2
1159 0C 02 133D 1360 1714 MVC IDLOST(3),MICDAT MOVE 'FCO' INTO MESSAGE
115F 0C 07 021A    1715 B PRINT
1163 02             1163 1716 DC XL1'02'
1164 1E             1164 1717 DC IL1'30' PROGRAM XXX NOT FOUND ON DISK
1165 1350           1166 1718 DC AL2(NOTFND)
1719
1167 3B 20 113C     1720 NE2 TBN SRFLAG,BIT2      DID FD6 GET IN
1168 F2 10 0E      1721 JT DOHO
116E 0C 02 133D 1366 1722 MVC IDLOST(3),FD6KDN MOVE 'FD6' INTO MESSAGE
1174 0C 07 021A    1723 B PRINT
1178 02             1178 1724 DC XL1'02'
1179 1E             1179 1725 DC IL1'30' PROGRAM XXX NOT FOUND ON DISK
117A 1350           117B 1726 DC AL2(NOTFND)
117C 1727 DOHO EQU *
117C 0C 07 021A    1728 B PRINT
1180 17             1180 1729 DC XL1'17' SPACE 7 TIMES
1181 F0 3B 6F      1730 HPL HO,HH HO HALT TO SHOW PGM'S MISSING
1184 F0 6F 1B      1731 HPL H4,HO SECONDARY HALT SAYS PGM'S MISSING
1732
1187 0C 07 1108    1733 B SRX RETURN TO CALLER
1734 *****
1735 *
1736 * WRITE ON CRT ( TO GET RID OF ATTRIBUTE CHARACTERS )
1737 *
1738 *****
118B 3D FF 0879     118B 1739 BLKCR7 EQU *
118F 0C 01 11C9    1740 CLI CRTFLG,X'FF' IS CRT MICRO LOADED
1741 BNE DOHA IF NOT, DON'T BLANK
1742
1193 3C 07 7ECF     1743 MVI ERSSW+1,X'07' SET UP TO ERASE ON CRT
1197 F3 18 80      1744 SIO X'80',SIOI DISABLE MICRO PROCESSOR
119A F3 18 E0      1745 SIO X'E0',SIOI ENABLE/START MICRO PROCESSOR
119D 0D FF 119D 119D 1746 CLC *(256),* WAIT FOR MICRO PROCESSOR
11A3 C1 18 11C9    1747 TIO DOHA,X'18' READY ?
11A7 31 10 1209    1748 LIO X0000,X'10' LOAD CRT BUFF ADDR
11A8 31 18 120B    1749 LIO FRSTQ,X'1B' LOAD MAIN STORAGE BUFFER ADR
11AF 31 12 120D    1750 LIO D0480,X'12' LOAD LENGTH OF WRITE TO 480
11B3 0C C7 15CA 15CB 1751 MVC LB(200),LB+1 PROPOGATE BLANK THRU 5 CRT LINES
11B9 F3 10 91      1752 SIO X'91',X'10' WRITE BEGINNING MSG
11BC C1 1F 118C    1753 TIO *,X'1F' HANG ON BUSY
11C0 0D 31 11C0 11C0 1754 CLC *(50),* DELAY FOR INTERRUPT
11C6 F3 18 02      1755 SIO X'02',SIOI RESET PENDING INTERRUPT

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
11C9 3B 01 0208    1757 DOHA TBN SBYTE0,SSW07
11CD F2 10 03     1758 JT GOLOAD
1759
1760 *****
1761 *             H H AAAAAAAAAA
1762 *             H H A A
1763 *             H H A A
1764 *             H H HHHHHHHH AAAAAAAAAA
1765 *             H H A A
1766 *             H H A A
1767 *             H H A A
1768 *****
1769
11D0 F0 3B 3F     1770 HLTG HPL HA,HH DCP LOADING COMPLETE
11D3 C0 87 0212    11D3 1771 GOLOAD EQU *
1772 B TEST CHECK DATA SWITCHES
1773 B XREF1 GU LOAD SECTION
11D7 C0 87 02F3    0002 1774 DROP XR2
1775 *****
1776 *
1777 *             STORAGE DC'S FOR DCP
1778 *
1779 *****
1780
11DB 00            11DB 1781 TEMPA DC XL1'00'
11DC 08            11DC 1782 X08 DC XL1'08'
11DD 0800          11DE 1783 TWOK DC XL2'0800'
11DF 00000000     11E1 1784 VTID DC XL3'000000' TEMP STORAGE FOR ID FROM VTOC
11E2 0000000000   11E6 1785 CCHHO DC XL5'0000000000' CYL HED REC FOR 143 (3340)
11E7 0000000000   11E8 1786 CCHH1 DC XL5'0000000000' CYL HED REC FOR FCO
11E8 0000000000   11F0 1787 CCHH2 DC XL5'0000000000' CYL HED REC FOR FD6
11E9 0000000000   11F1 11E6 DC AL2(CCHHO)
11F1 11E6         11F2 1788 CCHHO2 DC AL2(CCHHO)
11F3 11E8         11F4 1789 CCHH12 GC AL2(CCHH1)
11F5 11F0         11F6 1790 CCHH22 DC AL2(CCHH2)
11F7 0100         11F8 1791 X100 DC XL2'100'
11F9 0008         11FA 1792 PRIV DC XL2'0008' PRIVILEGE MODE ONLY
11FB C7           11FB 1793 XC7 DC XL1'C7'
1794 J            1794 J TEST7-TSTCRD-1
1795 J1           1795 J1 LE2-LX2
1203 1796 MASK DC XL2'0'
1204 00           1204 1797 OPNUM DC XL1'0'
1205 F0F4        1206 1798 DF0UR DC DL2'4'
1207 00          1207 1799 FLAGS DC XL1'0'
1208 0000        1209 1800 X0000 DC XL2'0000'
120A 1488        120B 1801 FRSTQ DC AL2(FRST)
120C 01E0        120D 1802 D0480 DC IL2'480'

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FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
      1804 *****
      1805 * PRINTOUTS *****
      1806 *****
      1807
120E D3D6C1C4C5D9      1213 1808 LDR   DC   CL6'LOADER'
1214 D7D9C9D5E3C5D9      121A 1809 PRNTR DC   CL7'PRINTER'
121B D4D6C4C5D340E74B      1231 1810 LINE1 DC   CL23'MODEL X. STORAGE XXXX'
1223 4040E2E3D6D9C1C7      1810
122B C54040E7E7E7D2      1810
1232 404040C3D7E440D6      1255 1811 LINE1A DC   CL36' CPU OPTIONS ARE X
123A D7E3C9D6D5E240C1      1811
1242 D9C54040E7404040      1811
124A 4040404040404040      1811
1252 40404040      1811
1256 40      1256 1812      DC   CL1' '
1257 E4D5C9E340C4C5C6      126C 1813      DC   CL22'UNIT DEFINITION TABLE '
125F C9D5C9E3C9D6D540      1813
1267 E3C1C2D3C540      1813
126D 4B4B4B4B40D4E4E2      1289 1814 LINE2 DC   CL29'.... MUST BE CORRECT --VERIFY--
1275 E340C2C540C3D6D9      1814
127D D9C5C3E34060E5C5      1814
1285 D9C9C6E860      1814
128A 4040404040404040      12A3 1815 LINE3 DC   CL26' '
1292 4040404040404040      1815
129A 4040404040404040      1815
12A2 4040      1815
12A4 4040404040404040      12C4 1816 LINE4 DC   CL33'          DCP IS LOADED'
12AC 4040404040404040      1816
12B4 40404040C4C3D740      1816
128C C9E240D3D6C1C4C5      1816
12C4 C4      1816
12C5 4040404040404040      12DA 1817      DC   CL22' '
12CD 4040404040404040      1817
12D5 404040404040      1817
12DB 6060606060606060      12F7 1818 DASH DC   29CL1'-'
12E3 6060606060606060      1818
12EB 6060606060606060      1818
12F3 6060606060      1818
12F8 C4E4D4D740E3C1D7      1325 1819      DC   CL46'DUMP TAPE ERROR STATISTICS BEFORE RUNNING DISK'
1300 C540C5D9D9D6D940      1819
1308 E2E3C1E3C9E2E3C9      1819
1310 C3E240C2C5C6D6D9      1819
1318 C540D9E4D5D5C9D5      1819
1320 C740C4C9E2D2      1819
1326 40C4C9C1C7D5D6E2      1332 1820 XM1  DC   CL13' DIAGNOSTICS-'
132E E3C9C3E260      1820
1333 D7D9D6C7D9C1D440      133D 1821 IDLOST DC   CL11'PROGRAM XXX'
133B E7E7E7      1821
133E 40D5D6E340C6D6E4      1350 1822 NOTFND DC   CL19' NOT FOUND ON DISK '
1346 D5C440D6D540C4C9      1822
134E E2D240      1822
      1351 1823 OPTTAB EQU *          TABLE FOR CPU OPTIONS
      1359 1824      DC   CL9'12345678Q'          Q SIGNALS END
1359 D8      1824
135A 00      135A 1825 OPBUF DC   XL1'00'
135B F1F4F3      135D 1826 MICLDR DC   CLO3'143'
135E C6C3F0      1360 1827 MICDAT DC   CLO3'FC0'
1361 C1C3E3      1363 1828 ACTKON DC   CLO3'ACT'
1364 C6C4F6      1366 1829 FD6KON DC   CLO3'FD6'
      1830
      1831 *****
      1832 *          SUBROUTINE TO PRINT
      1833 *****
      1834
1367 34 08 133B      1835 PTX   ST   PTX@+3,ARR
1368 3C 02 138C      1836      MVI   CNT,2
136F 3C 40 088C      1837 XZ1  MVI   X'880'+60,C'-'
1373 0C 3A 088B 088C      1838      MVC   X'880'+59(59),X'880'+60

```

```

ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
      1379 CO 87 021A      1839      B   PRINT
      137D 21      137D 1840      DC   XL1'21'
      137E 0F 00 138C 039F      1841      SLC  CNT,ONE
      1384 CO 01 136F      1842      BNZ  XZ1
      1388 CO 87 0000      1843 PTX@ B   *-
      138C 00      138C 1844 CNT  DC   IL1'0'
      1845
      1846 *****
      1847 *          CHECK IF PASSED ID IS IN UDT          ( SUBROUTINE )
      1848 *****
      1849
      138D 1850 CHKID EQU *
      1851      ST   CHKX@+3,ARR
      1852      ST   CHKSRI+3,XR1
      1853      L   CHKX@+3,XR1
      1854      ALC  CHKX@+3(2),ONE
      1855      MVC  SID(1),O(,XR1)
      1856      LA   UTAB,XR1
      1857 XTCHKL CLI  O(,XR1),O
      13A9 1858 SID  EQU  *-2
      1859      JE   CHKSRI
      1860      TBN  1(,XR1),X'10'
      1861      LA   3(,XR1),XR1
      1862      BF   XTCHKL
      1863 CHKSRI LA  *-*,XR1
      1864 CHKX@ B   *-

```

SUBROUTINE TO CHECK IF A PASSED ID IS IN THE UDT TABLE. ON EXIT THE CONDITION CODE WILL BE SET TO EQUAL IF ID IS PRESENT, NOT EQUAL IF ID IS NOT PRESENT

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
1866 *****
1867 *
1868 *          -- OVERLAYS --
1869 *
1870 * PERFORM VARIOUS OVERLAYS AND SET UP VARIOUS
1871 *
1872 * LINKAGES NECESSARY BASED ON MODEL AND PRINTERS
1873 *
1874 * ATTACHED FOR PROPER FUNCTIONING OF DCP
1875 *
1876 * THIS SUBROUTINE IS EXECUTED ONLY ONCE-- WHEN THE
1877 * FIRST COMMENT (*) CARD IS ENCOUNTERED OR WHEN
1878 * DCP'S END (E) CARD IS READ.
1879 *
1880 *****
1881
13C0 1882 XREF2 EQU *
1883 FIXMOB ST LEXIT+3,ARR
1884
1885 CLI X'880',C'*'
1886 JE TRYCPU
1887 CLI X'880',C'E'
1888 BNE LVMOB
1889 TRYCPU CLI X'200',X'00' IF A CPU CARD PROCESSED, THEN DO FIXMOB
1890 BNE TSTUDT -HO- HALT * CARD FOUND BEFORE CPU/UDT CARDS
1891 MOH HPL HO,HH
1892 HPL H2,HO SECONDARY HALT. * COMMENT OR END FOUND BUT NO CPU
1893 B LVMOB
13E5 1894 TSTUDT EQU *
1895 CLI UTAB,0 IF NO UDT CARD THEN HALT
1896 BE MOH
1897 ONCEXX BC LVMOB,X'07' DO THIS ROUTINE ONLY ONCE
1898 MVI ONCEXX+1,X'87'
1899
1900 MVC ENTRY1(2),X'1FD'
1901 MVC ENTRY2(2),X'1FF' MOVE ENTRIES POINTS 3 INTO LOAD RTN
1902 MVC TSTOVL+2(3),TSTINS+2
1903 TBN UTAB+1,X'80' IS THIS A DISK SYSTEM
1904 JT DSKSYS
1905 MVC LX2-1(3),J1+2
1906 MVI TSTDSK,0
1907 MVC TSTCRD(3),J+2
1908 SLC DTABLE+1(4),DTABLE+1 CLEAR CARD LOADER FLAGS.
1909 J NOTD NO DTABLE CLEAR ON CARD SYS
1427 1910 DSKSYS EQU *
1911 SLC DTABLE+1(6),DTABLE+1 CLEAR DTABLE FOR DISK SYS
1912 NOTD CLI SMOD,C'E' TEST FOR MODEL E
1913 JNE CKCID JUMP IF NOT
1914 *
1915 * OLD MOVE OF CRT OVERLAY WAS HERE
1916 J LVMOB
1437 1917 CKCID EQU *
1918 ST SAVE1+3,XR1 SAVE XR1
1919 B CKCID
143F 1920 DC XL1'10' ALT. PRINT RTN. WITH 5471 MODULE
1921 JNE TR5424 JUMP IF NOT 5471
1922 J SAVE1 IF 5471, THEN NO MORE CHECKING
1923 TR5424 B CKCID CHECK FOR A 5424 ATTACHED
144A 1924 DC XL1'F0' 5424 DEVICE CODE
1925 JNE TR3741 GO TO CHECK NEXT DEVICE
144E 1926 MVC PRTNA+59(60),MHLT2+59 OVERLAY ALT. CODE WITH 5424 CODE
1927 J SAVE1 EXIT THIS ROUTINE
1457 1928 TR3741 B CKCID CHECK FOR A 3741 ATTACHED
145B 1929 DC XL1'40' 3741 DEVICE CODE
1930 JNE TR1442 GO CHECK NEXT DEVICE
145F 1931 MVC PRTNA+66(67),DHALT+66 OVERLAY ALT. CODE WITH 3741 CODE
1932 J SAVE1 EXIT THIS ROUTINE
1468 1933 TR1442 B CKCID CHECK FOR A 1442 ATTACHED

```

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
146C 51
146D F2 01 09
1470 OC 48 07DE 18D3
1476 F2 87 03
1479 F0 3B 3B
147C C2 01 0000
1480 C0 87 0212
1484 C0 87 0000
1488 B0 00 01
146C 1934 DC XL1'51' 1442 DEVICE CODE
1935 JNE HHHALT GO HALT IF NO ALT. FOUND
1936 MVC PRINA+75(76),PHALT+75 OVERLAY ALT. CODE WITH 1442 CODE
1937 J SAVE1 EXIT THIS ROUTINE
1938 HHHALT HPL HH,HH HALT TO INDICATE NO ALT. FOUND
1939 SAVE1 LA *-*,XR1 RESTORE XR1
1480 1940 LVMOB EQU *
1941 B TEST
1942 LEXIT B *-*
1943
0411 1944 USING DATSW-1,XR2
1945 TSTINS SNS DATSW(,XR2),0

```

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

148B 4040404060606050 1488 1947 FRST EQU *
148B 4040404060606050 1482 1948 DC CL40'
1493 6060606060606060 1948
149B 6060606060606060 1948
14A3 6060606060606060 1948
14AB 6060604040404040 1948
14B3 4040404040404040 14DA 1949 DC CL40' | DCP LOADED |
14BB 40C440C340D74040 1949
14C3 4040D340D640C140 1949
14CB C440C540C4404040 1949
14D3 40404F4040404040 1949
14DB 4040404060606060 1502 1950 DC CL40'
14E3 6060606060606060 1950
14EB 6060606060606060 1950
14F3 6060606060606060 1950
14FB 6060604040404040 1950
1503 152A 1951 DS CL40
152B 1552 1952 DS CL40
1553 157A 1953 DS CL40
157B 15A2 1954 DS CL40
15A3 15CA 1955 LB DS CL40
15CB 404040404040F3F2 15F2 1956 DC CL40' 3270 MICRO-CODE LOADED
15D3 F7F040D4C9C3D9D6 1956
15DB 60C3D6C4C540D3D6 1956
15E3 C1C4C5C440404040 1956
15EB 4040404040404040 1956
15F3 4040404040404040 161A 1957 DC CL40'
15FB 4040404040404040 1957
1603 4040404040404040 1957
160B 4040404040404040 1957
1613 4040404040404040 1957
161B 40404040E4E2C540 1642 1958 DC CL40' USE CONSOLE SWITCHES TO SELECT
1623 C3D6D5E2D6D3C540 1958
162B E2E6C9E3C3C8C5E2 1958
1633 40E3D640E2C5D3C5 1958
163B C3E3404040404040 1958
1643 40404040C4C5E2C9 166A 1959 DC CL40' DESIRED PROGRAM.
164B D9C5C440D7D9D6C7 1959
1653 D9C1D44840404040 1959
165B 4040404040404040 1959
1663 4040404040404040 1959

```

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

1961 *****
1962 * 5424 ALTERNATE CODE *
1963 *****
1964 ORG X'FFFF'-X'1688'+* IF FLAGGED, OVER LAY PROBLEM
1965 ORG X'1688'
0717 1966 USING PRTN,XR2
1688 1967 USING MHLT2,XR1
1968 MHLT2 HPL H9,HH *MFCU NOT READY OR ERROR
1969 B PRTN1(,XR2)
1970 AL5424 CLI PRSIO+1(,XR2),X'E0' GO EXIT IF THIS WAS SPACE OPERATION
1971 BE PRTEXT(,XR2)
1972 SNS MSTAT(,XR2),X'F3' READ MFCU STATUS
1973 TBN MSTAT-1(,XR2),X'10' IF NO CARD IN SEC WAIT STATION,
DOIT ISSUE FEED COMMAND.
1974 JT
1975 TIO MHLT2(,XR1),X'F8' TEST FOR MFCU NOT READY
1976 SIO X'0',X'F8' GIVE WITH THE FEED COMMAND
1977 BSYLPO TIO BSYLPO(,XR1),X'F1' TEST UNTIL NOT BUSY
1978 DOIT TIO MHLT2(,XR1),X'F8' GO HALT IF MFCU NOT READY
1979 LIO PR1(,XR2),X'F4' LOAD MFCU PRINT ADDRESS REGISTER
1980 SIO X'A4',X'FC' PRINT ON MFCU CARD
1981 BSYLPI SNS MSTAT(,XR2),X'F3' WAIT FOR BUSY TO DROP
1982 TBN MSTAT-1(,XR2),X'40' TEST FOR BUSY
1983 BT BSYLPI(,XR1)
1984 TIO MHLT2(,XR1),X'F8' GO HALT IF ANY ERRORS
1985 MVC Lpdata+131(132),Lpdata+132 BLANK PRINT BUFFER
1986 B PRTEXT(,XR2) RESTORE XR2 AND RETURN
1987 *****
1988 * 3741 ALTERNATE CODE *
1989 *****
1990 ORG X'FFFF'-X'1788'+* IF FLAGGED, OVER LAY PROBLEM
1991 ORG X'1788'
0717 1992 USING PRTN,XR2
1788 1993 USING DHALT,XR1
1994 DHALT HPL H9,HH *3741 NOT READY OR ERROR
1995 B PRTN1(,XR2) RETURN TO TRY AGAIN
1996 LIO FUNCNH(,XR1),X'41' LOAD FUNCTION REG
1997 RITREC CLI PRSIO+1(,XR2),X'E0' IS THIS A SPACE OPERATION
1998 BE PRTEXT(,XR2) RETURN IF IT IS
1999 XFRSNS SNS XFRLIN(,XR1),X'43' SENSE THE TRANSFER LINES
2000 TBN XFRLIN-1(,XR1),X'04' TEST FOR 3741 ON-LINE BIT ON
GO HALT IF 3741 NOT ON-LINE
2001 BF DHALT(,XR1) TEST FOR WRITE BIT ON
2002 TBN XFRLIN-1(,XR1),X'01' LOOP IF WRITE BIT NOT ON
2003 BF XFRSNS(,XR1) NORMAL RESPONSE TO 3741
2004 SIO X'08',X'43' LOAD DATA ADDRESS REGISTER
2005 LIO PR2,X'44' LOAD LENGTH COUNT REGISTER
2006 LIO RECLN(,XR1),X'42' WRITE A RECORD
2007 SIO X'00',X'42' WAIT TILL NOT BUSY
2008 ISBIZ TIO ISBIZ(,XR1),X'42' GET THE STATUS BYTES
2009 SNS MSTAT(,XR2),X'42' TEST FOR PARITY ERROR OR OVERFLOW
2010 TBN MSTAT-1(,XR2),X'0A' IF ERROR, HALT AND TRY AGAIN
2011 BF DHALT(,XR1) NORMAL RESPONSE TO THE 3741
2012 SIO X'08',X'43' RETURN TO RETURN ROUTINE
2013 B PRTEXT(,XR2) FUNCTION REGISTER DATA
17C6 2014 FUNCNH DC XL2'4000' TRANSFER LINES DATA AREA
17C8 2015 XFRLIN DC XL2'00' LENGTH OF RECORD TO BE WRITTEN
17CA 2016 RECLN DC XL2'007F'
2017 *****
2018 * 1442 ALTERNATE CODE *
2019 *****
2020 ORG X'FFFF'-X'1888'+* IF FLAGGED, OVER LAY PROBLEM
2021 ORG X'1888'
0717 2022 USING PRTN,XR2
1888 2023 USING PHALT,XR1
2024 PHALT HPL H9,HH *1442 NOT READY OR ERROR
2025 B PRTN1(,XR2) TRY IT AGAIN
2026 PUN42 CLI PRSIO+1(,XR2),X'E0' EXIT IF THIS WAS A SPACE OPERATION
2027 BE PRTEXT(,XR2)
2028 LIO PR2(,XR2),X'54' LOAD PUNCH DATA ADDRESS REGISTER

```


FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|------------------|------|------|--|
| 7DEF | 0001 | 7DF0 | 2157 | OWN1 DC XL2'0001' |
| 7DF1 | 0010 | 7DF2 | 2158 | OWN16 DC XL2'0010' |
| 7DF3 | 0030 | 7DF4 | 2159 | OWN48 DC XL2'0030' |
| 7DF5 | 0000 | 7DF6 | 2160 | OWN5W DC XL2'0000' |
| 7DF7 | 0000 | 7DF8 | 2161 | OWNOLD DC XL2'0000' |
| 7DF9 | 00 | 7DF9 | 2162 | OLDSRC DC XL1'00' |
| 7DFA | 00 | 7DFA | 2163 | OLDTP DC XL1'00' |
| 7DFB | 00 | 7DFB | 2164 | HDLTR DC XL1'00' |
| 7DFC | 0000 | 7DFD | 2165 | DC XL2'0000' EXTRA |
| 7DFE | C3C8C1D5C7C540E2 | 7E25 | 2166 | DPNG DC CL40'CHANGE SWITCH 1 AND 2 FOR NEW DUMP ADDR ' |
| 7E06 | E6C9E3C3C840F140 | | 2166 | |
| 7E0E | C1D5C440F240C6D6 | | 2166 | |
| 7E16 | D940D5C5E640C4E4 | | 2166 | |
| 7E1E | D4D740C1C4C4D940 | | 2166 | |
| 7E26 | 40404040C4C4C4C4 | 7E54 | 2167 | DC CL47' ADDR 00 02 04 06 08 0A 0C 0E |
| 7E2E | D94040F0F04040F0 | | 2167 | |
| 7E36 | F24040F0F44040F0 | | 2167 | |
| 7E3E | F64040F0F84040F0 | | 2167 | |
| 7E46 | C14040F0C34040F0 | | 2167 | |
| 7E4E | C5404040404040 | | 2167 | |
| 7E55 | 40404040F0F04040 | 7E78 | 2168 | DC CL36' 00 02 04 06 08 0A 0C 0E |
| 7E5D | F0F24040F0F44040 | | 2168 | |
| 7E65 | F0F64040F0F84040 | | 2168 | |
| 7E6D | F0C14040F0C34040 | | 2168 | |
| 7E75 | F0C54040 | | 2168 | |
| 7E79 | 4040404040404040 | 7E9E | 2169 | DC CL38' 00 02 04 06 08 0A 0C 0E |
| 7E81 | F0F04040F0F24040 | | 2169 | |
| 7E89 | F0F44040F0F64040 | | 2169 | |
| 7E91 | F0F84040F0C14040 | | 2169 | |
| 7E99 | F0C34040F0C5 | | 2169 | |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-------------|------|---------------|------------------------------|
| | | 2171 | | ***** |
| | | 2172 | * | 3270 I/O OVERLAY BEGINS HERE |
| | | 2173 | | ***** |
| | | 2174 | | |
| | | 0717 | 2175 | USING PRTN, XR2 |
| | | 2176 | | |
| 7E9F | F0 3B 7F | 2177 | BGN327 | EQU * |
| 7EA2 | E0 87 13 | 2178 | ERR327 | HPL H8, HH |
| | | 2179 | B | PRTN1(, XR2) |
| 7EA5 | 34 08 7F59 | 2180 | SECDRY | EQU * |
| | | 2181 | ST | RTN327+3, ARR |
| | | 2182 | SIO | X'80', X'18' |
| | | 2183 | SIO | X'EO', X'18' |
| | | 2184 | CLI | PRSI0+1(, XR2), X'EO' |
| | | 2185 | BE | RTN327 |
| | | 2186 | CLI | CRTFLG, X'FF' |
| | | 2187 | MVI | CRTFLG, X'FF' |
| | | 2188 | BNE | ERR327 |
| | | 2189 | TIO | ERR327, X'18' |
| | | 2190 | LIO | PR3, MSDATA |
| | | 2191 | * | |
| | | 2192 | LIO | LIODC, BUFADR |
| | | 2193 | ERSSW | JC NOERS, X'07' |
| | | 2194 | MVI | ERSSW+1, X'87' |
| | | 2195 | SLC | LIODC(2), LIODC |
| | | 2196 | LIO | LIODC, BUFADR |
| | | 2197 | SIO | X'CO', X'10' |
| | | 2198 | BSY32X | TIO BSY32X, X'1F' |
| | | 7EE6 | 2199 | NOERS EQU * |
| | | 2200 | LIO | DC128, LMGREG |
| | | 2201 | SIO | X'92', X'10' |
| | | 2202 | BSY327 | TIO BSY327, X'1F' |
| | | 2203 | SNS | MSTAT(, XR2), X'16' |
| | | 2204 | TBN | MSTAT(, XR2), X'08' |
| | | 2205 | BT | ERR327 |
| | | 2206 | | |
| | | 2207 | ALC | LIODC(2), N40 |
| | | 2208 | MVI | LN+129, C' ' |
| | | 2209 | CLC | LN+128(88), LN+129 |
| | | 2210 | JE | NIC |
| | | 2211 | | |
| | | 2212 | ALC | LIODC(2), N40 |
| | | 2213 | CLC | LN+128(48), LN+129 |
| | | 2214 | JE | NIC |
| | | 2215 | ALC | LIODC(2), N40 |
| | | 2216 | CLC | LN+128(8), LN+129 |
| | | 2217 | JE | NIC |
| | | 2218 | ALC | LIODC(2), N40 |
| | | 7F32 | 2219 | NIC EQU * |
| | | 2220 | CLC | LIODC(2), LIN9 |
| | | 2221 | JNH | FLYON |
| | | 2222 | MVI | ERSSW+1, X'07' |
| | | 2223 | TBN | SBYTEO, SSW05 |
| | | 2224 | JF | FLYON |
| | | 2225 | HPL | X'71', HH |
| | | 7F49 | 2226 | FLYON EQU * |
| | | 2227 | TBN | SBYTEO, SSW05 |
| | | 2228 | JF | RTN327 |
| | | 2229 | MVC | X'8FF'(133), X'900' |
| | | 2230 | RTN327 | B *-* |
| | | 2231 | | |
| | | 2232 | | ***** |
| | | 2233 | * | |
| | | 2234 | * 1 | 40 * |
| | | 2235 | * 41 | 80 * |
| | | 2236 | * 81 | 120 * |
| | | 2237 | * 121 . . 128 | * |

ERROR HALT FOR 3270 SHOULD GO CHECK SSW ETC ROUTINE IS ALWAYS ENTERED HERE SET UP LINK BACK
 DISABLE ENABLE, TO CLEAR ERRORS AND INTERRUPTS TEST FOR SPACE ONLY EXIT IF IT IS
 CHECK IF MICRO LOADED EVEN IF NOT, TELL CE ONLY Once EB HALT MEANS ERROR OR NO MICRO TEST 3270 FOR ATTACHMENT READY LOAD MAIN STORAGE DATA ADDRESS (880) CURSOR IS LOADED BY ERASE LOAD CRT BUFFER REG. ALTERED JUMP TO ERASE OR NOT. DONT ERASE NEXT TIME THROUGH SET UP TO PRINT ON LINE 1 LOAD CRT BUFFER REG. ERASE & UNLOCK CRT DELAY WHILE BUSY

LOAD LEN REG FOR 128 CHAR WRITE WRITE LINE WAIT FOR BUSY TO DROP SENSE STATUS FOR ERROR ANY ERROR BIT ON? HALT IF SO

BUMP TO NEXT CRT LINE SEE IF CHAR 41-128=BLANK

BUMP TO NEXT CRT LINE 81-128=BLANK?

BUMP TO NEXT CRT LINE 121-128=BLANK?

BUMP TO NEXT CRT LINE

SET UP TO ERASE NEXT TIME. HALT ONLY IF SSW 05 IS ON

H - LITTLE ZERO HALT CLEAR BUFFER ONLY IF SSW05 IS ON

BLANK BFR BEFORE LEAVING (DO X87B) RETURN

← CRT SCREEN- POSSIBLE 4 LINES OF 1 DCP PRINT LINE

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2238 *
2239 *
2240 *****
7F5A 0140 7F5B 2241 LIN9 DC IL2'320'
7F5C 0028 7F5D 2242 N40 DC IL2'40'
7F5E 0000 7F5F 2243 LIODC DC XL2'0000' USED FOR CRT LIOS
7F60 0080 7F61 2244 DC128 DC IL2'128' USED FOR CRT LIOS
7F62 0050 7F63 2245 N8G DC IL2'80' TO BUMP 2 LINES
2246
001B 2247 MSDATA EQU X'18' EQUATES FOR CRT LIO'S
087F 2248 LN EQU X'87F'
0012 2249 LNGREG EQU X'12'
0010 2250 BUFADR EQU X'10'
0015 2251 CURSOR EQU X'15'
2252
7F63 2253 END327 EQU *-1

```

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

FF63 2255 ORG X'FFFF'-X'8000'+* IF THIS ORG FLAGGED YOU'RE OVER
2256 * CORE BOUNDARY.
2257
2257
2257
2257
2258 ORG PRT7 ORG AT END SO IF NOT ENOUGH CORE, LINKAGE NOT DONE
2259 B SPC34 INTERCEPT SPACE COMMANDS AND TRY TO SPC 34
2260
2261 *****
2262 * THE FOLLOWING 10 'TREP' CARDS WERE INSERTED TO PROVIDE
2263 * A MEANS OF CHANGING UDT,CPU AND CHAIN IMAGE WHEN
2264 * OPERATING ON A 3741.
2265 *****
2266 TREP
2267 TREP
2268 TREP
2269 TREP
2270 TREP
2271 TREP
2272 TREP
2273 TREP
2274 TREP
2275 TREP
2276 * TREP
2277 *****
2278 *****
2279 TREP
2280 TREP
2281 TREP
2282 TREP
2283 TREP
2284 TREP
2285 TREP
2286 TREP
2287 TREP
2288 TREP
2289 TREP
2290 TREP
2291 TREP
2292 TREP
2293 TREP
2294 TREP
2295 TREP
2296 *
OE8C 2297 END BEGIN

```


FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

CROSS-REFERENCE

Table with columns: SYMBOL, T, LEN, VALUE, DEFN, REFERENCES. Lists symbols like TR3, TR3741, TR4, TR5, TR5424, TR6, TR7, TSTCRD, TSTDSK, TSTFD6, TSTINS, TSTOVL, TSTUDT, TSTOT, TWO, TWOK, T3, UAADDR, UDATA, UDTB, UDTA, UDTD, UDTP, UDTP1, UDT1, UDT2, UFIND1, UFIND2, UFIND3, UFIND4, ULP1, ULP2, ULP3, ULP4, UNPACK, UNPK1, UNPK2, UNPK3, UNPK4, UOK, USTR, USET1, USET2, UTAB, VTAD, VTEND, VTID, VT33, VXRI, WASPOP, XC7, XFRLM, XFRSNS, XF1, XM, XM1, XONE, XREF1, XREF2, XREF3, XREF4, XREF5, XRI.

CROSS-REFERENCE

Table with columns: SYMBOL, T, LEN, VALUE, DEFN, REFERENCES. Lists symbols like XR2, XTCHKL, XZ1, X0000, X08, X100, X200, X39, X87F, ZONE, ZRO.

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

FFF2 DIAGNOSTIC CONTROL PROGRAM - MODEL 12

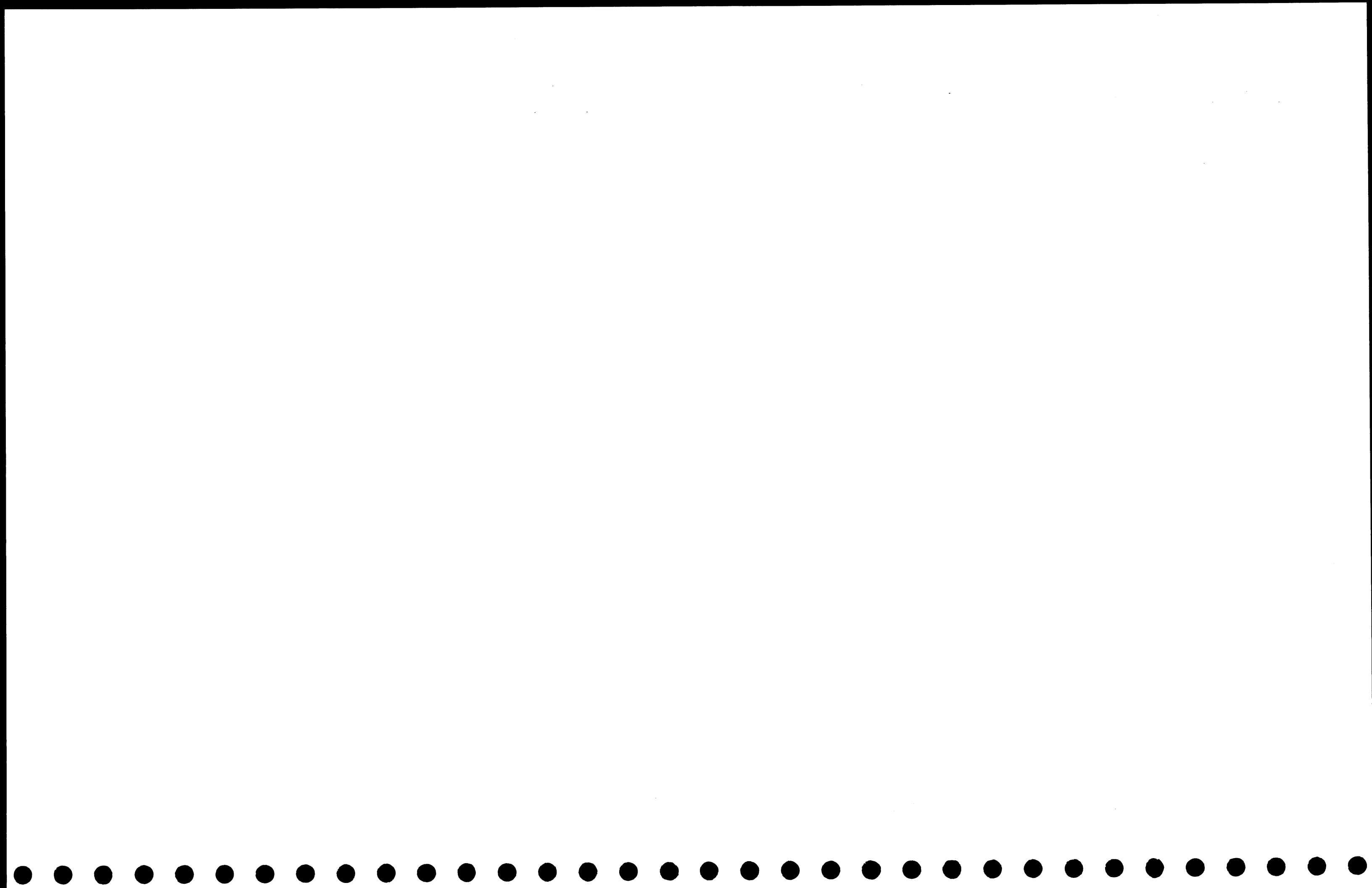
OBJECT CARD LISTING

| CL 1 THROUGH 16 | CL 17 THROUGH 32 | CL 33 THROUGH 48 | CL 49 THROUGH 64 | CL 65 THROUGH 80 | CL 81 THROUGH 96 | CL 1 THROUGH 16 | CL 17 THROUGH 32 | CL 33 THROUGH 48 | CL 49 THROUGH 64 | CL 65 THROUGH 80 | CL 81 THROUGH 96 |
|---------------------|------------------|-------------------|------------------|------------------|------------------|------------------|----------------------------|------------------|------------------|------------------|------------------|
| T+T6@C~8H*L7:A | 18HEVXNJD*NAH4N | 25& 4NHQZE(L >LR | >&' 41 K~.a2YD | 01D H200-BCYH200 | >EHY 190FFF20093 | TG-7 2)LA12N 02G | R1DC5&<XN&<TE94A | -E(\$P82X05*GL& | ..... | ..... | :/&FF FFF20115 |
| TDATLBIZ2^47&/II | 2 D7-/6M < | ..... | ..... | ..... | 2AHFFF20094 | TG&7:5<XS04CR1*I | 06*J 1_\$R&(-A82) | H1:I, &<PT04A | ..... | ..... | 6:ZFF FFF20116 |
| T 7-COH*DN- | ..... | ..... | ..... | ..... | 2S-FFF20095 | TF07:5<XS04CR1*I | 06*J 1_\$R&(-A82) | H1:I, &<PT00 | ..... | ..... | 8 HFF FFF20117 |
| T+X4:+ 88B~H&BC& | D -X /75F+ DBBL- | FA) L2UA-a2&PMCO | E5G700HMF9*BGAI~ | -2BG~J8\| PM~C | -0 RE<FFF20096 | ***** | DIAGNOSTIC CON | TROL PROGRAM | ..... | ..... | * FFF20118 |
| T+X559*BGAI~*B | G~L /OHED*BG /D | AHG8VC6G<H'G:=0M* | BFDD2C76W\| A'ZL | ~0 G76C&E'X7 | 82YD 0,8FFF20097 | ***** | ***** | ***** | ***** | ***** | ***** FFF20119 |
| T+X60D OA-ER'IT0 | 1-EQ< P78~Q+ G7 | #~.2HAC /OHED&1 | 3B\|J=X&BG /D/OH* | BG/ SMC E'>76 | WC-D PQ8FFF20098 | ***** | COMMON S | ENSE SWITCHES | * | DATA SWITCH ENTR | Y FFF20120 |
| T+X7,~\$~2&BG /B | 6 H3-OA~IA'>08 | A~IA'2&BG /8& | H'ZBG /8B~EQH/C3 | OBHL /OHEY-BA-ER | '< 4KMFFF20099 | ***** | ***** | ***** | ***** | ***** | * FFF20121 |
| T+X8W/75D D D | 0 OAT | A5*-E&+.W2:\|C2DC | 1&<GN1DC2&<S06MC | N1:R 1+LM54CA1<L | R&D 1E0FFF20100 | 00-LOOP ON SEC | TION. | * 1 2 3 4 | ..... | ..... | * FFF20122 |
| T+X9/EDA &<GD1IV | 6\|C0&DC02UA 2IJ | 6\|C6&DC0=DA 2&E | 6\|CC&DC01MA 2DA | 2DA 2DC02DA 2I: | 6\| 7LOFFF20101 | 01-LOOP ON ROU | TINE. | * * * * * | ..... | ..... | * FFF20123 |
| T+X:*DA 2IR 6IC | 8&DC00MA 2<I 6IC | E&DA 2DA 2DA 6IC | 0&DC02UA 2IJ 6IC | 6&DC0=DA 2&E 6IC | C&D :84FFF20102 | 02-SKIP INTERV | ENTION ROUTINES. | * F 0 X | X - TURN OFF SE | NSE SWITCH XX. | * FFF20124 |
| T+X#P2CP0+7~-/1C | 4BG'R21S 2IT-?;A | 10HE*NT7*BGU2*0/ | 90 E=X2DQ~Z21F00 | 7<JA*P*HGEL2G~22 | 1 P2 E/&FFF20103 | 03-BYPASS ERRO | R PRINT. | * F 1 X | X - TURN ON SEN | SE SWITCH XX. | * FFF20125 |
| T+X2KPT~<JA*P*P< | 60<D~>H1DX'21B | KOJ'=#S 06.-H&C | 6~Z2+ P'~542& U | CN*H*OU 2YOUUC-E | *P72 114FFF20104 | 04-BYPASS NON- | ERROR PRINT. | * F 2 X | X - GO TO ROUTI | NE XX. | * FFF20126 |
| T+X'(P&47B\|2I \|H | AE&8A-5'P&4GB\|2 | I \|HAA-8A-5'P&4 | A-5'0*HDC0G~22 | 8A HH2Z C2C_1+ 6 | 8B\|H 7C-FFF20105 | 05-PRINT ON AL | TERNATE DEVICE. | * | ..... | ..... | * FFF20127 |
| TEP' TU Q</ T*B&C | /O M H H H | ..... | ..... | ..... | 0H&FFF20106 | 06-BYPASS ERRO | R HALTS. | * E E X | X - TERMINATE S | ECTION. | * FFF20128 |
| T 0\$POH)' | ..... | ..... | ..... | ..... | *Q&FFF20107 | 07-LOAD AND GO | ..... | * | ..... | ..... | * FFF20129 |
| TB&4I0~UE(XE0'S R1 | ..... | ..... | ..... | ..... | 4- FF FFF20108 | 08-NOT USED. | ..... | * D X X | X - DISK-RUN SE | CTION XXX. | * FFF20130 |
| TB&4L9<LT&(XE0'S R1 | ..... | ..... | ..... | ..... | =QQFF FFF20109 | 09-LEAVE SECT. | SWITCHES ON. | * D X X | 0 - DISK-RUN DE | VICE XX SECTIONS | * FFF20131 |
| TE&4Z0QGC2<G15MC | X9=) QDC05=\|I5_P | A40 | ..... | ..... | *H&FF FFF20110 | 0D-SPEC. PURPO | SE STORAGE DUMP. | * | ..... | ..... | * FFF20132 |
| TG&5G2)LA12N 02G | R1DC1&<XN&<TE94A | -E(\$P82X05*GL | ..... | ..... | 2/YFF FFF20111 | 0F-SPACE 36 TI | MES INSTEAD OF 6 | * | ..... | ..... | * FFF20133 |
| TG&5V2)LA12N 02G | R1DC2&<XN&<TE94A | -E(\$P82X05*GL | ..... | ..... | M/ZFF FFF20112 | ***** | ***** | ***** | ***** | ***** | ***** FFF20134 |
| TG&6C2)LA12N 02G | R1DC3&<XN&<TE94A | -E(\$P82X05*GL | | | */ZFF FFF20113 | ECY1*E7*-DC*PHS | =7M&F C F& ASC R A SO Q | | 09320630750 | 311760.UFFF20135 | |
| TG&6/2)LA12N 02G | R1DC4&<XN&<TE94A | -E(\$P82X05*GL | | | Q/YFF FFF20114 | | | | | | |

LAST PAGE

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FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

LAST CHG:08:08 75

```

2 *
3 * DECK 4
4 * SEQ 0
5 * START X'A00'
6 * TREP
7 *
8 *
9 * SYSTEM/3 SYSTEM TEST RELOCATING LOADER
10 *
11 *
12 * DC XL2'FF10' PROGRAM IDENTIFICATION AND LEVEL
13 * DC XL1'80' FLAGS - NO SPUOT
14 * DC IL1'0' CURRENT ROUTINE NUMBER
15 * DC XL2'0' RESERVED
16 * DC AL2(IRTN01) ADDRESS OF FIRST ROUTINE PREFIX
17 * DC XL2'0' RESERVED
18 *
19 * DC XL30'0' RESERVED FOR SYSTEM TEST SUPERVISOR
20 *
21 * TABLE EQU *
22 *
23 * TABLE CONTAINING CATALOG OF PROGRAM
24 * MODULES IN CORE. PROVISIONS ARE
25 * MADE FOR SUPERVISION OF UP TO 16
26 * MODULES. INFORMATION IS CONTAINED
27 * AS IN THE FOLLOWING DIAGRAM.
28 *
29 * *****
30 *
31 * *****
32 *
33 * *****
34 *
35 * *****
36 *
37 * *****
38 *
39 * *****
40 *
41 * *****
42 *
43 * *****
44 *
45 * *****
46 *
47 * *****
48 *
49 * *****
50 *
51 * *****

```

FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

51 OAAD FFFFFFFFFFFFFFFF
52 OAB5 FFFFFFFFFFFFFFFF
53 OABD FF
54 OABE FFFFFFFFFFFFFFFF OAD6 DC XL25'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
55 OAC6 FFFFFFFFFFFFFFFF
56 OACE FFFFFFFFFFFFFFFF
57 OAD6 FF
58 OAD7 FFFFFFFFFFFFFFFF OAE8 DC XL18'FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
59 OADF FFFFFFFFFFFFFFFF
60 OAE7 FFFF
61 *
62 * AND MODIFIES THESE CONSTANTS DURING LOADING.
63 *
64 *
65 * USING START,1
66 * USING START,2
67 * START DC XL2'0F00' STARTING ADDRESS OF NEXT MODULE
68 * BASE DC AL2(*-*) RELOCATION FACTOR FOR CURRENT MODULE
69 * NPROGS DC IL1'16' THIS COUNT IS DECREMENTED AFTER EACH
70 * MODULE LOADED - NO MORE THAN 16
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 *

```

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

Main assembly code listing for FF10 system test relocating loader model 12. Includes instructions like EQU, TBN, JF, CL, etc., with addresses and comments.

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

Main assembly code listing for FF10 system test relocating loader model 12 (continued). Includes instructions like DC, MVI, L, etc., with addresses and comments.

IBM MAINTENANCE DIAGNOSTIC PROGRAM

FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

OE48 D9C6D3D6F6C5C46B 342
OE50 D3D6C1C4C9D5C74D 342
OE58 E3C5D9D4C9D5C1E3 342
OE60 C5C4 342
OE62 C6C5 OE63 343 CFE DC CL2'FE'

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

FF68 345 ORG X'FFFF'-X'0EFB'+* IF FLAGGED, STORAGE BEING OVERLAYED.
OEFB 346 ORG X'F00'-5 (ORG TO X'0EFB')
347 *****
348 * ROUTINE 01 - RELOCATING LOADER
349 *
350 * THE FOLLOWING CODE LOADS THE PROGRAM MODULES, RELOCATING THE
351 * CONSECUTIVE PROGRAMS AND ALIGNING EACH ON A 256-BYTE BOUNDARY.
352 * DCP LOADS THE SYSTEM TEST SUPERVISOR AND BRANCHES TO THIS LOADER.
353 * CARDS RECOGNIZED BY THIS LOADER INCLUDE-
354 *
355 * HEADER
356 * TEXT
357 * REPLACE
358 * COMMENT
359 * END
360 *****
OEFB 361 DC XL1'0' CURRENT ROUTINE NUMBER
OEFC 362 RTN01 DC XL1'01'
OEFD 363 ONE EQU *-1 FLAGS
OEFE 364 DC XL1'0' LAST ROUTINE PREFIX
OEFF 365 DC XL2'FFFF'
366 NEG1 EQU *-1
367 *****GC*
368 *****GC*
369 * UTAB TABLE (0232,0233) *****GC*
370 * C1 R0 DISK FILE 3340 *****GC*
371 * A0 R0 DISK FILE 5444 *****GC*
372 *****GC*
373 *****GC*
374 TBN UTAB+1,X'80' LOADING FROM DISK *****GC*
375 JF PRTHD JUMP IF NOT *****GC*
376 LA X'0232',XR1 SET-UP XR1 UTAB ADDRESS *****GC*
377 MVC DKFLAG(1),0(XR1) DKFLAG EQUAL CE MODULE TYPE *****GC*
378 B LOAD
379 DC XL1'02' SEEK TO VTCC
380 MVI TCNT,16
381 LA TABLE+1,XR1
382 LA LPTR,XR1
383 STI DKFLAG,X'C1' TEST UDT FOR THE DISK FILE 5444 *****GC*
384 JE SEEK2W JUMP FOR TYPE DISK 3340 *****GC*
385 B LOAD
386 DC XL1'10'
387 CLC DBUF+2(3),ACT READ A RECORD
388 BNE VEN? CHECK FOR ACTIVE ENTRY
389 CLC DBUF+7(3),OLD CHECK FOR OLD ENTRY
390 BE NEXTS
391 CLC DBUF+7(3),FF2
392 JNE NOTFF2
393 MVC FF2(2),DBUF+4 MOVE IN DISK ADDR OF FF2
394 MVI FF2(2),X'18' MOVE IN FLAG FOR B LOAD
395 NOTFF2 CLI DBUF+10,X'00' CHECK FOR SYSTEM TEST MOD.
396 BE NEXTS
397 CLI DBUF+10,X'FE' IS IT CPU MODULE ?
398 JE DOMOD
399 LA UTAB,XR2 INITIALIZE POINTER TO DCP UNIT TABLE
400 CLC 0(1,XR2),DBUF+10 BRANCH IF UNIT IS ATTACHED TO SYSTEM
401 JE DOMOD
402 TBN 1(XR2),X'10' CHECK FOR LAST DCP ENTRY
403 LA 3(XR2),XR2 INCREMENT TO NEXT UDT ENTRY
404 B LOOP1A LOOP1A CONTINUE UNLESS DCP UNIT TABLE DONE
405 B NEXTS
406 DOMOD EQU *
407 LPTR,XR1
408 L TOB,XR1
409 MVC 2(2,XR1),DBUF+4 SAVE CYL/SECT ADDRESS
410 MVI DBUF+4,C'D
411 B PACK
412 DC XL1'4'

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FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|------|-------|--|-------------|
| OF93 | 0887 | OF94 | 413 | DC | AL2(DBUF+7) |
| OF95 | 0000 | OF96 | 414 | TO | AL2(*) |
| OF97 | 0E 01 | 415 | ALC | LPTR(2),TMLVE | |
| OF9D | 0F 00 | 416 | SLC | TCNT,ONE | |
| OFA3 | CO 81 | 417 | BZ | VEND | |
| OFA7 | CO 87 | 418 | NEXTS | EQU * | |
| OFAB | CO 87 | 419 | B | SEEK2 | |
| OFAB | CO 87 | 420 | VEND | EQU * | |
| OFAB | CO 87 | 421 | PRTHD | B | |
| OFAB | CO 87 | 422 | DC | PRINT | |
| OF80 | 24 | 423 | DC | XL1'42' | |
| OF81 | 0FF9 | 424 | DC | I'1'36' | |
| OF83 | FF00 | 425 | DC | AL2(HDG) | |
| OF85 | C2 01 | 426 | LA | XL2'FFJ0' | |
| OF89 | C2 01 | 427 | ST | TABLE,XR1 | |
| OFBD | C2 01 | 428 | LA | POINTR,XR1 | |
| OFB1 | 0FA2 | 429 | ST | TABLE-12,XR1 | |
| OFB2 | 0FA1C | 430 | ST | LPTR,XR1 | |
| OFB3 | 0FAFF | 431 | MVI | INPUT,C'E' | |
| OFB4 | 0B880 | 432 | B | SETUP | |
| OFB5 | 0B01 | 433 | DC | IL1'16' | |
| OFB6 | 0B01 | 434 | DC | XL2'0008' | |
| OFB7 | 0B01 | 435 | DC | CL3'ACT' | |
| OFB8 | 0B01 | 436 | DC | CL3'OLD' | |
| OFB9 | 0B01 | 437 | DC | CL36'LIST OF MODULES & STARTING ADDRESSES' | |
| OFB0 | 0B01 | 438 | DC | | |
| OFB1 | 0B01 | 439 | DC | | |
| OFB2 | 0B01 | 440 | DC | | |
| OFB3 | 0B01 | 441 | DC | | |
| OFB4 | 0B01 | 442 | DC | | |
| OFB5 | 0B01 | 443 | DC | | |
| OFB6 | 0B01 | 444 | DC | | |
| OFB7 | 0B01 | 445 | DC | | |
| OFB8 | 0B01 | 446 | DC | | |
| OFB9 | 0B01 | 447 | DC | | |
| OFB0 | 0B01 | 448 | DC | | |
| OFB1 | 0B01 | 449 | DC | | |
| OFB2 | 0B01 | 450 | DC | | |
| OFB3 | 0B01 | 451 | DC | | |
| OFB4 | 0B01 | 452 | DC | | |
| OFB5 | 0B01 | 453 | DC | | |
| OFB6 | 0B01 | 454 | DC | | |
| OFB7 | 0B01 | 455 | DC | | |
| OFB8 | 0B01 | 456 | DC | | |
| OFB9 | 0B01 | 457 | DC | | |
| OFB0 | 0B01 | 458 | DC | | |
| OFB1 | 0B01 | 459 | DC | | |
| OFB2 | 0B01 | 460 | DC | | |
| OFB3 | 0B01 | 461 | DC | | |
| OFB4 | 0B01 | 462 | DC | | |
| OFB5 | 0B01 | 463 | DC | | |
| OFB6 | 0B01 | 464 | DC | | |
| OFB7 | 0B01 | 465 | DC | | |
| OFB8 | 0B01 | 466 | DC | | |
| OFB9 | 0B01 | 467 | DC | | |
| OFB0 | 0B01 | 468 | DC | | |
| OFB1 | 0B01 | 469 | DC | | |
| OFB2 | 0B01 | 470 | DC | | |
| OFB3 | 0B01 | 471 | DC | | |
| OFB4 | 0B01 | 472 | DC | | |
| OFB5 | 0B01 | 473 | DC | | |
| OFB6 | 0B01 | 474 | DC | | |
| OFB7 | 0B01 | 475 | DC | | |
| OFB8 | 0B01 | 476 | DC | | |
| OFB9 | 0B01 | 477 | DC | | |
| OFB0 | 0B01 | 478 | DC | | |
| OFB1 | 0B01 | 479 | DC | | |

IBM MAINTENANCE DIAGNOSTIC PROGRAM

FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|-----------|------|--------|--|
| OFFA | 3C 3F | OCA2 | 438 | | * DUP SUB-SECTION FOR THE 3340 DISK APPLICATION **** |
| OFFB | CO 87 | O22A | 439 | SEEK2W | MVI REL544+2,63 |
| 1002 | 10 | | 440 | B | LOAD |
| 1003 | 0D 02 | O882 OFD2 | 441 | DC | XL1'10' |
| 1009 | F2 01 | 76 | 442 | CLC | DBUF+VTACT(3),ACT |
| 100C | 0D 02 | O886 OFD5 | 443 | JNE | VENDM JUMP IF NOT |
| 1012 | F2 81 | 69 | 444 | CLC | DBUF+VTID(3),OLD |
| 1015 | 0D 02 | O886 OAF5 | 445 | JE | NEXTSW GO TO COMMON EXIT FOR NEXT READ RECORD |
| 1018 | F2 01 | 10 | 446 | CLC | DBUF+VTID(3),FF2 |
| 101E | 3C 18 | O869 | 447 | JNE | NOFF2W JUMP IF NOT FF2 |
| 1022 | 0C 01 | O868 OE19 | 448 | MVI | FF2-2,X'18' |
| 1028 | 0C 04 | OE15 O88E | 449 | MVC | FF2(2),CCH2 |
| 102E | 3D 00 | O897 | 450 | MVC | CCH2(5),DBUF+VTCC |
| 1032 | F2 81 | 49 | 451 | NOFF2W | CLI DBUF+VTSYX,X'00' |
| 1035 | 3D FE | O897 | 452 | JE | NEXTSW |
| 1039 | F2 81 | 19 | 453 | CLI | DBUF+VTSYX,X'FE' |
| 103C | C2 02 | O232 | 454 | JE | DOMODW |
| 1040 | 8D 00 | O0 | 455 | LA | UTAB,XR2 |
| 1045 | F2 81 | 0D | 456 | CLC | O(1,XR2),DBUF+VTSYX |
| 1048 | B8 10 | 01 | 457 | JE | DOMODW |
| 104E | E2 02 | 03 | 458 | TBN | 1,XR2,X'10' |
| 104E | CO 90 | 1040 | 459 | LA | 3(XR2),XR2 |
| 1052 | F2 87 | 29 | 460 | BF | LOPIAW |
| 1055 | 35 01 | OAFF | 461 | J | NEXTSW |
| 1059 | 34 01 | 106E | 462 | EQU | * |
| 105D | 4C 04 | O7 O88E | 463 | L | LPTR,XR1 |
| 1062 | 3C C4 | O883 | 464 | ST | TOW,XR1 |
| 1066 | CO 87 | O226 | 465 | MVC | 7(5,XR1),DBUF+VTCC |
| 106A | 04 | | 466 | MVI | DBUF+VTID-3,C'D |
| 106B | 0886 | | 467 | B | PACK |
| 106D | 0000 | | 468 | DC | XL1'4' |
| 106E | 0E 01 | OAFF OE03 | 469 | DC | AL2(DBUF+VTID) |
| 1075 | 0F 00 | OFCD OEFC | 470 | TO | AL2(*) |
| 1078 | F2 81 | 04 | 471 | ALC | LPTR(2),TMLVE |
| 107E | CO 87 | OFFA | 472 | SLC | TCNT,ONE |
| 1082 | CO 87 | OFAB | 473 | BZ | VENDM |
| | | | 474 | EQU | * |
| | | | 475 | B | SEEK2W |
| | | | 476 | EQU | * |
| | | | 477 | B | PRTHD |
| | | | 478 | | |
| | | | 479 | | |

```

481 *****
482 * EQUATES *****
483 *****
0001 484 XR1 EQU 1 INDEX REGISTER 1
0002 485 XR2 EQU 2 INDEX REGISTER 2
0008 486 ARR EQU X'08' ADDRESS RECALL REGISTER
0203 487 SIZE EQU X'203' SRT - CORE SIZE OF SYSTEM
020B 488 SBYTE3 EQU X'20B' SECOND BYTE OF SECTION SENSE SWS
021A 489 PRINT EQU X'21A' SRT - ENTRY TO PRINT
021E 490 UNPACK EQU X'21E' SRT - ENTRY TO CONVERT HEX TO EBCDIC
0222 491 HALT EQU X'222' SRT - ENTRY TO HALT
022A 492 PACK EQU X'22A' SRT - ENTRY TO PACK EBCDIC TO HEX
0232 493 LOAD EQU X'232' SRT - ENTRY TO LOAD
023E 494 UTAB EQU X'23E' SRT - FIRST BYTE
0280 495 INPUT EQU X'80' ADDRESS OF READIN AREA
0280 496 DBUF EQU X'80'
0002 497 VTACT EQU 2 VTOC CONTROL ID FIELD *GC*
0006 498 VTID EQU 6 VTOC IDENTITY FIELD FOR 3340 *GC*
0017 499 VTSYT EQU 23 VTOC SYSTEM FIELD FOR 3340 *GC*
000E 500 VTCC EQU 14 VTOC DISK ADDRESS FEILD (CCHHR) FOR 3340
501 * SENSE SWITCH NUMBER
0080 502 SSW18 EQU X'80' SSW TO HALT BEFORE LOADING MODULE
503 TRAPP
504 TRAPP
505 TRAPP
506 TRAPP
507 TRAPP
508 TRAPP
FFFF 509 * END
    
```

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| ACT | A | 003 | 0FD2 | 0434 | 0387 0442 |
| AJDEST | A | 003 | 0D31 | 0261 | 0258 |
| ARR | C | 001 | 0008 | 0486 | |
| BASE | A | 002 | 0AEC | 0058 | 0155* 0156* 0221 0233 0244 0256 |
| BMPMOD | A | 006 | 0B16 | 0087 | 0084 |
| CCHHM | A | 003 | 0E10 | 0333 | 0098* 0335 |
| CCHHM2 | A | 002 | 0E17 | 0335 | 0099 |
| CCHH2 | A | 005 | 0E15 | 0334 | 0336 0450* |
| CCHH2B | A | 002 | 0E19 | 0336 | 0449 |
| CDSTP | A | 005 | 0CC7 | 0232 | 0213 |
| CFE | A | 002 | 0E63 | 0343 | 0124 |
| CHKEE | A | 003 | 0B6C | 0120 | 0114 |
| CKBLK | A | 003 | 0D47 | 0268 | 0272 |
| CKCOM | A | 003 | 0D5E | 0275 | 0251 |
| CKEND | A | 003 | 0D73 | 0282 | 0276 |
| CKREP | A | 003 | 0D0F | 0250 | 0186 |
| CKSKIP | A | 003 | 0C2D | 0183 | 0123 |
| CLFLAG | A | 001 | 0B48 | 0138 | 0125 J132 |
| CMLOOP | A | 006 | 0C61 | 0199 | 0204 |
| COMM | A | 001 | 0B56 | 0110 | 0105 |
| DBUF | C | 001 | 0880 | 0496 | 0387 0389 0391 0393 0395 0397 0400 0409 0410* 0413 0442 0444 |
| DEST | A | 002 | 0D40 | 0266 | 0255 0256* 0259 0267* |
| DEVID | A | 002 | 0DC7 | 0308 | 0305* |
| DKFLAG | A | 001 | 0B00 | 0072 | 0096 0377* 0383 |
| DOMOD | A | 001 | 0F7D | 0406 | 0398 0401 |
| DOMODW | A | 0C1 | 1055 | 0462 | 0454 0457 |
| EMSG | A | 034 | 0E61 | 0342 | 0165 |
| EMSG1 | A | 038 | 0E3F | 0341 | 0309 0313 |
| FF1 | A | 001 | 0A00 | 0005 | |
| FF2 | A | 003 | 0AF5 | 0066 | 0113 0391 0446 |
| FF2B | A | 002 | 0B6B | 0119 | 0393* 0394* 0448* 0449* |
| GBK | A | 008 | 0E0B | 0332 | 0122 |
| HALT | C | 001 | 0222 | 0491 | 0167 0176 0315 |
| HDS | A | 036 | 0FF9 | 0436 | 0424 |
| INPUT | C | 001 | 0880 | 0495 | 0085 0111 0128 0129 0142 0154 0196 0211 0226* 0227 0254 0430* |
| ISAO | A | 001 | 0B47 | 0100 | 0097 |
| LDEND | A | 006 | 0DCE | 0318 | 0287 0297 |
| L' SW | A | 001 | 0B65 | 0116 | 0093 |
| LENGTH | A | 004 | 0C5D | 0198 | 0210 |
| LOAD | C | 001 | 022A | 0493 | 0107 0108 0117 0378 0385 0440 |
| LOADC | A | 001 | 0B51 | 0107 | 0082 0086 |
| LOOP1 | A | 004 | 0B8E | 0131 | 0135 |
| LOOP1A | A | 005 | 0F67 | 0400 | 0406 |
| LOOP2 | A | 003 | 0C40 | 0189 | 0199 |
| LOOP3 | A | 003 | 0CEA | 0241 | 0228 0247 |
| LUP1AW | A | 005 | 1040 | 0456 | 0460 |
| LPTR | A | 002 | 0AFF | 0071 | 0087* 0088 0382* 0407 0413* 0429* 0463 0471* |
| MOVE | A | 005 | 0D06 | 0248 | 0220* 0221* 0222* 0232* 0233* 0234* 0242 |
| MSIZE | A | 002 | 0AF0 | 0064 | 0143 0158 0318 |
| NEG1 | A | 001 | 0EFF | 0366 | 0245 |
| NEG3 | A | 002 | 0AF9 | 0068 | 0206 |
| NEG4 | A | 002 | 0AFB | 0069 | 0207 |
| NEXT | A | 004 | 0D34 | 0262 | 0274 |
| NEXTS | A | 001 | 0FA7 | 0418 | 0390 0396 0405 |
| NEXTSW | A | 001 | 107E | 0474 | 0445 0452 0461 |
| NOFF2W | A | 004 | 102E | 0451 | 0447 |
| NOTFF2 | A | 004 | 0F54 | 0398 | 0392 |
| MPROGS | A | 001 | 0AED | 0059 | 0323* |
| OLD | A | 003 | 0FD5 | 0433 | 0389 0444 |
| ONE | A | 001 | 0EFC | 0363 | 0202 0267 0323 0416 0472 |
| PACK | C | 001 | 0226 | 0492 | 0126 0140 0232 0263 0411 0467 |
| PID | A | 002 | 0B4D | 0104 | 0095* 0099* |
| POINTR | A | 002 | 0A12 | 0065 | 0091 0147 0284 0320 0322* 0417* |
| PRINT | C | 001 | 021A | 0489 | 0162 0170 0174 0279 0310 0421 |
| PRIV | A | 002 | 0FCF | 0433 | |

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CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| PRTHD | A | 004 | 0FAB | 0421 | 0375 0478 |
| PTITLE | A | 004 | 0C07 | 0170 | 0160 |
| PTXRI | A | 003 | 0CE7 | 0240 | 0236 |
| RDC | A | 001 | 0B30 | 0094 | 0J90 |
| RELOC | A | 005 | 0CF5 | 0244 | 0243* |
| RELS44 | A | 001 | 0CA0 | 0217 | 0459* |
| RTN01 | A | 001 | 0EFC | 0362 | 0016 |
| SBYTE3 | C | 001 | 0208 | 0488 | 0172 |
| SEEK2 | A | 004 | 0F28 | 0385 | 0419 |
| SEEK2M | A | 004 | 0FFA | 0389 | 0384 0475 |
| SETSKP | A | 004 | 0BA0 | 0136 | 0181 |
| SETUP | A | 001 | 0801 | 008C | 0121 0137 0169 0173 0182 0184 0239 0249 0269 0278 0281 0283 |
| SIZE | C | 001 | 0203 | 0487 | 0159 |
| SKFLAG | A | 001 | 0AEE | 0062 | 0083 0120 0136* 0139* 0161* 0183 0325* |
| SRCE | A | 002 | 0D3E | 0265 | 0262* |
| SSW18 | C | 001 | 0080 | 0502 | 0172 |
| START | A | 002 | 0AEA | 0057 | 0055 0056 0112 0148 0150 0153 0155 0157 0318* |
| S1 | A | 004 | 0C67 | 0200 | 0198* 0199 0202* |
| S2 | A | 004 | 0C6B | 0201 | 0199* |
| TABLE | A | 001 | 0A28 | 0021 | 0065 0381 0426 0428 |
| TCNT | A | 001 | 0FCD | 0432 | 0380* 0416* 0472* |
| TEDONE | A | 004 | 0C95 | 0211 | 0188 |
| T09 | A | 002 | 0F96 | 0414 | 0408* |
| T09 | A | 002 | 106E | 0470 | 0464* |
| TWLV | A | 002 | 0E03 | 0331 | 0087 0322 0415 0471 |
| UFIND1 | A | 004 | 0D86 | 0288 | 0296 |
| UFIND2 | A | 004 | 0D8A | 0289 | 0300 |
| UFIND3 | A | 003 | 0D9C | 0294 | 0303 |
| UFIND4 | A | 003 | 0DA9 | 0298 | 0290 |
| UNPACK | C | 001 | 021E | 0490 | 0151 0306 |
| UTAP | C | 001 | 0232 | 0494 | 0081 0130 0187 0212 0288 0374 0399 0455 |
| VEND | A | 001 | 0FAB | 0420 | 0388 0417 |
| VENDW | A | 001 | 1082 | 0477 | 0443 0473 |
| VTACT | C | 001 | 0002 | 0497 | 0442 |
| VTCC | C | 001 | 000E | 0500 | 0450 0465 |
| VTID | C | 001 | 0006 | 0498 | 0444 0446 0466* 0469 |
| VTSY | C | 001 | 0017 | 0499 | 0451 0453 0456 |
| WORK | A | 002 | 0AFD | 0070 | 0157* 0158* 0159 0178* 0179* 0180 0193* 0194 0208* 0209 0246* |
| XA00 | A | 002 | 0AF7 | 0067 | 0156 |
| XR1 | C | 001 | 0001 | 0484 | 0088* 0089 0091* 0092 0095 0098 0111* 0113 0122 0124 0131 0144 |
| | | | | | 0144 0145 0146 0146 0147* 0148 0149 0185 0189 0191 0192 0192* |
| | | | | | 0193 0196* 0197 0205 0206* 0208 0211* 0218 0220 0222 0223 0224 |
| | | | | | 0224* 0225 0225* 0226 0227* 0232 0234 0235 0236 0238 0239 0240 |
| | | | | | 0240* 0244 0248 0250 0257 0259* |
| | | | | | 0270* 0271 0273 0273* 0275 0282 0284* 0285 0285* 0286 0288 0291 |
| | | | | | 0292 0293 0294 0295 0295* 0302 0304 0304* 0305 0220* 0321 0376* |
| | | | | | 0377 0381* 0382 0407* 0408 0409 0426* 0427 0428* 0429 0463* 0464 |
| | | | | | 0465 |
| XR2 | C | 001 | 0002 | 0485 | 0112* 0113 0120 0121 0130* 0131 0133 0134 0134* 0150* 0155 0155 |
| | | | | | 0156 0156 0157 0157 0158 0158 0159 0161 0169 0173 0178 0179 |
| | | | | | 0180 0181 0182 0183 0184 0193 0194 0197* 0200 0200 0201 0201 |
| | | | | | 0205 0207* 0218* 0235* 0241 0243 0245* 0246 0269 0278 0281 0283 |
| | | | | | 0288* 0289 0291 0292 0298 0299 0299* 0399* 0400 0402 0403 0403* |
| | | | | | 0455* 0456 0458 0459 0459* |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```
*GBK*GBD***PN*42 48232*EC*827804* SYS*TEST*RELOCAT IMG*LDOR.**MOD*12 84228422***** FF100000
T+-Y:*18*****C70*****
T+-Z5*****
T+-D0*****
T+-,*****
T+-XW*A*****HRK6 Fa-Y**7**C**H*B<*REK*7*B># 2-8*1&S*2-D8C-D H*08C(EDR*7---)R EBTM*N:UFF100005
T+/_/c,2-1a*ay* 5G*D-L&K*Y*Z*ayD .G*E+D*-<*_C/- /OHDC***AY*EON* BR/CB&S*0-HR:M4 RO-X*JA*FF100006
T+->*2-DG0H*BR-T -a,7>A+BAE44GA08 .2-F3L&E<CW12-K& /OHM*-T<BH*B*-H 2X&*"A*HAR,-&*;H B*a*9S-FF100007
T+-?PU>|1|aR#xB GBODa**,>OH*BI-E H4*,OPA2-171*P50 =PV25*E,2L*DRB>Z a*07B*-DOM*BG-H R:-=IFF100008
T+-OKZROA*-B7&H (,DL*H8AD0E1*JK B**HDE,3>A<BG*/, FH-9/*OG*/OHS*OG -/1~/OHEHLS**?-UA*BL<FF100009
T+-1(OH*BF/S*/OH S**BO*A+BC1R*YA. --3S-/1;*OL-J) *80C2*1Q8-*H32/A M-1*A2-DC-BYA4-D A_*D*SHFF100010
T+-3C1*DR*ML6P877 */110-DH-CS**TI 2UB-K*7a*-4I*08 AC&UH#AD*CEYA-** I-DA4-DDI*DH*H ABH&*CR0FF100012
T+-3=ay*TG*HIBJU +*E41B>0**4HE*H BNMB*E03Z-*OL-D PBU*K*JD* C2-JQ X*37*DBA**,(H +*3E*Q24FF100013
T+-49-,*OH*:/0 *****OH*.P7R*IH AK*BG*SQDBHM1E*8 ACM*H#G7E*-HAA3M ACMCE/OCK*E-4*E4 =OH*6S-FF100014
T+-54*SQB*****8 ACM*+*G5**BAE*H A*P5,<BACH-K*EG */O44-ND*2-DI* D BB+*E2BG*/Y/H* P-*H*00-FF100015
T+-67+*AE3MAB?I 5*E28-.2DET8-H 2X&*B7HAFFO*C*I Y*03A;S.;A*.4-D COI(/?RG1&-E*H B*a*5*OFF100016
T+-7DU*6R;D*.0I* (X(HABT&AC*-/OH ;*E**CS./OHEOKQ +I*28OM*BH?28OM* .*E8AB>YR&CMAB?I a****O<FF100017
T+-8VC-DRa-8CCO* H&E#22-DDI*8R#xB GBOD*CDCGO_1*1a. &*****8 EC/PD1;PI02N*9=) *51Q*294FF100018
T+-9-84CA8=|A02T E1FCN5ZLU42N*O>T PO;-.S1*LC5_XE(8 V11XF4*SW1*J,4*S AI<XN14CT11XM21P AB2M*,OFF100019
T-9T1<SE*****
***** 78HFF100020
```

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FF10 SYSTEM TEST RELOCATING LOADER MODEL 12

OBJECT CARD LISTING

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

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T+25 D 28 H 32Z6UO-DB</O'BO' OH*BR-HAD*(O-D HRL&AB?2*0E%2Y6 KOH*BR/1'-SBC' "22'=00FF100021
T+0D04BBH*15*B AC:*(1'-SG87P2'&Y <'E_1BHE&F'_21E' HSEBAC:*(1'-SR2YD EO-HB<Y6''SR2YD +>A''SC&FF100022
T+,,;HB'2B&C6~ /O=X(1&DR*3&AC9R <'EMH/C3DBHL'/OH MA'SG'''+&,C-< |''(C?3'-&,OH* IR<'R'HFF100023
T+M/OHE&SEI=-2 O-DHHC&AB?.'B'&Y *(DR*33EBHC'/O% AD''HO*(15_ID42X S84CO1UCH5%LU42P S&E''IR'FF100024
T+/ /E+.TO)XT21P G&<GD1(XE8>.EBTO *CR./OHDD'4BBHM 142HA1-4BBHQ15-H AE&4BBHQH'-HADCO QB&U'*JQFF100025
T+/A*C'D.EOBRC'G +EES+1&HV=RAKL7 =B1-2-JXB'-H27&' BI-2-668D'GS'-1 'UAA'2Y*Z(1&DR*3& ADF&'18HFF100026
THABEL'&GBH&21'S COM*BI-6H/-''C-D R=08CCO'136022YD DOH*1=2BGC:2' ***** MH&FF100027
***** FF100028
* IN ORDER TO BY PASS LOADING CER TAIN MODULES, TU RN ON SSM 18. W MEN MODULE ***** FF100029
* PRINTS OUT, SE T-A- INTO SWITC H 1, TO BYPASS L OADING THAT MODU LE OR ***** FF100030
* SET -B- IN SWI TCH TO ALLOW MOD ULE TO LOAD. TH EN RESET FF AND EO HALTS. ***** FF100031
***** FF100032
E''*E7*=-DC*PH& =-7H&F1''''C'' FR''ASC''R'A SO''Q''***** 1231063075G 828752Q8FF100033

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FF1-0

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2 *                                LAST CHG 07 23 73
3 DECK 1
4 SEQ 0
5 FF2 START X'A00'
6 TREP
7 *****
8 *
9 * SYSTEM/3 SYSTEM TEST SUPERVISOR
10 *
11 *****
12 OA01 DC XL2'FF20' PROGRAM IDENTIFICATION AND LEVEL
13 OA02 DC XL1'80' FLAGS - NO SPUOT
14 OA03 DC IL1'0' CURRENT ROUTINE NUMBER
15 OA05 DC XL2'0' RESERVED
16 OA07 DC AL2(RTN01) ADDRESS OF FIRST ROUTINE PREFIX
17 OA09 DC XL2'0' RESERVED
18
19 *****
20 * TRANSFER TABLE
21 *****
22 *
23 * THE SYSTEMS TEST SUPERVISOR PROVIDES THE FOLLOWING LINKAGE
24 * FOR USE BY THE MODULES IT CONTROLS. EACH MODULE MUST BE WRITTEN
25 * TO BRANCH TO THIS ENTRY WHENEVER THE DEVICE BEING TESTED IS BUSY
26 * OR NOT READY.
27 *****
28 ENTRY L TR1,IAR ENTRY TO PASS CONTROL TO NEXT MODULE
29 NOTME L TR2,IAR ENTRY FROM MODULE NOT CAUSING INT.
30 RESET L TR3,IAR 'ITS ME' ENTRY FROM MODULE CAUSING OP END INT
31 NEWINT L TR4,IAR ENTRY TO OP END INT. RTN FROM MODULE
32 L TP5,IAR NOT USED
33 OA1F TR1 DC AL2(ENTRY1)
34 OA21 TR2 DC AL2(RNOTME)
35 OA23 TR3 DC AL2(RRESTR)
36 OA25 TR4 DC AL2(RNXT)
37 OA27 TR5 DC AL2(*) NOT USED
38
39 OA28 TABLE EQU * TABLE CONTAINING CATALOG OF PROGRAM
39 OAF8 DS CL193 MODULES IN CORE. PROVISIONS ARE
41 * MADE FOR SUPERVISION OF UP TO 16 *
42 * MODULES. INFORMATION IS CONTAINED*
43 * AS IN THE FOLLOWING DIAGRAM. *
44 *
45 *****
46 * ARR I IAR I XR1 I XR2 I PSR I STARTING I DEV ID IF *
47 * I I I I I I I I ADDRESS I INT LEV 5 *
48 * 0-1 I 2-3 I 4-5 I 6-7 I 8 I 9-10 I 11 *
49 *****
50
51 *****
52 * ROUTINE 01 - SYSTEMS TEST SUPERVISOR
53 *****
54 *
55 * THIS ROUTINE PROVIDES THE SUPERVISORY FUNCTION TO HANDLE THE
56 * SIMULTANEOUS OPERATION OF UP TO 16 PROGRAM MODULES. THE INDI-
57 * VIDUAL MODULES ARE REFERENCED BY 11 BYTE ENTRIES IN TABLE-.
58 * LINKAGE FROM MODULE TO SUPERVISOR MUST TAKE PLACE EACH TIME THE
59 * DEVICE BEING TESTED IS BUSY OR NOT READY. TRANSFER MUST BE MADE
60 * VIA A BRANCH TO LOCATION X'A0A'. THE SUPERVISOR SAVES THE PRO-
61 * GRAM ARR, XR1 AND XR2, THEN PASSES CONTROL TO THE NEXT PROGRAM
62 * BY BRANCHING VIA ITS PREVIOUSLY STORED ARR.
63 *****
64 RTN01 DC XL1'01' CURRENT ROUTINE NUMBER
65 DC XL1'0' FLAGS
66 DC AL2(RTN02) ADDRESS OF NEXT ROUTINE PREFIX
67 *****
68 MVI MODKNT,0 ZERO COUNT OF MODULES WITH INT.
69 L OPEND,PSIAR LOAD UP END INTERRUPT IAR
    
```

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0AF5 C2 01 0A28 70 LA TABLE,XR1 SET UP TO RESTART ALL MODULES
0AF9 7D FF 00 71 R1LOOP CLI 0(,XR1),X'FF' TEST FOR LAST ENTRY
0AFC F2 81 E2 72 JE FIRST JUMP IF IT IS
0AFF 75 02 0A 73 L 10(,XR1),XR2 LOAD MODULE'S ADDR. OF 1ST ROUTINE
0B02 B8 40 02 74 TBN 2(,XR2),X'40' TEST FOR OF END INT. FLAG
0B05 F2 90 0A 75 JF *+13 JUMP IF NOT DEFINED
0B08 6C 00 08 00 76 MVC 11(,XR1),0(,XR2) MOVE ID FROM MODULE TO TABLE
0B0C 0E 00 0C00 0EA2 77 ALC MODKNT(1),ONE COUNT MODULES
0B12 6C 01 01 07 78 MVC 1(2,XR1),7(,XR2) SET ADDRESS OF 1ST ROUTINE
79 * AS INITIAL ARR VALUE
0B16 4E 01 01 0EA4 80 ALC 1(2,XR1),FOUR BUMP PAST ROUTINE PREFIX
0B1B 5C 01 03 01 81 MVC 3(2,XR1),1(,XR1) SET IAP = ARR
0B1F 02 01 0C 82 LA 12(,XR1),XR1 STEP POINTER TO NEXT ENT
0B22 C0 87 0AF9 83 B R1LOOP LOOP TILL ALL DONE
84 *****
85 * MODULE LINKAGE TO THIS SUPERVISORY ROUTINE IS MADE AS FOLLOWS *
86 *
87 * B ENTRY WHERE ENTRY EQU X'A0A' *
88 *****
89 RENTRY ST SAVE1,XR1 SAVE XR1 TEMPORARILY
90 L OPEND,PSIAR SET UP TO GO TO TOP OF OP END INT RTN
91 L POINTR,XR1 RELOAD TABLE POINTER
92 ST 1(,XR1),ARR PLACE RETURN ADDRESS IN TABLE SLOT
93 MVC 5(2,XR1),SAVE1 MOVE MODULE'S XR1 FROM TEMP TO SAVE
94 ST 7(,XR1),XR2 SAVE MODULE'S XR2
95 ST SAVE1,PSR SAVE MODULE'S PSR
96 MVC 8(1,XR1),SAVE1-1 BITS 0-7
97
98 CKLOG SNS SAVE1,X'0' CHECK DATA SWITCHES FOR LOGOUT
99 CLI SAVE1-1,X'BB' INSTRUCTIONS
100 BE LINK
101 TBN SAVE1-1,X'A0' CONTINUE TEST IF NOT 'A' OR 'B'
102 TBF SAVE1-1,X'40' IN DATA SWITCHES
103 JF CKDCP
104 MZN WORK-1,SAVE1-1 ISOLATE ID OF MODULE TO BE ENABLED
105 MNZ WORK-1,SAVE1 OR DISABLED
106 MZN WORK,SAVE1
107 LA TABLE-12,XR1 GO THROUGH TABLE OF MODULES UNTIL
108 FINDLP LA 12(,XR1),XR1 CORRECT ONE FOUND
109 CLI 0(,XR1),X'FF'
110 JE CKDCP
111 L 10(,XR1),XR2 LOAD MODULE'S STARTING ADDR. IN XR2
112 MNN WORK,1(,XR2)
113 CLC WORK(2),1(,XR2)
114 BNE FINDLP
115
116 TBN SAVE1-1,X'10' 'B' ENABLE ON ?
117 JF TER
118 CLI 0(,XR1),X'FE' THIS MODULE BEEN DISABLED ?
119 JNE CKDCP
120 MVC 1(2,XR1),7(,XR2) PUT ADDR. OF MODULE'S FIRST RTN IN
121 ALC 1(2,XR1),FOUR BUMP PAST RTN. PREFACE
122 J CKDCP
123
124 TER MVI 0(,XR1),X'FE' DISABLE MODULE CUZ ENTRY WAS 'A'
125 CKDCP L POINTR,XR1 RELOAD TABLE POINTER
126 CLI SAVE1-1,X'00' GO TO DCP IF POSSIBLE VALID ENTRY
127 BNL TEST
128
129 * BEGIN SEQUENCING THRU TABLE OF MODULES ENTERING THEM ONE BY A TIME
130 *
131 MVC LASTME(2),ZEROS ZERO COUNTER FOR RESETS TO 1 DEVICE
132 * AND ID OF THAT DEVICE.
133 MVC 1DSAVE(1),ZEROS CLEAR PRESENT INT MODULE SAVE AREA
134 B *+4
135 B *+4
136 B *+4
    
```

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|---------|------|-----------|--|
| OBCD | C0 87 | OBD1 | 137 | B | **+ |
| OBD1 | D2 01 | OC | 138 | NEXT LA | 12(,XR1),XR1 INCREMENT POINTER TO NEXT TABLE SLOT |
| OBD4 | 7D FE | 00 | 139 | CKDSB CLI | 0(,XR1),X'FF' SKIP MODULE IF IT IS DISABLED |
| OBD7 | C0 81 | OBD1 | 140 | BE | NEXT |
| OBD8 | 7D FF | 00 | 141 | CLI | 0(,XR1),X'FF' BRANCH IF NOT LAST ENTRY |
| ORDE | F2 01 | OC | 142 | JNE | GOTO |
| ORE1 | C2 01 | OA1C | 143 | FIRST LA | TABLE-12,XR1 RE-INITIALIZE TABLE POINTER IF THIS |
| OBF5 | 34 01 | OEF8 | 144 | ST | POINTR,XR1 WAS LAST ENTRY |
| OBE9 | C0 87 | OB46 | 145 | B | CKLOG |
| OBED | 1C 01 | OBFF 01 | 146 | GOTO MVC | RETURN+3(2),1(,XR1) LOAD RETURN ADDRESS WITH SAVED ARP |
| OBF2 | 75 02 | 07 | 147 | L | 7(,XR1),XR2 RESTORE XR2 FOR THIS PROGRAM |
| OBF5 | 34 01 | OEF8 | 148 | ST | POINTR,XR1 SAVE TABLE POINTER |
| OBF9 | 75 01 | G5 | 149 | L | 5(,XR1),XR1 RESTORE XR1 FOR THIS PROGRAM |
| OBFC | C0 87 | 0000 | 150 | RETURN B | **+ GO TO NEXT MODULE |
| | | | 151 | | |
| OC00 | 00 | | OC00 | 152 | MODKNT DC XL1'0' COUNTER FOR NUMBER OF MODULES |

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT | |
|---------|-------------|---------|------|------------|--|--|
| | | | | 154 | ***** | |
| | | | | 155 | * OPEND * | |
| | | | | 156 | ***** | |
| | | | | 157 | * | |
| | | | | 158 | * COME HERE TO SERVICE OP END INTERRUPT WHETHER IT | |
| | | | | 159 | * OCCURS FROM SOME OTHER LEVEL OR IS SIMPLY NOT RESET | |
| | | | | 160 | * DUE TO ANY REASON ERROR OR NOT. | |
| | | | | 161 | ***** | |
| | | | | 162 | | |
| OC01 | OC03 | | OC02 | 163 | OPEND DC AL2(+*2) ADDRESS OF OP END INTERRUPT ROUTINE | |
| | | | | 164 | | |
| | | | | 165 | * SAVE REG'S OF MODULE RUNNING AT TIME OF INTERRUPT ETC. | |
| | | | OC03 | 166 | RNXT EQU * | |
| | | | | 167 | | |
| | | | | 168 | ST TXR1,XR1 SAVE XR1 | |
| | | | | 169 | ST TXR2,XR2 SAVE XR2 | |
| | | | | 170 | ST TPSR,PSR SAVE PSR | |
| | | | | 171 | L ZEROS,PSR INITIALIZE PSR | |
| OC03 | 34 01 | 0D59 | 172 | FINDEM ALC | ICTR(1),ONE INCREMENT COUNTER OF RESETS | |
| OC07 | 34 02 | 0D58 | 173 | CLI | ICTR,4 | |
| OC08 | 34 04 | 0D5D | 174 | BE | NOBODY IF NOBODY RESET IN 4 REQUESTS QUIT | |
| OC0F | 35 04 | 0D5F | 175 | B | **+ | |
| OC13 | 0E 00 | 0D75 | 176 | B | **+ | |
| OC19 | 3D 04 | 0D75 | 177 | B | **+ | |
| OC1D | C0 81 | 0C92 | 178 | B | **+ | |
| OC21 | C0 87 | 0C25 | 179 | B | **+ | |
| OC25 | C0 87 | 0C29 | 179 | | | |
| OC29 | C0 87 | 0C2D | 179 | | | |
| OC2D | C0 87 | 0C31 | 179 | | | |
| | | | | 180 | | |
| | | | | 181 | | |
| | | | | 182 | NXTMOD LA TABLE-12,XR1 LOAD POINTER TO MODULE TABLE | |
| OC31 | C2 01 | OA1C | 183 | INTR1 CLI | 0(,XR1),X'FF' BUMP TO NEXT ENTRY | |
| | | | | 184 | BE | FINDEM TEST FOR END OF MODULE TABLE |
| | | | | 185 | CLI | 11(,XR1),X'FF' NO ONE WILL ADMIT TO THE INTERRUPT |
| | | | | 186 | BE | NXTMOD TEST FOR NON INTERRUPT TYPE |
| | | | | 187 | | BRANCH IF NOT |
| | | | | 188 | | |
| | | | | 189 | * | |
| | | | | 190 | ST | TABLEA,XR1 LOAD ADDRESS FROM TABLE THAT |
| OC49 | 34 01 | 0D61 | 191 | MVC | TEMP(1),0(,XR2) POINTS TO BEGINNING OF MODULE | |
| OC4D | 2C 00 | 0D6B 00 | 192 | * | | |
| | | | | 193 | L | 5(,XR2),XR2 SAVE TABLE POINTER |
| | | | | 194 | * | |
| | | | | 195 | B | 0(,XR2) SAVE ID OF MODULE SO IF IT SAYS IT IS HIS INT, WE'LL KNOW HIS ID |
| | | | | | | LOAD XR2 WITH ADDRESS OF INTERRUPT |
| | | | | | | ROUTINE IN TEST MODULE |
| | | | | | | GO TO INTERRUPT ROUTINE IN MODULE |

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
197 *****
198 * NOTME *
199 *****
200 *
201 *           COME HERE FROM MODULE WHEN THAT MODULE SAYS THAT
202 *           THE INTERRUPT PENDING IS NOT HIS.
203 *****
204
OC58 35 01 0D61  205 RNOTME L   TABLE,XR1   RESTORE TABLE POINTER
OC5C  C0 87 0C35  206         B   NXTMOD     CONTINUE THROUGH TABLE TIL WE FIND
207 *           WHICH ONE CAUSED THE INTERRUPT.
208
209 *****
210 * RESTOR *
211 *****
212 *
213 *           COME HERE FROM MODULE IN PREPARATION TO RESET
214 *           THE INTERRUPT.
215 *           THAT IS, RESTORE XR1,XR2,PSR. THEN RETURN TO
216 *           THE MODULE AT THE ARR VALUE.
217 *
218 *
219 *
220 *
221 *****
222
OC60 34 08 0C91  223 RRESTP EQU *
OC64 0C 00 0D76  224         ST   DORES+3,ARR  STORE LOCATION OF MODULE'S RESET RTN
OC6A 0C 00 0D74  225         MVC  LASTME(1),IDSAVE PUT LAST ID IN LASTME
OC6B 0C 00 0D74  226         MVC  IDSAVE(1),TEMP  SHOW THAT THIS MODULE RECOGIZED THE INT
OC70 0D 00 0D74  227         CLC  IDSAVE(1),LASTME IF LAST MODULE IS DIFFERENT THAN THIS
OC76  C0 81 0C7E  228         BE   SAME1        ONE, ZERO THE COUNTER
OC7A 3C 00 0D75  229         MVI ICTR,0
OC7E  C0 87 0C82  230 SAME1 EQU *
231         B   **4
232
OC82 35 01 0D59  233         L   TXR1,XR1
OC86 35 02 0D5B  234         L   TXR2,XR2   RESTORE COMMON REGISTERS BEFORE ALLOWING
OC8A 35 04 0D5D  235         L   TPSR,PSR   THE RESET
OC8E  C0 87 0D0D  236 DORES  B   *-*      GO DO RESET

```

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
236 *****
239 * NOBODY *
240 *****
241 *           PRESENT INTERRUPT NOT RESET BY ANY MODULE.
242 *
243 *****
244
OC92 245 NOBODY EQU *
246 *           FIND OUT IF DURING THE LAST 4 TIMES THROUGH LOOP CLAIMED
247 *           THAT THE INT WAS HIS
248
OC92 0D 00 0D74  249 CLC  IDSAVE(1),LASTME
OC98  C0 01 0CAB  250 BNE  UNEXP  IF NOT EQUAL THEN NO ONE CLAIMED AN INTERRUPT
251
252
OC9C 3D 00 0D74  252 CLC  IDSAVE,0   IF 0, THEN SOMEBODY CAUSED AN INTERRUPT
253 *           AND WE CAN'T FIGURE WHO IT IS
254         BE   UNEXP  ASSUME UNEXPECTED INT.
255         B   FAIL   IF = 0 THEN THE ID = WHO EVER ADMITTED
256 *           TO THE LAST 4 INTERRUPTS DIDN'T RESET
257 *           SUCCESSFULLY
258
OCAB 260 UNEXP EQU *           ENTER HERE WHEN IDSAVE = 0
261         B   UNPACK  UNPACK ID OF LAST MODULE WHO SHOULD
262         DC  IL1'1'   HAVE RESET HIS INTERRUPT
OCAC 262         DC  AL2(LASTME) SOURCE
OCAB 263         DC  AL2(UNEXPM) DESTINATION
OCBO 264         B   **4
265
OCB9 266 PTIT B   PRINT
OCBA 267         DC  XL1'C6'
OCBA 268         DC  IL1'76'
OCBC 269         DC  AL2(UNEXPM)
OCBE 270         DC  XL2'FF00'
OCBF 271         B   PTIT           48+28=76
OCF2 272         DC  CL48'INTERRPT NOT RESET, SOURCE OF INTERRUPT UNKNOWN.'
273
OCF3 40D3C1E2E340D4D6  273 OD0E UNEXPM DC  CL28' LAST MODULE TO RESET WAS XX'
OCF8  C4E4D3C540E3D640  273
OD00? D9C5E2C5E340E6C1  273
OD0B  E240E7E7           273
274
275 *****
276 *
277 *           COME HERE IF OP END INTERRUPT NOT RESET BUT MODULE XX
278 *           SAYS HE HAS ONE PENDING BUT SEEMS UNABLE TO RESET IT.
279 *           THAT IS, WHEN COUNT IN 'LASTME' IS 4.
280 *****
281
OD0F  C0 87 021E  282 FAIL B   UNPACK           TO UNPACK THE PASSED ID
OD13 01           283         DC  XL1'1'   LENGTH
OD14 0D76  284         DC  AL2(LASTME) SOURCE ADDRESS
OD16 0D3A  285         DC  AL2(IDFLD) DESTINATION
OD18  C0 87 0D1C  286         B   **4
287
OD1C  C0 87 021A  288 CANTR B   PRINT           TO PRINT ERROR MSG THAT INT NOT RES.
OD20  C6           289         DC  XL1'C6'   FLAGS
OD21 2A           290         DC  IL1'42'   LENGTH
OD22 0D53  291         DC  AL2(NOREST) MESSAGE ADDRESS
OD24 FF00  292         DC  XL2'FF00' MESSAGE ID
OD26  C0 87 0D1C  293         B   CANTR     LOOP TO INDICATE ERROR
OD2A  D4D6C4E4D3C540E6  294 OD3A ILFLD DC  CL17'MODULE WITH ID XX'
OD32  C9E3C840C9C440E7  294
OD3A  E7           294

```

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0D3B 40C4C9C440D5D6E3 0D53 295 NOREST DC CL25' DID NOT RESET INTERRUPT*
0D43 40D9C5E2C5E340C9 295
0D4B D5E3C5D9D9E4D7E3 295
0D53 40 295
      296
0D54 0000 0D55 297 TARR DC XL2'0'
0D56 0000 0D57 298 TIAR DC XL2'0'
0D58 0000 0D59 299 TXR1 DC XL2'0'
0D5A 0000 0D5B 300 TXR2 DC XL2'0'
0D5C 0000 0D5D 301 TPRS DC XL2'0'
0D5E 0000 0D5F 302 ZEROS DC XL2'0'
0D60 0000 0D61 303 TARLEA DC XL2'0'
0D62 0000 0D63 304 STATUS DC XL2'0'
0D64 0100 0D65 305 MASK1 DC XL2'0100'
0D66 0000 0D67 306 MASK2 DC XL2'0000'
0D68 6F6F 0D69 307 UNKWN DC CL2'??'
0D6A 0000 0D6B 308 TEMP DC XL2'0'
0D6C 0000 0D6D 309 RESADD DC XL2'00'
0D6E FFFF 0D6F 310 NEG1 DC XL2'FFFF'
0D70 00 0D70 311 INTFLG DC XL1'0'
0D71 0C60 0D72 312 OPENDX DC AL2(RRESTR)
0D73 00 0D73 313 INTKNT DC XL1'0'
0D74 00 0D74 314 IDSAVE DC XL1'0'
      *
0D75 0000 0D75 315 ICTR EQU *
0D76 0000 0D76 316 LASTME DC XL2'0'
      317 *
      318 *
      319 *
0D77 0100 0D78 320 X100 DC XL2'0100'

```

COUNTER FOR NUMBER OF INTERRUPTS
 RIGHT BYTE-- ID OF MODULE WHICH
 LAST ADMITTED THAT HE CAUSED AN OP END
 INT. LEFT BYTE-- NUMBER OF TIMES THAT
 THAT MODULE WAS ENTERED TO RESFT HIS INT

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
322 *****
323 * ROUTINE 2 - LOGOUT *
324 *****
325 *
326 * THIS ROUTINE LOGS THE ERROR RECORDING TABLE FROM EACH MODULE. *
327 * LOGOUT OCCURS ONLY UPON DATA SWITCH SELECTION OF THIS ROUTINE. *
328 * RECORDING TABLE ENTRIES HAVE THE FOLLOWING FORMAT *
329 *
330 * *****
331 * * CODE * LENGTH * N BYTES OF FORMAT SPECIFIED *
332 * * BYTE * -N- * BY THE CODE BYTE *
333 * *****
334 *
335 *
336 *
337 * BIT 0 - PRINTABLE DATA - PRINT AS IS.
338 * 1 - PACKED HEX DATA - UNPACK BEFORE PRINTING.
339 *
340 * A CODE BYTE OF X'FF' TERMINATES LOGOUT.
341 *****
0D79 02 0D79 342 RTN02 DC XL1'02' CURRENT ROUTINE NUMBER
0D7A 00 0D7A 343 DC XL1'0' FLAGS
0D7B FFFF 0D7C 344 DC XL2'FFFF' LAST ROUTINE PREFIX
345 *****
346 B PRINT SPACE PRINTER
347 DC XL1'13'
348 MVI PLINE+90,C'*' PRINT A LINE OF ASTERISKS AS A
349 MVC PLINE+89(90),PLINE+90 SEPARATION
350 B PRINT
351 DC XL1'02'
352 LA TABLE,XR1 POINT XR1 AT TABLE OF MODULES
353 CKMOD CLI 0(XR1),X'FF' BRANCH IF LAST ENTRY
354 JE LOGEND
355 L 10(XR1),XR2 LOAD POINTER TO MODULE SPT
356 CLI 8(XR2),X'FF' BRANCH IF NO RECORDING TABLE
357 JE NXMOD1
358 L 9(XR2),XR2 LOAD ADDRESS OF TABLE INTO XR2
359 LOOP5 TBF 0(XR2),B'00111111' IF INVALID BITS - TERMINATE LOGOUT
360 JF NXMOD OF THIS MODULE
361 * IF X'FF' CODE BYTE - MODULE DONE
362 MVC ADR(1),1(XR2)
363 MVI ADR-1,X'0'
364 MVC PLEN(1),1(XR2) MOVE LENGTH OF FIELD TO PRINT LINK
365 ST PADR,XR2 SET UP ADDRESS PARAMETER
366 B X'E00' BRANCH ABSOLUTE DC'S
367
368 ORG X'0DFC'
369 BSCAX DC XL2'0000' DC'S USED FOR BSCA 80F AND 88F.
370 BSCAY DC XL2'0000' MUST BE AT 0DFC-0DFF.
371 XE00 EQU * THIS IS E00
372 ALC PADR(2),ONE
373 ALC PADR(2),ADR
374 MVC UADR1(2),PADR SET UP UNPACK SOURCE ADDR
375 TBN 0(XR2),X'60' GO PRINT IF THIS IS PRINTABLE ENTRY
376 JT PRTEXT
377 TBN 0(XR2),X'40' IF NOT HEX DATA, MUST BE CODE ERROR
378 JF NXMOD TERMINATE LOGOUT OF THIS MODULE
379 MVC ULEN(1),1(XR2) SET UP PARAMETERS TO UNPACK HEX DATA
380 MVC UADR2(2),X881
381 ALC ADR(1),ADR
382 ALC UADR2(2),ADR
383 MVI PLINE+127,C' ' CLEAR DCP PRINT AREA
384 MVC PLINE+126(132),PLINE+127
385 B UNPACK UNPACK HEX DATA
0E43 00 0E43 386 ULEN DC IL1'0'
0E44 0000 0E45 387 UADR1 DC AL2(*-*)
0E46 0000 0E47 388 UADR2 DC AL2(*-*)
0E48 C0 87 021A 389 B PRINT PRINT OUT HEX DATA

```

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

```

ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
OE4C 21                OE4C 390      DC      XL1'21'
OE4D F2 87 08          391      J        NXCDE
OE50 C0 87 021A        392      PRTEXT B      PRINT
OE54 01                OE54 393      DC      XL1'01'
OE55 00                OE55 394      PLEN DC      IL1'0'
OE56 0000              OE57 395      PADR DC      AL2(*-*)
OE58 35 02 OE45        396      NXCDE L      UADR1,XR2
OE5C F2 02 01          397      LA      1(,XR2),XR2
OE5F C0 87 0DA7        398      I        LOOP5
OE63 C0 87 021A        399      NXMOD B      PRINT
OE67 11                OE67 400      DC      XL1'11'
OE68 2C 60 08DA        401      MVI     PLINE+90,C'-*'
OE6C 0C 59 08D9 08DA  402      MVC     PLINE+89(90),PLINE+90
OE72 C0 87 021A        403      B
OE76 22                OE76 404      DC      XL1'22'
OE77 D2 01 0C          405      NXMOD1 LA 12(,XR1),XR1
OE7A C0 87 0D95        406      B      CKMOD
OE7E C0 87 021A        407      LOGEND B     PRINT
OE82 42                OE82 408      DC      XL1'42'
OE83 48                OE83 409      DC      IL1'72'
OE84 0FF2              OE85 410      DC      AL2(ENDMSG)
OE86 FFE1              OE87 411      DC      XL2'FFE1'
OE88 3C 5C 08DA        412      MVI     PLINE+90,C'**'
OE8C 0C 59 08D9 08DA  413      MVC     PLINE+89(90),PLINE+90
OE92 C0 87 021A        414      B      PRINT
OE96 26                OE96 415      DC      XL1'26'
OE97 C0 87 0222        416      B      HALT
OE98 FFE1              OE9C 417      DC      XL2'FFE1'
OE9D C0 87 0000        418      B      G
419
420 *****
421 * CONSTANTS *****
422 *****
OEA1 0001              OEA2 423      ONE   DC      IL2'1'
OEA3 0004              OEA4 424      FOUR  DC      IL2'4'
OEA5 0005              OEA6 425      FIVE  DC      IL2'5'
OEA7 0881              OEA8 426      X881  DC      XL2'881'
OEA9 0000              OEA9 427      ADR   DC      XL2'0'
428
429 *****
430 * PRINTOUTS *****
431 *****
OEA8 D2D6C7D6E4E340C3 OEDD 432      DC      CL51'LOGOUT COMPLETE - REMOVE -BB- FROM LEFT 2 SWS THEN '
OE83 D6D4D7D7C5E3C540 432
OE8B 6040E9C5D4D6E5C5 432
OEC3 406CC2C26D40C6D9 432
OECB D6D440D3C5C6E340 432
OED3 F240E2E6E240E3C8 432
OEDB C5D540           432
OEDE D9C5E2C5E340C8C1 DEF2 433      ENDMG DC CL21'RESET HALT TO RESTART'
OEE6 D3E340E3D640D9C5 433
OEEE E2E3C1D9E3      433
434
435 *****
436 * RESERVED STORAGE *****
437 *****
OFF3                OFF4 438      SAVE1 DS CL2      TEMPORARY SAVE AREA FOR XR1
OFF5                OFF6 439      WORK  DS CL2
OFF7                OFF8 440      POINTR DS CL2     TABLE POINTER FOR NEXT MODULE
OFF9                OFFA 441      TEMP1 DS CL2
442
443 *****
444 * EQUATES *****
445 *****
0001 446      XR1   EQU 1      INDEX REGISTER 1
0002 447      XR2   EQU 2      INDEX REGISTER 2
0004 448      PSR   EQU X'04'   PROGRAM STATUS REGISTER
0008 449      ARR   EQU X'08'   ADDRESS RECALL REGISTER

```

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

```

ERR LOC OBJECT CODE   ADDR STMT SOURCE STATEMENT
0010 450 IAR          EQU X'10'
0084 451 IAR5         EQU X'84'
0020 452 PIAR         EQU X'20'
0040 453 PARR         EQU X'40'
0088 454 P4IAR        EQU X'88'
0084 455 P5IAR        EQU X'84'
0010 456 PLMR         EQU X'10'
0212 457 TEST        EQU X'212'
0216 458 LINK         EQU X'216'
021A 459 PRINT        EQU X'21A'
021E 460 UNPACK       EQU X'21E'
0222 461 HALT         EQU X'222'
0880 462 PLINE        EQU X'880'
463      TREP
464      TREP
465      TREP
466      TREP
467      TREP
FFFF 468      END

```

INSTRUCTION ADDRESS REGISTER

PROGRAM LEVEL IAR
PROGRAM LEVEL ARR
INTERRUPT LEVEL 4 IAR
INTERRUPT LEVEL 5 IAR

SRT -ENTRY TO CHECK CONSOLE SWITCHES
SRT -ENTRY TO CHAIN ROUTINE
SRT -ENTRY TO PRINT
SRT -ENTRY TO CONVERT HEX TO FBCDIC
SRT -ENTRY TO HALT
START OF DCP PRINT LINE

IBM MAINTENANCE DIAGNOSTIC PROGRAM

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

PART NO. 555574
PAGE 6

CROSS-REFERENCE

Table with columns: SYMBOL, T, LEN, VALUE, DEFN, REFERENCES. Contains assembly symbols and their cross-references.

DATE 01OCT73
EC NO. 821490

IBM MAINTENANCE DIAGNOSTIC PROGRAM

FF20 SYSTEM TEST SUPERVISOR FOR MODEL 15

PART NO. 555574
PAGE 6A

CROSS-REFERENCE

Table with columns: SYMBOL, T, LEN, VALUE, DEFN, REFERENCES. Contains assembly symbols and their cross-references.

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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PROG ID 01OCT73
PAGE 6A EC NO. 821490

OBJECT CARD LISTING

THE CHARACTER ' ' INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

| CL 1 THROUGH 16 | CL 17 THROUGH 32 | CL 33 THROUGH 48 | CL 49 THROUGH 64 | CL 65 THROUGH 80 | CL 81 THROUGH 96 |
|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| GBK GBD PN 55 | 55573 EC 821490 | SYSTEM TEST SUPE | RVISOR MOD 15 | 84@284@ | FF200000 |
| TIOYX*2B | CM&B/25D Y/IJ | HMH&PSM5D YXB2Q | <D 1-C <HI- | B*VH2D-GJU | ND&4GP9-FF200001 |
| T<O& * & (:LO C | 5/ 0B0-DHMG7* IH | ABXMBB, / ?H&BWO | B0 + * 0 CDI& &D | GL-DACDJ* & 1HBQ | IB0*#SUFF200002 |
| T<E_+ OGK &3 /O, | 9(D+*CDDC H5 &# | 8} -AL DEC?J4 -* | 4A #4L HC?<O # | 4}S&+2@ <BOYH1O | MD OHNB8FF200003 |
| T<E> -&H0H+ @3V | C?I2UDOH C?< | H -#5C?&H C?L | B &Y*4-D<-@ @YD | _)&HH < H1@)FJ* | LD&YF1AHFF200004 |
| T<O>4C?QA.&D+*-G | _3+A +@H&DX7 | = HAC60A (&) + &D | +2IHG 73= CMAC?- | *4 #30 HBD- ?H2D | IB0QA0#XFF200005 |
| T< ?VC D()~5-C | () 5~OH*.1*BGE&X | /O? (OH*.4)HACG7 | = <BAB'E*OC2 &3 | B &Y* (?IJ&PDO@ | .B&MC- &E<FF200006 |
| T< 00 PH*.J/O | AB*2A)&HG(D+GM | AA*BG C<4 &5 | R(H(O3&DCN45A 5 | -C- (IE O.B-UHAO | KB-QBMZ4FF200007 |
| T< 1GCDH*A 550HD | <U?BGCBP /00ZOH* | <.BGCCGB &Y*4-D | <-@ OHD<D77*8&B | ACCN5 - >I14REJD | (B&MA*QYFF200008 |
| T.017BT&ACD& 5 | .MBA;BG CMACOG | /005(-<UEO CPO | () 0 CP&(E04 CP& | ()&BA B4,I2H/GI& | PDO-DMKXFF200009 |
| T.&2VCG8@ 550H* | <-TMACNU5 -5\$(E& | (P*BG (54CP& | &2YI& ()<BACHT | /O B&XH1@)EJD | (B&MA\$-HFF200010 |
| T(3&E& /OH; &5 | 6CE# /025OH*BF&R | <CE#< BGC.PI5;I | E6)XP84CN5>(6*P | S1; (, &+.09(U GAQ | +B--A89DFF200011 |
| T+ 4LO&N 5&R 2)P | T1)XR9(-T&+LN4_P | O9_N,&(IAB>(5(\$ | D9IIE&+I0&(X&B&P | T&+\$A8UCX9&BG /8 | A LA-FF200012 |
| T(65ICPQ(+&BGCJ3 | /OHE1SY(M*2 OH* | (G(LD1+LL1MCW2;I | H&CXDE+-X&<LI1DC | N5>(6*P>1:(AM | IAO<A)/HFF200013 |
| T+&6C2)PT1)XR9(| TE | A \$6@ | "2 CF | E B ""OH*BF/< | @P Y&S0FF200014 |
| T(-6:B(Y<O&TRB(, | /OHEH&HABS/*OC | 2-:(5 -D*OT2-)+ | 5 -W9I0C2U.O& : | D LO CDUR 9N & | 5<K0&-TUFF200015 |
| TA07B(H+N&BGC- | | | | | C@/*FF200016 |
| T< 8& BACV* | +Y-BACV*+D-OACUM | +N&S IHE+./ IH | EJKD CUCAC D+JO: | YC- +D- O.BYVEJK | IC&UG4I0FF200017 |
| T(69SCDY+ 69GCDY | @E T*CH<H*-T*OH* | BG- GH*BFSG | 2/OT /OHE & CM | BCUPS -G /O6X CM | >A0MA)2&FF200018 |
| T+ :\$OH*BF/D&O T | ECEUM6&TEOH*BF&S. | K &3 /O6NOH*BFUI | HC?.*9L1*B(Y<O&T | RB(, /OHEI&BG S. | "BHE&A0FF200019 |
| T+~#08*BG & | D MH-& 4*\$G5>L | T&<I05(-L1;IE&FA | *6*PM5>PE&FCBOWA | _1_X05DCL1*ST&I1 | 8>Q E&0FF200020 |

OBJECT CARD LISTING

| CL 1 THROUGH 16 | CL 17 THROUGH 32 | CL 33 THROUGH 48 | CL 49 THROUGH 64 | CL 65 THROUGH 80 | CL 81 THROUGH 96 |
|------------------|------------------|------------------|------------------|------------------|-----------------------------|
| TF0#28UCT2<PN&(X | E8&PT&<TA4=(B'R | *6*PS8@GR80 | | | E8DFF200021 |
| ***** | ***** | ***** | ***** | ***** | ***** FF200022 |
| * FF2 - SYSTEM T | EST SUPERVISOR. | | | | * FF200023 |
| * TO OBTAIN A | LOGOUT SET SWIT | CH 1 AND 2 TO -B | B- WHEN LOGOUT | YS COMPLETE, | * FF200024 |
| * REMOVE -BB- | FROM SWITCHES. | | | | * FF200025 |
| ***** | ***** | ***** | ***** | ***** | ***** FF200026 |
| E***E7*~DC*PH\$ | =*7M&F C | *F* ASC R A | SO Q | | 18230608730 80973@YFF200027 |



FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

1 *****
2 *$
3 *$
4 *$      FF7 AND DATA DECK OCF MUST BE AT THE SAME LEVEL.
5 *$
6 *$
7 *****
8
9 * TO ADD AN SDR DEVICE:
10 * 1. ADD TO END OF 'SDRTAB'
11 * 2. GO TO OCF SOURCE, ADD NEW SYNC POINT TO END OF SDR SYNC'S
12 * 3. EC FF7, OCF (SO LEVELS STAY SAME)
13 * 4. ADD TO SDR LIST IN BLOCK 04

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0A00
0A01 FF71
0A02 00
0A03 01
0A04 0000
0A06 0A16
0A08 FFFF
0A0A C10000
0A0D E10000
0A10 890000
0A13 511000

```

```

15 *
16      DECK 4
17      SEQ 0
18 ERAP  START X'A00'
19      TREP
0001 20 XR1      EQU 1
0002 21 XR2      EQU 2
0008 22 ARR      EQU 8
0080 23 SSW20    EQU X'80'
0010 24 SSW23    EQU X'10'
0008 25 SSW24    EQU X'08'
0200 26 MODEL    EQU X'200'
020C 27 SBYTE4   EQU X'20C'
0216 28 LINK     EQU X'216'
021A 29 PRINT    EQU X'21A'
021E 30 UNPACK   EQU X'21E'
0222 31 HALT     EQU X'222'
022A 32 LOAD     EQU X'22A'
0232 33 UDT      EQU X'232'
0880 34 PRTBUF   EQU X'880'
2020 35 DUMP      EQU X'2020'
36 ***** SECTION PREFACE *****
37 *****
38 PID      DC      XL2'FF71'      * PROGRAM ID
39          DC      XL1'0'         * SECTION FLAGS
40          DC      XL1'1'         * CURRENT ROUTINE #
41          DC      XL2'0'         * N/A
42          DC      AL2(RTN1)      * FIRST ROUTINE
43          DC      XL2'FFFF'      * ERROR RECORDING
44          DC      XL3'C10000'    * DISK
45          DC      XL3'E10000'    * 1403 PRINTER
46 FLG14    EQU      *-2
47          DC      XL3'890000'    * DISPLAY ACAPTER
48 FLGDA    EQU      *-2
49 D51      DC      XL3'511000'
50 *****
51 *****

```

LAST CHG:08 08 75

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
      53 ***** ROUTINE 1 *****
      54 *****
      55 *
      56 RTN1    DC    XL1'1'      * ROUTINE #
      57        DC    XL1'0'      * FLAG
      58        DC    AL2(RTN2)    * NEXT ROUTINE
      59 *
      60 *****
      61 *****
      62 B        PRINT          PRINT SSW
      63        DC    XL1'43'
      64        DC    XL5'FF00'
      65        MVI   DSKDRV,X'A8'
      66        B        PRINT          MESSAGE
      67        DC    XL1'07'
      68        DC    AL1(DSKM33-DSKM32) TO
      69        DC    AL2(DSKM33)      LOAD
      70        B        HALT          DRIVE 2
      71        DC    XL2'FFFF'      THEN START
      72        J        DSKM33+1     JUMP DC'S
      73 DSKM32  EQU    *-1
      74        DC    CL29' MAKE SYSTEM PACK CONTAINING '
      75
      76        DC    CL27'ERROR INFORMATION READY ON '
      77
      78        DC    CL23'DRIVE 2. DEPRESS START.'
      79
      80        EQU    *
      81        LA     1,XR2          SYNC PT 1
      82        EQU    *-1
      83        B        SYNMOV
      84        B        SCAN
      85 *
      86        MVC    DBUF-1(256),DBUF+255
      87 *
      88        B        SCAN
      89        MVC    PBUF+95(96),PRTBUF+95
      90 *
      91        MVC    TEMP,OBR1
      92        SLC    TEMP,DBUF+1-256
      93        JZ     RTN103
      94        TBF   TEMP,X'07'
      95        BF    ERMMSG
      96 *
      97 RTN102  MVC    DBUF+7-256(8),DBUF+255
      98        MVC    DBUF+255(256-8),DBUF+255-8
      99        MVC    DBUF+7(256),DBUF-1
      100       SLC    TEMP,EIGHT
      101       BNZ   RTN102
      102 *
      103 RTN103 EQU    * WORK FROM BOTTOM UP TO FIND OLDEST ENTRY
      104        MVC    OBRNT(2),OBRND
      105        MVI   DBUF-256,0
      106 RTN104  L        OBRNT,XR1
      107        MVC    TEMP(1),O(,XR1)
      108        SBF   TEMP,X'0F'
      109        CLI   TEMP,X'00'
      110        JE     RTN106
      111        CLI   TEMP,X'A0'
      112        JL    LABEL
  
```

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
      113      CLI   TEMP,X'D0'
      114      JNH   RTN105
      115 LABEL  MVI   OBRTP,B      NOT DISK ENTRY
      116      ALC   ENTADD,ENTADD
      117 RTN109  SLC   OBRNT,OBRTP
      118      B        RTH104
      119 RTN105  EQU    *
      120      CLC   OBRNT,OBRST
      121      JE     HALFNT          CHECK FOR HALF ENTRY
      122      MVI   OBRTP,16
      123      ALC   ENTADD,ENTADD
      124      SBN   ENTADD,1
      125      B        RTN109
      126 HALFNT  EQU    *
      127 RTN106  EQU    *
      128      ALC   OBRNT,OBRTP
      129 *
      130 *
      131      CLC   OBRNT,OBRND
      132      BH   EMPTY          CHECK FOR EMPTY TABLE
      133 *
      134      MVC   BYTE,ENTADD
      135      MVI   MASK,X'01'
      136 RTN108  EQU    *
      137      MVC   PRTBUF+95(96),PBUF+95
      138      MVC   TEMP,ZERO
      139      L        OBRNT,XR1
      140      MNZ   TEMP,O(,XR1)
      141      ALC   TEMP,TEMP
      142      LA     BRTBL-2,XR2
      143      A        TEMP,XR2
      144      L        O(,XR2),XR2
      145      ST     BR+3,XR2
      146 *
      147      ALC   TEMP,TEMP
      148      LA     DVTBL-1,XR2
      149      A        TEMP,XR2
      150      TBN   O(,XR1),X'89'
      151      JF    *+7
      152      LA     DACON,XR2
      153      MVC   PRTBUF+5(4),O(,XR2)
      154      MVI   TABIDX,1
      155      ST     CNTOFS,XR1
      156      SLC   CNTOFS,DBUF
      157 *
      158      MVC   QRSNS+3(4),J(,XR1)
      159      B        HEXHEX
      160      B        HEXHEX
      161      B        CVTBIN
      162      B        CVTBIN
      163 BR2
      164 *
      165 Q80     EQU    * BSCA
      166      SBN   DVFLG-1,X'20'
      167      B        HEXHEX
      168      MVI   TABIDX,2
      169 *
      170      LA     DBUF,XR2
      171      A        CNTOFS,XR2
      172      MVC   O(1,XR2),QRSMS+1
      173      B        HEXDEC
      174      B        RTN107
      175 *
      176 Q10     EQU    *
      177      SBN   DVFLG-1,X'80'
  
```


FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

```
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

OBD5 35 01 238F 178 L OBRND@,XR1
OBE3 38 08 24F9 179 TBN QRSNS,X'08'
OBE7 C0 90 OCA2 180 BF RTN107
OBE8 C0 87 1273 181 B HEXHEX
OBEF C0 87 OCA2 182 B RTN107

OBF3 3A 40 OD90 133 Q50 EQU *
OBF7 C0 87 OCA2 184 SBN DVFLG-1,X'40'
185 B RTN107
186

OBF8 3A 04 OD90 187 QEO EQU *
188 SBN DVFLG-1,X'04'
189 TBN FLG14,X'20'
190 JF P1403
191 MVI PRTBUF+2,C'1'
192 MVI PRTBUF+3,C'4'
193 P1403 TBN QRSNS+2,X'04'
194 BF RTN107
195 ALC CNTOFS,ONE
196 LA DBUF,XR2
197 A CNTOFS,XR2
198 CLI 0(,XR2),X'7C'
199 JL INVALD
200 TBN FLG14,X'20'
201 JT PT1403
202 SLC 0(,XR2),I123
203 CLI 0(,XR2),24
204 JH S21
205 CLI 0(,XR2),16
206 JH A107
207 CLI 0(,XR2),12
208 JH A119
209 CLI 0(,XR2),5
210 I5 EQU *-2
211 JNL A107
212 A119 ALC 0(,XR2),I119
213 J DIVBY4
214 A107 ALC 0(,XR2),I107
215 J DIVBY4
216 S21 SLC 0(,XR2),I21
217 DIVBY4 B RSHIFT
218 J BOTH
219 PT1403 EQU *
220 JE ADD8
221 CLI 0(,XR2),X'7E'
222 JH SUB126
223 ALC 0(1,XR2),15
224 J BOTH
225 ADD8 ALC 0(1,XR2),EIGHT
226 J BOTH
227 SUB126 SLC 0(1,XR2),I126
228

OC6A F2 81 OE 229 BOTH B HEXDEC
OC6D BD 7E 00 230 J RTN107
OC70 F2 84 10 231 EQU *
OC73 8E 00 00 OC49 232 B PRTPOS
OC78 F2 87 00 233 J 0(7,XR1),INV
OC7B 8E 00 00 2398 234 MVC RTN107
OC80 F2 87 05 235
OC83 8F 00 00 236 Q50 EQU *
OC88 C0 87 11C2 237 SBN DVFLG-1,X'08'
OC8C F2 87 13 238 J RTN107
OC8F C0 87 12F4 239 EQU *
OC93 4C 06 00 23C7 240 RTN107
OC98 F2 87 07 241 B PRINT
242 DC XL1'21'
243 CLC OBRND@,OBRNT@
244 JE RTNIX
245 ALC OBRNT@,EIGHT
```

```
CHECK Q FOR PRINTER
1442
5203
TEST FOR 1403 ATTACHED
CHECK FOR HAMMER ECHO CHECK
LOOK AT LOW BYTE OF LDPAR
CONVERT LDPAR TO A DECIMAL
HAMMER #
TEST FOR 1403 ATTACHED
ADD 5
INVALID HAMMER #
5424
PRINT LINE
CHECK FOR END
```

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

```
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

OC86 OD 01 238F 251A 246 CLC OBRND@,OBRNT@
OC8C F2 81 20 247 JE RTN11X
OC8F OE 00 OCD3 OCD3 248 ALC MASK,MASK
OCC5 F2 01 0A 249 JNZ TBN
OCC8 OF 01 OCD5 OAB8 250 SLC BYTE@,ONE
OCCE 3C 01 OCD3 251 MVI MASK,X'01'
OCD2 38 00 0000 252 MASK EQU **1
OCD6 253 TBN TBN *-*,*-*
OCD6 F2 90 06 254 BYTE@ DS OAL2
OCD9 OE 01 251A 239B 255 JF RTN11X
OCD9 OE 01 251A 239B 256 ALC OBRNT@,EIGHT
OCDF C0 87 084C 257 RTN11X B RTN108
OCE3 C5D9D9D6D940C8C9 0D00 258 MSGX DC CL30'ERROR HISTORY TABLE IS INVALID'
OCEB E2E3D6D9E840E3C1 258
OCF3 C2D3C540C9E240C9 258
OCFB D5E5C1D3C9C4 258
OD01 40C4C140 0D04 259 DACON DC CL4' DA
OD05 260 Q20 EQU *
OD05 261 Q30 EQU *
OD05 262 Q40 EQU *
OD05 263 Q60 EQU *
OD05 264 Q70 EQU *
OD05 265 Q90 EQU *
OD05 266 QAO EQU *
OD05 267 QBO EQU *
OD05 268 QCO EQU *
OD05 269 QDO EQU *
OD05 C0 87 021A 270 ERMSG B PRINT
OD09 07 271 DC XL1'07'
OD0A 1E 272 DC I11'30'
OD0B OD00 273 DC AL2(MSGX)
OD0D F2 87 1F 274 J RTN11X
275
OD10 C2 02 0003 0D10 276 EMPTY EQU *
OD14 3A 10 0EF5 277 LA 3,XR2
OD18 C0 87 0EF6 278 SBN SCNFLG,SFLG SYNC PT 3
OD1C C2 02 0004 279 B SCAN
OD20 3A 10 0EF5 280 RTNIX LA 4,XR2
OD24 C0 87 0EF6 281 SBN SCNFLG,SFLG SYNC PT 4
282 B SCAN
283 *
284 *
285 DC XL1'07'
286 JF SBYTE4,SSW20
287 RTNIXX EQU *
288 MVI DBUF+255,X'00'
289 MVC DBUF+254(255),DBUF+255
290 B DISKIO
291 DC XL1'02' WRITE
292 MVI DSKSEC,X'1C'
293 MVC DBUF+3(4),OBR1
294 B DISKIO
295 DC XL1'02' WRITE
296 *****
297 * IF 3340 ATTACHED, REMIND CE THAT OBR,SDR PRINTED LATER *
298 *****
299
OD40 C0 87 021A 300 RTN334 B PRINT
OD51 02 301 DC XL1'02'
OD52 14 302 DC AL1(MSG3-MSG3B) PRINT --- 3340 ---
OD53 13A2 303 DC AL2(MSG3)
304
OD55 C0 87 021A 305 B PRINT
OD59 06 306 DC XL1'06' PRINT 3340 DONE IN LATER ROUTINE
OD5A 50 307 DC AL1(MSG4-MSG4B)
OD58 13F2 308 DC AL2(MSG4)
0D5D 309 RTNIX1 EQU *
310 *

END PRINT QUI OF OBR TBL
CHECK SSW20 TO RE-INITIALIZE OBR TBL
RTNIX1
```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

| | | | | | | | |
|------|----|----|------|------|-----|--------|-----------------|
| OD5D | 0C | 01 | 23AF | 23A4 | 311 | MVC | SYNC#,FIVE |
| OD63 | 3C | 10 | 2514 | | 312 | MVI | CNT,16 |
| OD67 | 0E | 01 | 0D91 | 0D91 | 313 | RTN111 | ALC DVFLG,DVFLG |
| OD6D | F2 | 20 | 0C | | 314 | JNDL | RTN112 |
| OD70 | 35 | 02 | 23AF | | 315 | L | SYNC#,XR2 |
| OD74 | 3A | 10 | 0EF5 | | 316 | SBN | SCNFLG,SFLG |
| OD78 | CO | 87 | 0EF6 | | 317 | B | SCAN |
| OD7C | 0E | 01 | 23AF | 0A8B | 318 | RTN112 | ALC SYNC#,ONE |
| OD82 | 0F | 00 | 2514 | 0A8B | 319 | | SLC CNT,ONE |
| OD88 | CO | 01 | 0D67 | | 320 | | BNZ RTN111 |
| OD8C | CO | 87 | 0216 | | 321 | B | LINK |

SYNC PT 5

END ROUTINE 1

| | | | | | | | | | | | | | | | |
|------|----------|--|--|--|------|-----|-------|--------|---------------|------|---|--|-----------|--|----------|
| 0D90 | 0000 | | | | 0D91 | 324 | DVFLG | DC | XL2'0' | | | | | | |
| 0D92 | 01FF01FF | | | | 0D95 | 325 | OBR1 | DC | XL4'01FF01FF' | | | | | | |
| | | | | | | 326 | * | DEVICE | BIT | BYTE | | | | | |
| | | | | | | 327 | * | | 5471 | 0 | 1 | | | | |
| | | | | | | 328 | * | | 1442 | 1 | 1 | | | | |
| | | | | | | 329 | * | | BSCA | 2 | 1 | | | | |
| | | | | | | 330 | * | | | 3 | 1 | | | | |
| | | | | | | 331 | * | | 5424 | 4 | 1 | | | | |
| | | | | | | 332 | * | | 5203/1403 | 5 | 1 | | | | |
| | | | | | | 333 | * | | | 6 | 1 | | | | |
| | | | | | | 334 | * | | | 7 | 1 | | | | |
| | | | | | | 335 | * | | | 8 | 2 | | | | |
| | | | | | | 336 | * | | | 9 | 2 | | | | |
| | | | | | | 337 | * | | | 10 | 2 | | | | |
| | | | | | | 338 | * | | | 11 | 2 | | | | |
| | | | | | | 339 | BRTBL | DC | AL2(Q10) | | | | 5471 | | KEYBOARD |
| 0D96 | 08D8 | | | | 0D97 | 340 | | DC | AL2(Q20) | | | | N/A | | |
| 0D98 | 0D05 | | | | 0D99 | 341 | | DC | AL2(Q30) | | | | N/A | | |
| 0D9A | 0D05 | | | | 0D9B | 342 | | DC | AL2(Q40) | | | | N/A | | |
| 0D9C | 0D05 | | | | 0D9D | 343 | | DC | AL2(Q50) | | | | 1442 | | |
| 0D9E | 0BF3 | | | | 0D9F | 344 | | DC | AL2(Q60) | | | | N/A | | |
| 0DA0 | 0D05 | | | | 0DA1 | 345 | | DC | AL2(Q70) | | | | N/A | | |
| 0DA2 | 0D05 | | | | 0DA3 | 346 | | DC | AL2(Q80) | | | | BSCA | | |
| 0DA4 | 0B8A | | | | 0DA5 | 347 | | DC | AL2(Q90) | | | | N/A | | |
| 0DA6 | 0D05 | | | | 0DA7 | 348 | | DC | AL2(QA0) | | | | N/A | | |
| 0DA8 | 0D05 | | | | 0DA9 | 349 | | DC | AL2(QB0) | | | | N/A | | |
| 0DAA | 0D05 | | | | 0DAB | 350 | | DC | AL2(QC0) | | | | N/A | | |
| 0DAC | 0D05 | | | | 0DAD | 351 | | DC | AL2(QD0) | | | | N/A | | |
| 0DAE | 0D05 | | | | 0DAF | 352 | | DC | AL2(QE0) | | | | 5203/1403 | | |
| 0DB0 | 0BFB | | | | 0DB1 | 353 | | DC | AL2(QF0) | | | | 5424 | | |
| 0DB2 | 0C9B | | | | 0DB3 | 354 | DVTBL | EQU | * | | | | 5471 | | |
| | | | | | 0DB4 | 355 | | DC | CL4'5471' | | | | N/A | | |
| 0DB4 | F5F4F7F1 | | | | 0DB7 | 356 | | DC | CL4' | | | | N/A | | |
| 0DB6 | 40404040 | | | | 0DB8 | 357 | BLANK | EQU | *-1 | | | | N/A | | |
| | | | | | 0DBF | 358 | | DC | CL4' | | | | N/A | | |
| 0DBC | 40404040 | | | | 0DC3 | 359 | | DC | CL4'1442' | | | | 1442 | | |
| 0DC0 | 40404040 | | | | 0DC7 | 360 | | DC | CL4' | | | | N/A | | |
| 0DC4 | F1F4F4F2 | | | | 0DCB | 361 | | DC | CL4' | | | | N/A | | |
| 0DC8 | 40404040 | | | | 0DCD | 362 | | DC | CL4' | | | | N/A | | |
| 0DCC | 40404040 | | | | 0DD3 | 363 | | DC | CL4'BSCA' | | | | BSCA | | |
| 0DD0 | C2E2C3C1 | | | | 0DD7 | 364 | | DC | CL4' | | | | N/A | | |
| 0DD4 | 40404040 | | | | 0DD8 | 365 | | DC | CL4' | | | | N/A | | |
| 0DD8 | 40404040 | | | | 0DDF | 366 | | DC | CL4' | | | | N/A | | |
| 0DDC | 40404040 | | | | 0DE3 | 367 | | DC | CL4' | | | | N/A | | |
| 0DE0 | 40404040 | | | | 0DE7 | 368 | | DC | CL4' | | | | N/A | | |
| 0DE4 | 40404040 | | | | 0DEB | 369 | | DC | CL4'5203' | | | | 5203 | | |
| 0DE8 | F5F2F0F3 | | | | 0DEF | 370 | | DC | CL4'5424' | | | | 5424 | | |
| 0DEC | F5F4F2F4 | | | | | | | | | | | | | | |

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|----------------------|------|-------|--|
| | 372 | ***** | ROUTINE 2 ***** |
| | 373 | ***** | ***** |
| | 374 | * | * |
| ODF0 02 | ODF0 | 375 | RTN2 DC XL1'2' * ROUTINE # |
| ODF1 00 | ODF1 | 376 | DC XL1'0' * FLAG |
| ODF2 1770 | ODF3 | 377 | DC AL2(SRTN3) * NEXT ROUTINE |
| | 378 | * | * |
| | 379 | ***** | ***** |
| | 380 | ***** | ***** |
| ODF4 C0 87 021A | | 381 | B PRINT PRINT SSW |
| ODF8 41 | ODF8 | 382 | DC XL1'41' |
| ODF9 000000FF00 | ODFD | 383 | DC XL5'FF00' |
| ODFE 38 20 0A0E | | 384 | TBM FLG14,X'20' 1403 ATTACHED? |
| OE02 F2 90 04 | | 385 | JF *+7 NO |
| OE05 3C E1 0EFO | | 386 | MVI E1,X'E1' YES |
| OE09 39 20 0A14 | | 387 | TBF D51-1,X'20' 51 PRESENT? |
| OE0D F2 10 04 | | 388 | JT *+7 NO |
| OE10 3C 51 0EEF | | 389 | MVI DD51,X'51' YES |
| OE14 38 20 0A11 | | 390 | TBM FLGDA,X'20' DA ATTACHED? |
| OE18 F2 90 04 | | 391 | JF *+7 NO |
| OE1B 3C 89 0EF3 | | 392 | MVI DA89,X'89' YES |
| OE1F 3C A8 134C | | 393 | MVI DSKDRV,X'A8' |
| OE23 C2 02 0002 | | 394 | LA 2,XR2 |
| | OE26 | 395 | TWO EQU *-1 |
| OE27 C0 87 1311 | | 396 | B SYNMOV SYNC PT # 2 |
| | OE2B | 397 | SDRNXT EQU * |
| OE2B 3C 07 2514 | | 398 | MVI CNT,SDRLEN-SDRTBL NUMBER OF DEVICES IN SDR TABLE |
| OE2F 3C 03 23AF | | 399 | MVI SYNC#,3 |
| OE33 C2 02 0EEE | | 400 | LA SDRTBL,XR2 |
| OE37 34 02 2518 | | 401 | ST SDRIDX,XR2 |
| OE3B 35 01 2518 | | 402 | SDR6 L SDRIDX,XR1 |
| OE3F C2 02 0232 | | 403 | LA UDT,XR2 |
| OE43 6D 00 00 00 | | 404 | SDR2 CLC 0(1,XR1),0(1,XR2) SEARCH UDT FOR CODE |
| OE47 F2 81 0D | | 405 | JE SDRFND |
| OE4A B8 10 01 | | 406 | TBM 1(,XR2),X'10' CHECK FOR END |
| OE4D F2 10 84 | | 407 | JT SDR1 |
| OE50 E2 02 03 | | 408 | LA 3(,XR2),XR2 |
| OE53 C0 87 0E43 | | 409 | B SDR2 |
| | | 410 | * |
| OE57 35 02 23AF | OE57 | 411 | SDRFND EQU * |
| OE5B 3A 10 0EF5 | | 412 | L SYNC#,XR2 |
| OE5F C0 87 0EF6 | | 413 | SBN SCNFLG,SFLG |
| OE63 3B 02 0EF5 | | 414 | B SCAN |
| OE67 35 01 2518 | | 415 | SBF SCNFLG,BSFLG |
| OE6B 7D 80 00 | | 416 | L SDRIDX,XR1 |
| OE6E F2 81 26 | | 417 | CLI 0(,XR1),X'80' CHECK FOR BSCA |
| OE71 7D 88 00 | | 418 | JE SDRBSC |
| OE74 F2 81 20 | | 419 | CLI 0(,XR1),X'88' |
| OE77 7D 89 00 | | 420 | JE SDRBSC |
| OE7A F2 81 1A | | 421 | CLI 0(,XR1),X'89' CHECK FOR DA |
| | | 422 | JE SDRBSC |
| OE7D C0 87 11C2 | OE7D | 423 | SDR5 EQU * |
| OE81 0F 00 2428 0A8B | | 424 | SDR3 B HEXDEC |
| OE87 C0 01 0E7D | | 425 | SLC TABTBL(1),ONE |
| OE8B C0 87 021A | | 426 | BNZ SDR3 |
| OE8F 21 | OE8F | 427 | B PRINT |
| OE90 C0 87 0EF6 | | 428 | DC XL1'21' |
| OE94 F2 87 31 | | 429 | B SCAN |
| | | 430 | J SDR4 |
| | | 431 | * |
| OE97 3C 30 23A2 | OE97 | 432 | SDRBSC EQU * |
| OE9B C0 87 11C2 | | 433 | MVI CCNT,48 |
| OE9F 3C 02 23B9 | | 434 | SDR5 B HEXDEC |
| OEAB 0E 01 23B7 23A2 | | 435 | MVI CNTLNG,2 |
| OEAD C0 87 11C2 | | 436 | ALC CNTOFS,CCNT |
| OEAD C0 87 021A | | 437 | B HEXDEC |
| OE81 21 | OE81 | 438 | B PRINT |
| | | 439 | DC XL1'21' |

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|----------------------|------|------|---|
| OEB2 C0 87 0EF6 | | 440 | B SCAN |
| OEB6 3C 01 238B | | 441 | MVI TABIDX,1 |
| OEB8 0F 00 23A2 OE26 | | 442 | SLC CCNT,TWO CHECK FOR LAST LINE |
| OEC0 3D 16 23A2 | | 443 | CLI CCNT,48-26 |
| OEC4 C0 01 0E9B | | 444 | BNE SDRBS |
| | OEC8 | 445 | SDR4 EQU * |
| OEC8 39 80 020C | | 446 | TBF S8YTE4,SSW20 |
| OECF C2 90 05 | | 447 | JF SDR1 |
| OECF C0 87 1333 | | 448 | B DISK10 |
| OED3 02 | OED3 | 449 | DC XL1'02' WRITE |
| OED4 0E 01 23AF 0A8B | | 450 | SDR1 ALC SYNC#,ONE |
| OEDA 0E 01 2518 0A8B | | 451 | ALC SDRIDX,ONE |
| OEEO 0F 00 2514 0A8B | | 452 | SLC CNT,ONE |
| OEEO C0 01 0E3B | | 453 | BNZ SDR6 |
| OEEA C0 87 0216 | | 454 | B LINK |
| | | 455 | |
| | | 455 | |
| | OEEE | 456 | SDRTBL EQU * SYNC # |
| OEEO 10 | OEEE | 457 | DC XL1'10' 5471 |
| OEEF 51 | OEEF | 458 | DD51 DC XL1'51' 1442 |
| OEFO 00 | OEFO | 459 | E1 DC XL1'E0' 5203/1403 |
| OE01 F0 | OE01 | 460 | DC XL1'F0' 5424 |
| OE02 80 | OE02 | 461 | DC XL1'80' BSCA |
| OE03 88 | OE03 | 462 | DA89 DC XL1'88' BSCA 2/DA |
| OE04 40 | OE04 | 463 | DC XL1'40' 3741 |
| | | 464 | |
| | OE05 | 465 | SDRLEN EQU * THIS EQU MUST AT END OF SORTAB |
| | | 466 | |
| | | 467 | * END ROUTINE 2 |

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|-------------|------|----------------------|-------------------------------|
| 1064 | CO | 07 | 10A9 | 603 B READ |
| 1068 | OC | 5F | 08DF 24F8 | 604 MVC PRTBUF+95(96),PBUF+95 |
| 106E | 35 | 02 | 2502 | 605 MSG2 L CSTR0,XR2 |
| 1072 | BD | 6C | 00 | 606 CLI 0(,XR2),C'8' |
| 1075 | CO | 81 | 0F71 | 607 BE NEXT |
| 1079 | CO | 87 | 021A | 608 B PRINT |
| 107D | 20 | 107D | 609 SPCMT DC XL1'20' | |
| 107E | CO | 87 | 0F71 | 610 B NEXT |
| | | 1082 | 611 ASTER EQU * | |
| 1082 | AB | 01 | 02 01 | 612 MZN 2(,XR2),1(,XR2) |
| 1086 | 7C | 5C | 00 | 613 AST1 MVI 0(,XR1),C'8' |
| 1089 | D2 | 01 | 01 | 614 LA 1(,XR1),XR1 |
| 108C | 8F | 00 | 02 0A8B | 615 SLC 2(1,XR2),ONE |
| 1091 | CO | 01 | 1086 | 616 BNZ AST1 |
| 1095 | F2 | 87 | 0A | 617 J SP1 |
| | | 1098 | 619 SPACE EQU * | |
| 1098 | AB | 01 | 02 01 | 620 MZN 2(,XR2),1(,XR2) |
| 109C | 8C | 00 | 01 | 621 MVI 1(,XR2),X'00' |
| 109F | B6 | 01 | 02 | 622 A 2(,XR2),XR1 |
| 10A2 | E2 | 02 | 03 | 623 SP1 LA 3(,XR2),XR2 |
| 10A5 | CO | 87 | 1040 | 624 B MSGCK |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------|------------------|------|---|---|
| 626 | | | | ***** |
| 627 | * | READ | * | 1. READS DATA CARDS INTO PRTBUF * |
| 628 | ***** | | | 2. CHECK SEQUENCE OF DATA CARDS * |
| 629 | * | | | 4. MOVES DATA CARD FROM PRTBUF TO CBUF * |
| 630 | * | | | 5. RESETS CSTR0 * |
| 631 | * | | | 6. PROVIDE A MESSAGE AND HALT TO USER IF DATA CARDS ARE * |
| 632 | * | | | NOT IN ORDER * |
| 633 | * | | | * |
| 634 | ***** | | | ***** |
| 10A9 | 34 | 08 | 1112 | 635 READ EQU * |
| 10AD | 38 | 80 | 0EF5 | 636 ST REXT0,ARR |
| 10B1 | F2 | 90 | 25 | 637 RST TBM SCNFLG,FFLG |
| | | | | 638 JF RD1 |
| | | | | 639 * READ HEADER CARD |
| 10B4 | 04 | 30 | 2498 239C | 640 ZAZ CRDNMB(4),DZERO SET CRDNMB TO 0 |
| 10BA | 3D | C1 | 0232 | 641 CLI X'232',X'C1' TEST FOR DISK OCF |
| 10BE | F2 | 01 | 0A | 642 JNE RD2 |
| 10C1 | CO | 87 | 022A | 643 B LOAD |
| 10C5 | 20 | 10C5 | 644 DC XL1'20' | |
| 10C6 | D0CF | 10C7 | 645 DC XL2'D0CF' | |
| 10C8 | F2 | 87 | 05 | 646 J RD4 |
| 10CB | CO | 87 | 022A | 647 RD2 B LOAD |
| 10CF | 10 | 10CF | 648 DC XL1'10' | |
| 10D0 | 0D | 03 | 08DF 2498 | 649 RD4 CLC PRTBUF+95(4),CRDNMB TEST FOR HEADER CARD |
| 10D6 | F2 | 01 | 05 | 650 JNE RD3 |
| | | 10D9 | 651 RD1 EQU * | |
| 10D9 | CO | 87 | 022A | 652 B LOAD |
| 10DD | 10 | 10DD | 653 DC XL1'10' | |
| | | 10DE | 654 RD3 EQU * | |
| 10DE | CO | 87 | 021E | 655 B UNPACK |
| 10E2 | 01 | 10E2 | 656 DC XL1'01' | |
| 10E3 | 0A01 | 10E4 | 657 DC AL2(PID) | |
| 10E5 | 115B | 10E6 | 658 DC AL2(LEVEL) | |
| 10E7 | 0D | 00 | 08DB 115B | 659 CLC PRTBUF+91(11),LEVEL CHECK LEVEL OF OCF (DATA CARDS) |
| 10ED | F2 | 01 | 58 | 660 JNE NSLEV |
| 10FD | 00 | 30 | 2498 239D | 661 AZ CRDNMB(4),DONE |
| 10F6 | 0D | 03 | 2498 08DF | 662 CLC CRDNMB(4),PRTBUF+95 |
| 10FC | F2 | 01 | 14 | 663 JNE UNORD |
| 10FF | OC | 5F | 2498 08DF | 664 MVC CBUF+95(96),PRTBUF+95 |
| 1105 | OC | 01 | 2502 2391 | 665 MVC CSTR0,CBUF0 |
| 1108 | 3B | 80 | 0EF5 | 666 SBF SCNFLG,FFLG |
| 110F | CO | 87 | 0000 | 667 B *-* |
| | | 1112 | 668 REXT0 EQU *-1 | |
| 1113 | CO | 87 | 021A | 669 UNORD B PRINT |
| 1117 | 87 | 1117 | 670 DC XL1'87' | |
| 1118 | 23 | 1118 | 671 DC IL1'35' | |
| 1119 | 1147 | 111A | 672 DC AL2(RMSG) | |
| 111B | CO | 87 | 0222 | 673 B HALT |
| 111F | 00EC | 1120 | 674 DC XL2'00EC' | |
| 1121 | CO | 87 | 1113 | 675 B UNORD |
| 1125 | C4C1E3C140C3C1D9 | 1147 | 676 RMSG DC CL35'DATA CARDS NOT IN ORDER,RE-RUN ERAP' | |
| 112D | C4E240D5D6E340C9 | | 676 | |
| 1135 | D540D6D9C4C5D96B | | 676 | |
| 113D | D9C560D9E4D540C5 | | 676 | |
| 1145 | D9C1D7 | | 676 | |
| 1148 | CO | 87 | 021A | 677 NSLEV B PRINT |
| 114C | 87 | 114C | 678 DC XL1'87' | |
| 114D | 12 | 114D | 679 DC IL1'18' | |
| 114E | 116C | 114F | 680 DC AL2(LVLRMSG) | |
| 1150 | CO | 87 | 0222 | 681 B HALT |
| 1154 | 00EE | 1155 | 682 DC XL2'00EE' | |
| 1156 | CO | 87 | 10AD | 683 B RST |
| 115A | 0000 | 1158 | 684 LEVEL DC XL2'G0' | |
| 115C | 60D7D9D6D7C5D940 | 116C | 685 LVLMSG DC CL17'--PROPER LEVEL OCF' | |
| 1164 | D3C5E5C5D340FOC3 | | 685 | |
| 116C | C6 | | 685 | |

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

687 *****
688 * PACK * PACKS DATA IN PBUF BACK INTO PBUF FROM LEFT TO RIGHT *
689 *****
690 *
691 *****
692 *****
116D 34 08 1198
1171 35 01 2395
1175 35 02 2395
1179 98 01 00 01
117D 98 03 00 01
1181 D2 01 02
1184 E2 02 01
1187 34 01 2513
118B 0D 01 2513 24FE
1191 C0 82 1179
1195 C8 87 0000
1198 704 PEXT2 EQU *-1
705
705
705
705
705
705
705
705
705
705
705
706 *****
707 * RSHIFT * SHIFTS A BYTE 2 BINARY PLACES TO THE RIGHT *
708 ***** END OFF
709 *
710 *****
1199 711 RSHIFT EQU *
712 ST RSHFX2,ARR
713 LA DBUF,XR2
714 A CNTOFS,XR2
715 LA 6,XR1
716 RSHF1 ALC O(1,XR2),O(,XR2)
717 JNOL RSHF2
718 SBN O(,XR2),X'01'
719 RSHF2 A FFFF,XR1
720 BNZ RSHF1
721 SBF O(,XR2),X'CO'
722 B *-*
11C1 723 RSHFX2 EQU *-1

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```

725 *****
726 * HEXDEC * CONVERTS A HEX # TO A PRINTABLE DECIMAL # IN PRTBUF *
727 ***** WITH LEADING ZEROS SUPPRESSED
728 *
729 * LENGTH OF HEX # IS CONTAINED IN CNTLNG
730 * LOCATION OF RIGHT BYTE POSITION OF THE HEX # IS
731 * @ (DBUF)+CNTPOS+CNTLNG-1
732 * LOCATION OF PRINT POSITION (RIGHT MOST) IS
733 * @ (PRTBUF-1) + TABTBL(TABIDX)
734 * ON EXIT
735 * HEX # WILL BE ZERO
736 * CNTOFS IS INCREASED BY (CNTLNG)
737 * TABIDX IS INCREASED BY 1
738 *****
11C2 739 HEXDEC EQU *
740 ST CVTX2,ARR SAVE RETURN @
741 LA LNGBL-1,XR2
742 A CNTLNG,XR2
743 MVC MVCL(1),O(,XR2) SET LNG OF DEC #
744 * SET LOOP COUNT (CNTLNG*8)
745 LA CVTCNT,XR1
746 MVC O(2,XR1),CNTLNG
747 ALC O(2,XR1),O(,XR1)
748 ALC O(2,XR1),O(,XR1)
749 ALC O(2,XR1),O(,XR1)
750 * SET LENGTH OF HEX # INSTR.
751 MVC TEMP,CNTLNG
752 SLC TEMP,ONE
753 MVC ALCL(1),TEMP
754 MVC CLCL(1),TEMP
755 * SET XR2 TO RIGHT POS OF HEX #
756 LA DBUF,XR2
757 A CNTOFS,XR2
758 A TEMP,XR2
759 ZAZ DEC,DZERO ZERO DEC #
760 *
1213 761 CLCL EQU **1
762 CLC O(1,XR2),DZERO TEST FOR ZERO
763 JE HEXD0
764 HEXD1 AZ DEC,DEC DOUBLE DEC #
1221 765 ALCL EQU **1
766 ALC O(1,XR2),O(,XR2) SHIFT HEX NUM
767 JNOL HEXD2 TEST FOR OVERFLOW
768 AZ DEC,DONE ADD 1 TO DEC #
769 HEXD2 SLC CVTCNT,ONE TEST FOR END
770 BNZ HEXD1
771 HEXD5 ITC DEC-14(15),BLANK
772 TBN SCNFLG,ZFLG
773 BF HEXD3
774 MVI DEC,C'0'
775 HEXD3 SBF SCNFLG,ZFLG
776 * SET XR1 TO RIGHT POS OF PRINT POS.
777 B PRTPOS
1252 778 MVCL EQU **1
779 MVC O(1,XR1),DEC MOVE DEC # TO PRTBUF
780 ALC CNTOFS,CNTLNG
781 J CVTX
782 HEXD0 SBN SCNFLG,ZFLG
783 B HEXD5
1267 784 LNGBL EQU * CNTLNG
1267 785 DC IL1'2' 1
1268 786 DC IL1'4' 2
1269 787 DC IL1'7' 3
126A 788 DC IL1'9' 4
126B 789 DC IL1'12' 5
126C 790 DC IL1'14' 6
126D 000000000000 1272 791 DZERO DC XL6'00'
792

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT | |
|---------|---------------|--------|--------------|------------------|----------|
| 1273 | 34 08 12F3 | | | | |
| 1277 | C2 92 2623 | | | | |
| 1278 | 36 02 2387 | | | | |
| 127F | CD 87 12F4 | | | | |
| 1283 | 36 01 23AA | | | | |
| 1287 | 38 01 128C | | | | |
| 1288 | 68 02 00 00 | | | | |
| 128F | 7A F0 00 | | | | |
| 1292 | 7D F9 00 | | | | |
| 1295 | F 04 05 | | | | |
| 1298 | 4F 00 00 12A0 | | | | |
| 129D | D2 01 01 | | | | |
| 12A0 | 39 01 128C | | | | |
| 12A4 | F2 90 3A | | | | |
| 12A7 | 3A 01 128C | | | | |
| 12AB | C0 87 1288 | | | | |
| 793 | ***** | | | | |
| 794 | ***** | | | | |
| 795 | ***** | | | | |
| 796 | ***** | | | | |
| 797 | ***** | | | | |
| 1273 | 798 | HEXHEX | EQU * | | |
| | 799 | ST | CVTX2,ARR | | |
| | 800 | LA | DBUF,XR2 | | |
| | 801 | A | CNTOFS,XR2 | | |
| | 802 | B | PRTPOS | | |
| | 803 | A | FFFF,XR1 | | |
| | 804 | SBF | SWITCH,X'01' | FORM MNZ | |
| 128C | 805 | SWITCH | EQU | **1 | |
| | 806 | HEX2 | MNZ | O(,XR1),O(,XR2) | |
| | 807 | | SBN | O(,XR1),X'F0' | |
| | 808 | | CLI | O(,XR1),X'F9' | |
| | 809 | | JNH | HEX3 | |
| | 810 | | SLC | O(1,XR1),X39 | |
| | 811 | HEX3 | LA | 1(,XR1),XR1 | |
| | 812 | X39 | TBF | SWITCH,X'01' | |
| | 813 | | JF | CVTX1 | |
| | 814 | | SBN | SWITCH,X'01' | FROM MZZ |
| | 815 | | B | HEX2 | |

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT | |
|---------|-----------------|--------|------------|--------------------------------|-----------------------------|
| 817 | ***** | | | | |
| 818 | ***** | | | | |
| 819 | ***** | | | | |
| 820 | ***** | | | | |
| 821 | ***** | | | | |
| 822 | ***** | | | | |
| 823 | ***** | | | | |
| 824 | ***** | | | | |
| 825 | ***** | | | | |
| 826 | ***** | | | | |
| 827 | ***** | | | | |
| 828 | ***** | | | | |
| 829 | ***** | | | | |
| 830 | ***** | | | | |
| 12AF | 831 | CVTBIN | EQU * | SAVE EXIT 2 | |
| | 832 | ST | CVTX2,ARR | COMPUTE POSITION OF HEX BYTS | |
| | 833 | LA | DBUF,XR2 | | |
| | 834 | A | CNTOFS,XR2 | COMPUTE POSITION OF PRINT POS. | |
| | 835 | * | | | |
| | 836 | B | PRTPOS | | |
| | 837 | A | NEG7,XR1 | | |
| | 838 | * | | | |
| | 839 | MVI | CVTCNT,8 | SET LOOP CNT | |
| | 840 | CVTB2 | MVI | O(,XR1),C'0' | SET PRINT CHAR 0,BY DEFAULT |
| | 841 | ALC | ALC | O(,XR2),O(,XR2) | |
| | 842 | JNOL | JNOL | CVTB1 | TEST FOR BIT ON |
| | 843 | MVI | MVI | O(,XR1),C'1' | BIT ON,SET PRINT CHAR 1 |
| | 844 | CVTB1 | LA | 1(,XR1),XR1 | |
| | 845 | | SLC | CVTCNT,ONE | |
| | 846 | | BNZ | CVTB2 | |
| 12E1 | 847 | CVTX1 | EQU * | | |
| | 848 | | MVI | O(,XR2),0 | |
| | 849 | | ALC | CNTOFS,ONE | |
| | 850 | * | | | |
| 12EA | 851 | CVTX | EQU * | | |
| | 852 | | ALC | TABIDX,ONE | |
| | 853 | | B | *-* | |
| | 854 | CVTX2 | EQU * | *-1 | |
| 12F3 | 855 | PRTPOS | EQU * | | |
| 12F4 | 856 | | ST | PRTX2,ARR | |
| | 857 | | LA | TABTBL,XR1 | |
| | 858 | | A | TABIDX,XR1 | |
| | 859 | | MVC | H24(1),O(,XR1) | |
| | 860 | | LA | PRTBUF-1,XR1 | |
| | 861 | | A | H24,XR1 | |
| | 862 | | B | *-* | |
| 1310 | 863 | PRTX2 | EQU | *-1 | |
| | 864 | | | | |
| | 864 | | | | |
| | 864 | | | | |
| | 864 | | | | |
| | 864 | | | | |
| 1311 | 865 | SYNMOV | EQU * | LOAD SYNC PTS FOR RTNX | |
| | 866 | * | ST | SYNMX2,ARR | |
| | 867 | | | | |
| 1315 | 868 | SYNR | EQU * | | |
| | 869 | | MVI | CHKSW1,X'82' | |
| | 870 | | MVI | CHKSW,X'82' | |
| | 871 | | SBN | SCNFLG,SFLG | |
| | 872 | | B | SCAN | |
| | 873 | | MVC | SYNTBL+12+83(84),CBUF+84 | |
| | 874 | | B | READ | |
| | 875 | | B | *-* | |
| 1332 | 876 | SYNMX2 | EQU | *-1 | |
| 1311 | 34 08 1332 | | | | |
| 1315 | 3C 82 1058 | | | | |
| 1319 | 3C 82 0F88 | | | | |
| 131D | 3A 10 0EF5 | | | | |
| 1321 | C0 87 0EF6 | | | | |
| 1325 | 0C 53 2427 248D | | | | |
| 132B | C0 87 10A9 | | | | |
| 132F | C0 87 0000 | | | | |

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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878
879 *****
880 * DISKIO *          CALLING SEQUENCE *
881 *                   B   DISKIO          *
882 *                   DC  XL1'XX'         XX=01 - READ *
883 *                   XX=02 - WRITE      *
884 * DISKIO *READ OR WRITE A SECTOR ON CYL 0   OF DRIVE THAT IS *
885 *          CONTAINED IN DSKDRV, THE SECTOR NUMBER IS CONTAINED *
886 *          IN DSKSEC. *
887 *          *A FX (X=1-4) HALT WILL OCCUR IF DISK IS NOT READY OR ERROR *
888 *          OCCURS ON A READ OR WRITE. TEN RETRYs ARE MADE BEFORE *
889 *          A HALT IS GIVEN. A RESET HALT WILL RETRY THE FUNCTION. *
890 *
891 *
892 *****
1333 893 DISKIO EQU *
894 LA DISKIO,XR1
1333 895 USING DISKIO,XR1
896 ST DISKX2(XR1),ARR STORE ARR ADDRESS INTO DISKX2 *GC*
897 L DISKX2(XR1),XR2 LAOD ARR VALUE INTO XR2 *GC*
898 MVC DSKFCT(1,XR1),0(XR2) MOVE (READ/WRITE) FUN N BITS *GC*
899 B DISK33 BRANCH TO 3340 SECTION FOR TEST *GC*
1346 900 DSKFCT EQU *-1
901 SIO2 SID 0,0 READ OR WRITE DATA
1349 902 DISKX2 DC AL2(*-*) SAVE CALLERS ARR VALUE
903
904 *****
905 * DISK FLAG IN SEEK
906 * BIT 0 = 0 HEAD 0 UPPER SURFACE
907 * = 1 HEAD 1 LOWER SURFACE
908 * BIT 1 - 6 NOT USED
909 * BIT 7 = 0 SELECT DIRECTION TOWARD DECREASING CYL #
910 * = 1 SELECT DIRECTION TOWARD INCREASING CYL #
911 * DISK FLAG FOR ALL OTHER OPERATIONS
912 * BIT 0 - 5 HOLD THE BINARY REPRESENTATION OF THE SECTOR
913 * ID NUMBER
914 * BIT 6 , 7 NOT USED ** MUST BE 00 **
915 *****
134A 0000 1348 916 STATUS DC XL2'0'
134C 917 DSKDRV EQU *
134C A8 134C 918 DC XL1'A8' DA & M BIT FOR DISK
1340 00 1340 919 DSKFLG DC XL1'0' FLAG *****
134E 00 134E 920 DSKCYL DC XL1'0' CYLINDER * DISK CONTROL FIELD *
134F 00 134F 921 DSKSEC DC XL1'0' SECTOR *
1350 00 1350 922 DSKNUM DC XL1'0' # TC MOVE *****
1351 1340 1352 923 DCR DC AL2(DSKFLG) DISK CONTROL ADDRESS REG FOR RD/WRT
1353 2623 1354 924 DBUF2 DC AL2(DBUF) START ADDRESS OF DATA BUFFER
1354 925 DAR EQU *-1
926 *
1355 927 HLTTL EQU * HALT CODE VOLUME DEVICE ADDR.
1355 F2 1355 928 DC XL1'F2' 2 AO
1356 F1 1356 929 DC XL1'F1' 1 AB
1357 F4 1357 930 DC XL1'F4' 4 B0
1358 F3 1358 931 DC XL1'F3' 3 B8
1359 40C8C1D3E34060C6 138A 932 DC CL50' HALT -FX- X=1-4, VOL X IS NOT READY OR ERROR ON V'
1361 E76040E77EF160F4 932
1369 6840E5D6D340E740 932
1371 C9E240D5D6E340D9 932
1379 C5C1C4E840D6D940 932
1381 C5D9D9D6D940D6D5 932
1389 40E5 932
138B D6D340E7 138E 933 DSKMSG DC CL04'OL X'
138E 934 MSG3B EQU *-1
138F 404060606040F3F3 13A2 935 MSG3 DC CL20' --- 3340 ---
1397 F4F0406060604040 935
139F 40404040 935
13A3 40404040F3F3F4F0 13A2 936 MSG4B EQU *-1
13CA 937 DC CL40' 3340 ERROR HISTORY AND OTHER ERROR D'

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```

13AB 40C5D9D6D940C8 937
13B3 C9E2E3D6D9E840C1 937
13B8 D5C440D6E3C8C5D9 937
13C3 40C5D9D6D940C4 937
13CB C1E3C140E6C9D3D3 13F2 938 MSG4 DC CL40'ATA WILL BE PRINTED BY LATER ROUTINES.
13D3 40C2C540D7D9C9D5 938
13DB E3C5C440C2E840D3 938
13E3 C1E3C5D940D9D6E4 938
13EB E3C9D5C5E24B4040 938
0001 939 DROP XR1

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
16DD 40C1C6E3C5D940D9 16F0 1167 PD48 DC CL20 AFTER READ DIAG CMD* *GC*
16E5 C5C1C440C4C9C1C7 1167
16ED 40C3D4C4 1167
1168
1168
16F1 16FB 16F2 1169 LDCF DC AL2(DDCF) ADDRESS LEFT-MOST BYTE OF DDCF *GC*
16F3 1705 16F4 1170 LDDF DC AL2(DDDF) ADDRESS LEFT-MOST BYTE OF DDDF *GC*
16F5 170F 16F6 1171 LDCX DC AL2(DDCX) ADDRESS LEFT-MOST BYTE OF DDCX (DDCF) *GC*
16F7 2623 16F8 1172 LBUF DC AL2(DBUF) ADDRESS LEFT-MOST BYTE OF DBUF *GC*
16F9 1728 16FA 1173 LSNS DC AL2(DSNS) ADDRESS LEFT-MOST BYTE OF DSNS *GC*
1174 *****READ/WRITE KEY-DATA***** *GC*
1175 * DDCF * F * CC * HH * R * KL * DL * N * DISK DRIVE *GC*
1176 ***** CONTROL FIELD *GC*
16FB 1177 DDCF EQU * *GC*
16FB 00 16FB 1178 DC XL1'0' FLAG R W *GC*
16FC 0000 16FD 1179 DC XL2'00' CYLINDER E R *GC*
16FE 0000 16FF 1180 DC XL2'00' HEAD ADDRESS A D I *GC*
1700 00 1700 1181 DC XL1'0' RECORD *GC*
1701 00 1701 1182 DC XL1'0' KEY LENGTH *GC*
1702 0000 1703 1183 DC XL2'00' DATA LENGTH CONTROL *GC*
1704 00 1704 1184 DC XL1'0' COUNT *GC*
1704 1185 DDCFE EQU *-1 *GC*
1186 ***** READ HA & RO ***** *GC*
1705 1187 DDDF EQU * *GC*
1705 0000000000000000 170E 1188 DC XL10'0' * DISK DRIVE DATA FIELD FOR READ HA & RO *GC*
170D 0000 1188
1189 ***** *GC*
170F 1190 DDCX EQU * *GC*
170F 00 170F 1191 DC XL1'0' FLAG C *GC*
1710 0000 1711 1192 DC XL2'00' CYLINDER D *GC*
1712 0000 1713 1193 DC XL2'00' HEAD ADDRESS N F *GC*
1714 00 1714 1194 DC XL1'0' RECORD R *GC*
1715 00 1715 1195 DC XL1'0' KEY LENGTH I *GC*
1716 0000 1717 1196 DC XL2'00' DATA LENGTH *GC*
1718 00 1718 1197 DC XL1'0' COUNT *GC*
1718 1198 DDCZ EQU *-1 *GC*
1719 0008 171A 1199 DDZL DC XL2'0008' **DATA LENGTH** FOR READ HA & RO *GC*
1200 ***** *GC*
171B C8 171B 1201 DRV32 DC XL1'C8' * DISK DRIVE ADDRESS BITS DRIVE 2 *GC*
171C 0000000000000000 1725 1202 DDCFB DC XL10'0000000000000000 * INITIAL VALUE FOR DDCF *GC*
1724 0000 1202
1726 170A 1727 1203 AREC# DC AL2(DDDF+5) * ADDRESS FOR ALTERNATE RECORD # USED. *GC*
1204 ***** *GC*
1205
1205
1205
1728 1206 DSNS EQU * *GC*
173F 1207 DSNSE DS XL24 *GC*
1740 1740 176F 1208 PSNS DS XL48 *GC*
1209 ***** END OF DISK I/O FOR 3340 ***** *GC*

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

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ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
1211 *****
1212 *
1213 * ROUTINE 3 - PRINT 3340 USAGE AND ERROR SUMMARY TABLE *
1214 *
1215 *****
1216 *
1217 * ROUTINE PREFACE *
1218 *
1770 03 1770 1219 $RTN3 DC XL1'03' ROUTINE NUMBER
1771 00 1771 1220 DC XL1'00' ROUTINE FLAGS
1772 180E 1773 1221 DC AL2($RTN4) ADDRESS OF NEXT ROUTINE
1222 *
1223 *
1224 * ROUTINE INITIALIZATION *
1225 *
1226 MVI $IND,0 RESET ALL PROGRAM INDICTORS
1227 *
1228 $R5 B $REGIN PERFORM COMMON INITIALIZATION
1229 *
1230 MVC $CYL(2),$P209 INITIALIZE 3340 CYLINDER ADDRESS
1231 MVC $HD(2),$PI INITIALIZE 3340 HEAD ADDRESS
1232 MVI $PTR,0 INITIALIZE LOG RECORD POINTER
1233 *
1234 B $IO READ FIRST LOG RECORD FROM 3340
1235 *
1236 LA $PBUF,$XR1 PRINT BUFFER ADDRESS TO INDEX REG 1
1237 *
1238 *
1239 * PRINT SUMMARY TABLE TITLE AND INPUT DRIVE IDENTIFIER *
1240 *
1241 MVC 35(36,$XR1),$M04N BUILD TITLE
1242 MVC 57(22,$XR1),$M06N TITLE
1243 MVC 57(1,$XR1),$DRVID LINE
1244 *
1245 B $SPRINT PRINT
1246 DC XL1'42' TITLE
1247 DC IL1'50' LINE
1248 DC AL2($PBUF+57)
1249 DC AL2($HLT00)
1250 *
1251 *
1252 * PRINT SUMMARY TABLE HEADING LINES *
1253 *
1254 MVI 104(,$XR1),C' * BUILD FIRST
1255 MVC 103(104,$XR1),104(,$XR1) LINE OF SUMMARY TABLE
1256 *
1257 B $SPRINT PRINT FIRST
1258 DC XL1'01' LINE OF SUMMARY TABLE
1259 DC IL1'105'
1260 DC AL2($PBUF+104)
1261 *
1262 MVI 103(,$XR1),C' * CLEAR
1263 MVC 102(102,$XR1),103(,$XR1) PRINT BUFFER
1264 *
1265 MVI 6(,$XR1),C' * BUILD
1266 MVI 15(,$XR1),C' * SECOND
1267 MVI 24(,$XR1),C' * LINE OF
1268 MVI 50(,$XR1),C' * SUMMARY
1269 MVI 63(,$XR1),C' * TABLE
1270 MVI 82(,$XR1),C' *
1271 MVI 92(,$XR1),C' *
1272 MVC 21(5,$XR1),$M07H
1273 MVC 44(16,$XR1),$M08N
1274 MVC 58(4,$XR1),$M09+B
1275 MVC 74(4,$XR1),$M10H
1276 MVC 89(5,$XR1),$M11N
1277 MVC 100(5,$XR1),$M11N
1278 *

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|----------------------|-------------|-------------|------|--|----------------------------------|
| ICAA 21D4 | | 1CAB 1804 | DC | AL2(\$REC+19) | BYTES TO |
| ICAC 222F | | 1CAD 1805 | DC | AL2(\$PBUF+46) | PRINT BUFFER |
| | | 1806 * | | | |
| ICAE CO 87 021E | | 1807 | B | \$UNPK | UNPACK |
| ICB2 04 | | 1CB2 1808 | DC | IL1'4' | FOUR SENSE |
| ICB3 21D8 | | 1CB4 1809 | DC | AL2(\$REC+23) | BYTES TO |
| ICB5 2238 | | 1CB6 1810 | DC | AL2(\$PBUF+55) | PRINT BUFFER |
| | | 1811 * | | | |
| ICB7 CO 87 021E | | 1812 | B | \$UNPK | UNPACK |
| ICB8 04 | | 1CBB 1813 | DC | IL1'4' | FOUR SENSE |
| ICBC 21DC | | 1CBD 1814 | DC | AL2(\$REC+27) | BYTES TO |
| ICBE 2241 | | 1CBF 1815 | DC | AL2(\$PBUF+64) | PRINT BUFFER |
| | | 1816 * | | | |
| ICC0 CO 87 021E | | 1817 | B | \$UNPK | UNPACK |
| ICC4 04 | | 1CC4 1818 | DC | IL1'4' | FOUR SENSE |
| ICC5 21E0 | | 1CC6 1819 | DC | AL2(\$REC+31) | BYTES TO |
| ICC7 224A | | 1CC8 1820 | DC | AL2(\$PBUF+73) | PRINT BUFFER |
| | | 1821 * | | | |
| ICC9 CO 87 021E | | 1822 | B | \$UNPK | UNPACK |
| ICCD 04 | | 1CCD 1823 | DC | IL1'4' | FOUR SENSE |
| ICCE 21E4 | | 1CCF 1824 | DC | AL2(\$REC+35) | BYTES TO |
| ICD0 2253 | | 1CD1 1825 | DC | AL2(\$PBUF+82) | PRINT BUFFER |
| | | 1826 * | | | |
| ICD2 CO 87 021E | | 1827 | B | \$UNPK | UNPACK |
| ICD6 04 | | 1CD6 1828 | DC | IL1'4' | FOUR SENSE |
| ICD7 21E8 | | 1CD8 1829 | DC | AL2(\$REC+39) | BYTES TO |
| ICD9 225C | | 1CDA 1830 | DC | AL2(\$PBUF+91) | PRINT BUFFER |
| | | 1831 * | | | |
| ICD8 CO 87 021A | | 1832 | B | \$PRINT | PRINT |
| ICDF 01 | | 1CDF 1833 | DC | XL1'01' | LOG ENTRY |
| ICE0 5E | | 1CE0 1834 | DC | IL1'94' | |
| ICE1 225E | | 1CE2 1835 | DC | AL2(\$PBUF+93) | |
| | | 1836 * | | | |
| | | 1837 * | | | |
| | | 1838 * | | SEARCH FOR NEXT LOG ENTRY TO BE PROCESSED | |
| | | 1839 * | | | |
| ICE3 0E 00 218F 21A6 | | 1840 \$R6E | ALC | \$PTR(1), \$P1 | ADVANCE LOG ENTRY POINTER |
| | | 1841 * | | | |
| ICE9 3D 8F 218F | | 1842 | CLI | \$PTR, 191 | BRANCH IF NOT |
| ICED F2 82 04 | | 1843 | JL | \$R6E1 | YET END OF LOG AREA |
| | | 1844 * | | | |
| ICF0 3C 00 218F | | 1845 | MVI | \$PTR, 0 | WRAP BACK TO FIRST LOG ENTRY |
| | | 1846 * | | | |
| ICF4 0D 00 218F 2194 | | 1847 \$R6E1 | CLC | \$PTR(1), \$PTRF | BRANCH IF ALL LOG |
| ICFA F2 81 10 | | 1848 | JE | \$R6E | ENTRIES HAVE BEEN PROCESSED |
| | | 1849 * | | | |
| ICFD CO 87 1DD5 | | 1850 | B | \$IO | READ NEXT LOG ENTRY |
| | | 1851 * | | | |
| 1DD1 3D 00 21C1 | | 1852 | CLI | \$REC, 0 | BRANCH IF |
| 1DD5 CO 81 ICE3 | | 1853 | BE | \$R6E | UNUSED ENTRY |
| | | 1854 * | | | |
| 1DD9 CO 87 1C62 | | 1855 | B | \$R6D | GO TO FORMAT AND PRINT LOG ENTRY |
| | | 1856 * | | | |
| | | 1857 * | | | |
| | | 1858 * | | CLEAR LOG AREA IF REQUIRED | |
| | | 1859 * | | | |
| 1DD0 3A 08 2188 | | 1860 \$R6N | SBN | \$IND, \$CLEAR | SET 'CLEAR LOG' INDICATOR |
| | | 1861 * | | | |
| 1D11 38 80 020C | | 1862 | TBN | \$SBY4, \$SSW20 | CLEAR LOG AREA IF |
| 1D15 CO 90 1DD5 | | 1863 | BF | \$IO | SENSE SWITCH 20 IS OFF |
| | | 1864 * | | | |
| 1D19 3B 08 2188 | | 1865 | SBF | \$IND, \$CLEAR | RESET 'CLEAR LOG' INDICATOR |
| | | 1866 * | | | |
| | | 1867 * | | | |
| | | 1868 * | | PREPARE TO PRINT HISTORY FOR NEXT DRIVE ID | |
| | | 1869 * | | | |
| 1D1D 0E 00 218E 21A6 | | 1870 | ALC | \$HD(1), \$P1 | ADVANCE HEAD ADDRESS |
| 1D23 06 00 2193 21AD | | 1871 | AZ | \$DRV(1), \$D1(1) | ADVANCE DRIVE IDENTIFIER |

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|------|------|--------|-----------|
| | | | | 1872 * | |
| | | | | 1873 | B \$R6A |
| | | | | 1874 * | |

GO TO COMPLETE HISTORY TABLE

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC OBJECT CODE | ADDR STMT SOURCE STATEMENT |
|----------------------|---|
| 1876 * | ***** |
| 1877 * | ***** |
| 1878 * | ROUTINES 3 AND 4 - COMMON INITIALIZATION PROCEDURES |
| 1879 * | ***** |
| 1880 * | ***** |
| 1881 * | ***** |
| 102D 34 08 10D4 | 1882 \$BEGIN ST \$BGNX+3,\$ARR SAVE RETURN ADDRESS |
| 1883 * | ***** |
| 1031 3C 00 2273 | 1884 MVI \$NN,0 CLEAR |
| 1035 0C 08 2272 2273 | 1885 MVC \$NN-1(9),\$NN DDCF AREA |
| 1886 * | ***** |
| 1038 C2 01 0A07 | 1887 LA \$UDT-3,\$XR1 POINT TO SECTION UDT |
| 1888 * | ***** |
| 103F 02 01 03 | 1889 \$BGN01 LA 3(,\$XR1),\$XR1 LOCATE |
| 1042 7D C1 00 | 1890 CLI 0(,\$XR1),X'C1' 3340 UDT ENTRY |
| 1045 C0 01 103F | 1891 BNE \$BGN01 |
| 1892 * | ***** |
| 1040 78 20 01 | 1893 TBN 1(,\$XR1),\$BIT2 END ROUTINE IF 3340 |
| 104C C0 90 0216 | 1894 BF \$LINK NOT DEFINED IN DCP UDT |
| 1895 * | ***** |
| 1050 39 78 020A | 1896 \$BGN02 TBF \$\$BYT2,\$SSW11+\$SSW12+\$SSW13+\$SSW14 SKIP IF ANY SNS |
| 1054 F2 90 04 | 1897 JF \$BGN03 SW 11 THRU 14 ON |
| 1898 * | ***** |
| 1057 3A 20 020A | 1899 SBN \$\$BYT2,\$SSW12 SET SNS SW 12 (DEFAULT TO DRV 2) |
| 1899 * | ***** |
| 1058 38 40 020A | 1900 * * * * * |
| 105F 39 80 2188 | 1901 \$BGN03 TBN \$\$BYT2,\$SSW11 BRANCH IF DRIVE 1 NOT |
| 1063 F2 90 13 | 1902 TBF \$IND,\$DRV1 SELECTED OR IF DATA FROM |
| 1899 * | ***** |
| 1066 3A 80 2188 | 1903 JF \$BGN04 DRV 1 HAS ALREADY BEEN PRINTED |
| 1899 * | ***** |
| 106A 3C F1 2189 | 1904 * * * * * |
| 106E 3C C0 218A | 1905 SBN \$IND,\$DRV1 SET 'DRV 1 USED' INDICATOR |
| 1072 3C 81 2192 | 1906 * * * * * |
| 1899 * | ***** |
| 1076 F2 87 58 | 1907 MVI \$DRVID,C'1' SETUP DRIVE IDENTIFIER, |
| 1899 * | ***** |
| 1079 38 20 020A | 1908 MVI \$DRVAD,X'C0' DRIVE ADDRESS, AND ERROR |
| 107D 39 40 2188 | 1909 MVI \$CKMSK,X'81' SENSE BYTE MASK FOR DRIVE 1 |
| 1081 F2 90 13 | 1910 * * * * * |
| 1899 * | ***** |
| 1084 3A 40 2188 | 1911 J \$BGNX RETURN TO CALLING ROUTINE |
| 1899 * | ***** |
| 1088 3C F2 2189 | 1912 * * * * * |
| 108C 3C C8 218A | 1913 \$BGN04 TBN \$\$BYT2,\$SSW12 BRANCH IF DRIVE 2 NOT |
| 1090 3C 41 2192 | 1914 TBF \$IND,\$DRV2 SELECTED OR IF DATA FROM |
| 1899 * | ***** |
| 1094 F2 87 3A | 1915 JF \$BGN05 DRV 2 HAS ALREADY BEEN PRINTED |
| 1899 * | ***** |
| 1097 38 10 020A | 1916 * * * * * |
| 109B 39 20 2188 | 1917 SBN \$IND,\$DRV2 SET 'DRV 2 USED' INDICATOR |
| 109F F2 90 13 | 1918 * * * * * |
| 1899 * | ***** |
| 10A2 3A 20 2188 | 1919 MVI \$DRVID,C'2' SETUP DRIVE IDENTIFIER, |
| 1899 * | ***** |
| 10A6 3C F3 2189 | 1920 MVI \$DRVAD,X'C8' DRIVE ADDRESS, AND ERROR |
| 10AA 3C 00 218A | 1921 MVI \$CKMSK,X'41' SENSE BYTE MASK FOR DRIVE 2 |
| 10AE 3C 21 2192 | 1922 * * * * * |
| 1899 * | ***** |
| 10B2 F2 87 1C | 1923 J \$BGNX RETURN TO CALLING ROUTINE |
| 1899 * | ***** |
| 10B5 38 08 026A | 1924 * * * * * |
| 10B9 39 10 2188 | 1925 \$BGN05 TBN \$\$BYT2,\$SSW13 BRANCH IF DRIVE 3 NOT |
| 10BD C0 90 0216 | 1926 TBF \$IND,\$DRV3 SELECTED OR IF DATA FROM |
| 1899 * | ***** |
| 10C1 3A 10 2188 | 1927 JF \$BGN06 DRV 3 HAS ALREADY BEEN PRINTED |
| 1899 * | ***** |
| 10C5 3C F4 2189 | 1928 * * * * * |
| 1899 * | ***** |
| | 1929 SBN \$IND,\$DRV3 SET 'DRV 3 USED' INDICATOR |
| | 1930 * * * * * |
| | 1931 MVI \$DRVID,C'3' SETUP DRIVE IDENTIFIER, |
| | 1932 MVI \$DRVAD,X'D0' DRIVE ADDRESS, AND ERROR |
| | 1933 MVI \$CKMSK,X'21' SENSE BYTE MASK FOR DRIVE 3 |
| | 1934 * * * * * |
| | 1935 J \$BGNX RETURN TO CALLING ROUTINE |
| | 1936 * * * * * |
| | 1937 \$BGN06 TBN \$\$BYT2,\$SSW14 END ROUTINE IF DRV 4 NOT |
| | 1938 TBF \$IND,\$DRV4 SELECTED OR IF DATA FROM |
| | 1939 BF \$LINK DRV 4 HAS ALREADY BEEN PRINTED |
| | 1940 * * * * * |
| | 1941 SBN \$IND,\$DRV4 SET 'DRV 4 USED' INDICATOR |
| | 1942 * * * * * |
| | 1943 MVI \$DRVID,C'4' SETUP DRIVE IDENTIFIER, |

| ERR LOC OBJECT CODE | ADDR STMT SOURCE STATEMENT |
|---------------------|--|
| 10C9 3C D8 218A | 1944 MVI \$DRVAD,X'D8' DRIVE ADDRESS, AND ERROR |
| 10CD 3C 11 2192 | 1945 MVI \$CKMSK,X'11' SENSE BYTE MASK FOR DRIVE 4 |
| 1946 * | ***** |
| 10D1 C0 87 0000 | 1947 \$BGNX B 0-0 RETURN TO CALLING ROUTINE |
| 1948 * | ***** |

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|----------------------|-------------|--------------|------|--|
| 1950 | * | | | ROUTINES 5 AND 6 - COMMON 3340 I/O SUBROUTINES |
| 1951 | * | | | |
| 1952 | * | | | |
| 1953 | * | | | |
| 1954 | * | | | |
| 1955 | * | | | |
| 1956 | * | | | READ OR CLEAR 3340 LCG ENTRIES |
| 1957 | * | | | |
| 1005 34 08 1EC4 | | 1958 \$IO | ST | \$IOX+3,\$ARR SAVE RETURN ADDRESS |
| 1009 34 01 1EC0 | | 1959 | ST | \$IOX1+3,\$XRI SAVE INDEX REG 1 |
| 1000 3C 0A 2196 | | 1960 * | | |
| | | 1961 | MVI | \$RETRY,10 INITIALIZE ERROR RETRY COUNT |
| | | 1962 * | | |
| 10E1 0D 01 218C 226C | | 1963 | CLC | \$CYL(2),\$CC BRANCH IF ACCESS |
| 10E7 F2 01 0D | | 1964 | JNE | \$RECAL NOT YET AT REQUIRED CYLINDER |
| | | 1965 * | | |
| 10EA 0D 01 218E 226E | | 1966 | CLC | \$HD(2),\$HH BRANCH IF ACCESS |
| 10F0 F2 81 42 | | 1967 | JE | \$RDWR ALREADY AT REQUIRED LOCATION |
| | | 1968 * | | |
| 10F3 3C 00 226F | | 1969 | MVI | \$RR,0 RESET RECORD NUMBER |
| | | 1970 * | | |
| 10F7 3C 00 2190 | | 1971 \$RECAL | MVI | \$Q,0 SETUP Q AND R BYTES |
| 10FB 3C 01 2191 | | 1972 | MVI | \$R,1 FOR RECALIBRATE COMMAND |
| | | 1973 * | | |
| 10FF C0 87 1EC5 | | 1974 | B | \$XEQ GO TO EXECUTE RECALIBRATE COMMAND |
| | | 1975 * | | |
| 1E03 0C 01 226C 218C | | 1976 | MVC | \$CC(2),\$CYL MOVE CYLINDER AND |
| 1E09 0C 01 226E 218E | | 1977 | MVC | \$HH(2),\$HD HEAD VALUES TO DDCF |
| | | 1978 * | | |
| 1E0F 3C 00 2190 | | 1979 \$SEEK | MVI | \$Q,0 SETUP Q AND R |
| 1E13 3C 00 2191 | | 1980 | MVI | \$R,0 BYTES FOR SEEK COMMAND |
| | | 1981 * | | |
| 1E17 C0 87 1EC5 | | 1982 | B | \$XEQ GO TO EXECUTE SEEK COMMAND |
| | | 1983 * | | |
| 1E1B 3C 01 2190 | | 1984 \$RDHA | MVI | \$Q,1 SETUP Q AND R BYTES FOR |
| 1E1F 3C 01 2191 | | 1985 | MVI | \$R,1 READ HA (EVEN) COMMAND |
| | | 1986 * | | |
| 1E23 C0 87 1EC5 | | 1987 | B | \$XEQ GO TO EXECUTE READ HA COMMAND |
| | | 1988 * | | |
| 1E27 0C 03 226E 2290 | | 1989 | MVC | \$HH(4),\$DDDF+4 MOVE RECORD 0 CCHM TO DDCF |
| | | 1990 * | | |
| 1E2D 38 02 226A | | 1991 | TBN | \$FF,\$BIT6 GO TO SEEK TO ASSIGNED |
| 1E31 C0 10 1E0F | | 1992 | BT | \$SEEK ALTERNATE IF DEFECTIVE TRACK |
| | | 1993 * | | |
| 1E35 0C 01 226C 218C | | 1994 \$RDWR | MVC | \$CC(2),\$CYL MOVE CYLINDER AND |
| 1E3B 0C 01 226E 218E | | 1995 | MVC | \$HH(2),\$HD HEAD VALUES TO DDCF |
| | | 1996 * | | |
| 1E41 0C 02 2272 21AC | | 1997 | MVC | \$DL(3),\$P256 MOVE KL AND DL TO DDCF |
| | | 1998 * | | |
| 1E47 38 08 2188 | | 1999 | TBN | \$IND,\$CLEAR GO TO CLEAR LOG AREA |
| 1E4B F2 10 4D | | 2000 | JT | \$WRREP IF 'CLEAR' INDICATOR IS ON |
| | | 2001 * | | |
| 1E4E 3C 04 21A3 | | 2002 \$RDKD | MVI | \$RDWK,4 DEVELOPE |
| 1E52 0C 00 21A4 218F | | 2003 | MVC | \$RDWK+1(1),\$PTR RECORD NUMBER |
| 1E58 0E 00 21A4 21A7 | | 2004 | ALC | \$RDWK+1(1),\$P5 FROM LOG AREA POINTER |
| 1E5E 0E 01 21A4 21A4 | | 2005 \$RDKD1 | ALC | \$RDWK+1(2),\$RDWK+1 |
| 1E64 C0 20 1E5E | | 2006 | BNOL | \$RDKD1 |
| | | 2007 * | | |
| 1E68 0D 00 21A3 226F | | 2008 | CLC | \$RDWK(1),\$RR BRANCH IF REQUIRED |
| 1E6E F2 81 16 | | 2009 | JE | \$RDKD2 RECORD IS ALREADY IN MAIN STORE |
| | | 2010 * | | |
| 1E71 0C 00 226F 21A3 | | 2011 | MVC | \$RR(1),\$RDWK MOVE RECORD NUMBER TO DDCF |
| 1E77 3C 00 2273 | | 2012 | MVI | \$NN,0 SETUP NN VALUE TO READ ONE RECORD |
| | | 2013 * | | |
| 1E7B 3C 01 2190 | | 2014 | MVI | \$Q,X'01' SETUP Q AND R BYTES |
| 1E7F 3C 00 2191 | | 2015 | MVI | \$R,X'00' FOR READ KEY-DATA COMMAND |
| | | 2016 * | | |
| 1E83 C0 87 1EC5 | | 2017 | B | \$XEQ GO TO EXECUTE READ KEY-DATA COMMAND |

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|--------------|-------------|------|------|---|
| 2018 * | | | | |
| 2019 \$RDPD2 | LA | | | \$DDDF,\$XRI LOCATE REQUIRED |
| 2020 | MVI | | | \$RDWK,0 LOG ENTRY VIA OFFSET |
| 2021 | A | | | \$RDWK+1,\$XRI DEVELOPED FROM LOG ENTRY POINTER |
| 2022 * | | | | |
| 2023 | MVC | | | \$RECN(64),63(,\$XRI) GET REQUIRED LOG ENTRY |
| 2024 * | | | | |
| 2025 | J | | | \$IOX1 RETURN TO CALLING ROUTINE |
| 2026 * | | | | |
| 2027 \$WRREP | MVI | | | \$RR,1 SETUP RR AND NN VALUES |
| 2028 | MVI | | | \$NN,47 IN DDCF TO WRITE RECORDS 1 THRU 48 |
| 2029 * | | | | |
| 2030 | MVI | | | \$DDDF+255,0 CLEAR |
| 2031 | MVC | | | \$DDDF+254(255),\$DDDF+255 DDCF AREA |
| 2032 * | | | | |
| 2033 | MVI | | | \$Q,X'02' SETUP Q AND R BYTES |
| 2034 | MVI | | | \$R,X'03' FOR WRITE REPEAT COMMAND |
| 2035 * | | | | |
| 2036 | B | | | \$XEQ GO TO EXECUTE WRITE REPEAT COMMAND |
| 2037 * | | | | |
| 2038 | SBF | | | \$IND,\$CLEAR RESET 'CLEAR LOG' INDICATOR |
| 2039 * | | | | |
| 2040 \$IOX1 | LA | | | *-*, \$XRI RESTORE INDEX REG 1 |
| 2041 \$IOX | B | | | *-* RETURN TO CALLING ROUTINE |
| 2042 * | | | | |
| 2043 * | | | | COMMON 3340 I/O COMMAND EXECUTION SUBROUTINE |
| 2044 * | | | | |
| 2045 * | | | | |
| 2046 \$XEQ | ST | | | \$XEQX+3,\$ARR SAVE RETURN ADDRESS |
| 2047 * | | | | |
| 2048 | B | | | \$TEST CHECK FOR USER INTERVENTION |
| 2049 * | | | | |
| 2050 | MVC | | | \$SIO+1(1),\$DRVAD SETUP |
| 2051 | ALC | | | \$SIO+1(1),\$Q Q AND R BYTES |
| 2052 | MVC | | | \$SIO+2(1),\$R IN SID INSTRUCTION |
| 2053 * | | | | |
| 2054 | SNS | | | \$SNS+1,X'C5' SENSE ATTACHMENT STATUS |
| 2055 * | | | | |
| 2056 | MVC | | | *+7(1),\$CKMSK GO TO ERROR |
| 2057 | TBF | | | \$SNS,*-* HANDLING SUBROUTINE IF |
| 2058 | BF | | | \$ERR ADAPTER OR UNIT CHECK |
| 2059 * | | | | |
| 2060 | LIO | | | \$DDCR,X'C6' LOAD DDCR |
| 2061 | LIO | | | \$DDDR,X'C4' AND DDDR |
| 2062 * | | | | |
| 2063 \$SIO | SIO | | | *-*,*-* EXECUTE 3340 I/O COMMAND |
| 2064 * | | | | |
| 2065 | MVC | | | \$TIO+1(1),\$DRVAD BUILD 'SEEK BUSY' |
| 2066 | SBN | | | \$TIO+1,\$BIT7 TIO INSTRUCTION |
| 2067 * | | | | |
| 2068 | TIO | | | *X'C2' LOOP ON 'ATTACHMENT BUSY' |
| 2069 * | | | | |
| 2070 \$TIO | TIO | | | *-* LOOP ON 'SEEK BUSY' |
| 2071 * | | | | |
| 2072 | SNS | | | \$SNS+1,X'C5' SENSE ATTACHMENT STATUS |
| 2073 * | | | | |
| 2074 | MVC | | | *+7(1),\$CKMSK GO TO ERROR |
| 2075 | TBF | | | \$SNS,*-* HANDLING SUBROUTINE IF |
| 2076 | BF | | | \$ERR ADAPTER OR UNIT CHECK |
| 2077 * | | | | |
| 2078 \$XEQX | B | | | *-* RETURN TO CALLING ROUTINE |
| 2079 * | | | | |
| 2080 * | | | | |
| 2081 * | | | | 3340 ERROR HANDLING SUBROUTINE |
| 2082 * | | | | |
| 2083 \$ERR | ST | | | \$ERRX+3,\$ARR SAVE RETURN ADDRESS |
| 2084 * | | | | |
| 2085 | TBN | | | \$SNS+1,\$BIT7 BRANCH IF NOT |

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2206 *****
2207 *
2208 *          ROUTINES 5 AND 6 - PRINT MESSAGES
2209 *
2210 *****
2211 *
2038 2212 $M01 EQU *
2043 2213 $M01N DC CL20'DRV X NOT RDY OR ERR'
2048 2214 *
204F 2215 $M02 EQU *
2057 2216 $M02N DC CL27'READ DIAGNOSTIC SENSE DATA'
205F 2217 *
2067 2218 $M03 EQU *
206A 2219 DC CL27'00----03 04----07 08----11 '
2072 2220 *
207A 2221 *
2082 2222 *
2085 2223 $M03N DC CL26'12----15 16----19 20----23'
208D 2224 *
2095 2225 $M04 EQU *
209D 2226 $M04N DC CL36'--- 3340 USAGE AND ERROR LOG SUMMARY
209F 2227 *
20A7 2228 $M05 EQU *
20AF 2229 $M05N DC CL22'--- 3340 ERROR HISTORY'
20B7 2230 *
20BF 2231 $M06 EQU *
20C3 2232 $M06N DC CL22' --- DATA FROM DRIVE X'
20C8 2233 *
20D3 2234 $M07 EQU *
20E1 2235 $M07N DC CL5'FMT 0'
20E9 2236 *
20EF 2237 $M08 EQU *
20F3 2238 $M08N DC CL16'EQUIPMENT CHECKS'
20F4 2239 *
20FC 2240 $M09 EQU *
2103 2241 $M09N DC CL5'SEEKS'
2104 2242 *
2109 2243 $M10 EQU *
210C 2244 $M10N DC CL4'DATA'
210D 2245 *
2110 2246 $M11 EQU *
2111 2247 $M11N DC CL5'TOTAL'
2112 2248 *
2115 2249 $M12 EQU *
211A 2250 $M12N DC CL3'DRV'
211B 2251 *
2120 2252 $M13 EQU *
2125 2253 $M13N DC CL6'VOLUME'
2126 2254 *
2127 2255 $M14 EQU *
2128 2256 $M14N DC CL6'-USER-'

```

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2254 *
2121 2255 $M15 EQU *
2129 2256 $M15N DC CL23'ATTACHMENT * SUB-SYSTEM'
2131 2257 *
2138 2258 $M16 EQU *
2140 2259 $M16N DC CL9'MEGABYTES'
2140 2260 *
2141 2261 $M17 EQU *
2146 2262 $M17N DC CL6'ERRORS'
2147 2263 *
214F 2264 $M18 EQU *
214F 2265 $M18N DC CL16'CORR TEMP PERM'
2157 2266 *
2157 2267 $M19 EQU *
215D 2268 $M19N DC CL7'-X1000-'
215E 2269 *
2162 2270 $M20 EQU *
2161 2271 $M20N DC CL4'READ'
2162 2272 *
2167 2273 $M21 EQU *
2167 2274 $M21N DC CL6'NO LOG'
2168 2275 *
2168 2276 $M22 EQU *
2168 2277 $M22N DC CL4'DATE'
216C 2278 *
216C 2279 $M23 EQU *
216F 2280 $M23N DC CL4'TIME'
2170 2281 *
2170 2282 $M24 EQU *
2177 2283 $M24N DC CL8'00.00.00'
2178 2284 *
2178 2285 $M25 EQU *
217F 2286 $M25N DC CL8'MN.00.VV'
2180 2287 *
2180 2288 $M26 EQU *
2187 2289 $M26N DC CL8'HH.MM.SS'
2290 *

```

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|------------------|-------------|------|---|----------------------------|-------------------------------------|
| | | 2292 | ***** | | |
| | | 2293 | * | | |
| | | 2294 | ROUTINES 5 AND 6 - CONSTANTS AND RESERVED STORAGE AREAS | | |
| | | 2295 | * | | |
| | | 2296 | ***** | | |
| | | 2297 | * | | |
| 2188 | | 2188 | 2298 | \$IND DS XL1 | PROGRAM INDICATORS |
| | | | 2299 | * | |
| 2189 | | 2189 | 2300 | \$DRVID DS CL1 | INPUT DRIVE IDENTIFIER |
| 218A | | 218A | 2301 | \$DRVAD DS XL1 | INPUT DRIVE ADDRESS |
| | | | 2302 | * | |
| 218B | | 218C | 2303 | \$CYL DS XL2 | CURRENT CYLINDER ADDRESS |
| 218D | | 218E | 2304 | \$HD DS XL2 | CURRENT HEAD ADDRESS |
| 218F | | 218F | 2305 | \$PTR DS XL1 | CURRENT LOG ENTRY POINTER |
| | | | 2306 | * | |
| 2190 | | 2190 | 2307 | \$Q DS XL1 | SIO 'Q' BYTE |
| 2191 | | 2191 | 2308 | \$R DS XL1 | SIO 'R' BYTE |
| | | | 2309 | * | |
| 2192 | | 2192 | 2310 | \$CKMSK DS XL1 | ATTACHMENT SENSE BYTE ERROR MASK |
| | | | 2311 | * | |
| 2193 | | 2193 | 2312 | \$DRV DS XL1 | DRIVE IDENTIFIER (TABLE PRINTOUT) |
| | | | 2313 | * | |
| 2194 | | 2194 | 2314 | \$PTRF DS XL1 | POINTER TO FIRST (OLDEST) LOG ENTRY |
| 2195 | | 2195 | 2315 | \$PTRX DS XL1 | CURRENT POINTER TEMP STORAGE |
| | | | 2316 | * | |
| 2196 | | 2196 | 2317 | \$RETRY DS XL1 | ERROR RETRY COUNTER |
| 2197 | | 2197 | 2318 | \$BITCT DS XL1 | ECC BIT COUNTER |
| 2198 | | 2198 | 2319 | \$CTR DS XL1 | GENERAL PURPOSE COUNTER |
| | | | 2320 | * | |
| 2199 | | 219E | 2321 | \$RDCNT DS XL6 | READ USAGE COUNTER |
| 219F | | 21A2 | 2322 | \$SKCNT DS XL4 | SEEK USAGE COUNTER |
| | | | 2323 | * | |
| 21A3 | | 21A3 | 2324 | \$RDWK EQU * | READ SUBROUTINE |
| | | 21A4 | 2325 | DS XL2 | WORK AREA |
| | | | 2326 | * | |
| 21A5 0001 | | 21A6 | 2327 | \$P1 DC IL2'1' | |
| 21A7 05 | | 21A7 | 2328 | \$P5 DC IL1'5' | |
| 21A8 0001 | | 21A9 | 2329 | \$P209 DC IL2'209' | |
| 21AA 000100 | | 21AC | 2330 | \$P256 DC IL3'256' | |
| 21AD F1 | | 21AD | 2331 | \$D1 DC CL1'1' | |
| 21AE 80 | | 21AE | 2332 | \$X80 DC XL1'80' | |
| 21AF 000003E8 | | 21B2 | 2333 | \$KILO DC IL4'1000' | |
| 21B3 000000F4240 | | 21B8 | 2334 | \$MEG DC XL6'00C0000F4240' | |
| 21B9 0002 | | 21BA | 2335 | \$SNS23 DC XL2'0002' | |
| | | | 2336 | * | |
| 21BB 226A | | 21BC | 2337 | \$DDCF DC AL2(\$DDCF) | DDCF ADDRESS (INITIAL DDCR) |
| 21BD 228C | | 21BE | 2338 | \$DDDR DC AL2(\$DDDF) | DDDF ADDRESS (INITIAL DDDR) |
| 21BF 2274 | | 21C0 | 2339 | \$SNSDR DC AL2(\$SNS) | DDDF ADDRESS FOR READ DIAG SNS |
| | | | 2340 | * | |
| 21C1 | | 21C1 | 2341 | \$REC EQU * | LOG ENTRY |
| | | 2200 | 2342 | \$RECN DS XL64 | FROM SYSTEM ERROR LOG |
| | | | 2343 | * | |
| 2201 | | 2201 | 2344 | \$PBUF EQU * | PRINT BUFFER |
| | | 2209 | 2345 | DS XL105 | |
| | | | 2346 | * | |
| 226A | | 226A | 2347 | \$DDCF EQU * | DISK DRIVE CONTROL FIELD |
| 226B | | 226A | 2348 | \$FF DS XL1 | FLAG BYTE |
| 226D | | 226C | 2349 | \$CC DS XL2 | CYLINDER ADDRESS |
| 226F | | 226E | 2350 | \$HH DS XL2 | HEAD ADDRESS |
| 2270 | | 226F | 2351 | \$RR DS XL1 | RECORD NUMBER |
| 2271 | | 2270 | 2352 | \$KL DS XL1 | KEY LENGTH |
| 2273 | | 2272 | 2353 | \$DL DS XL2 | DATA LENGTH |
| | | 2273 | 2354 | \$NN DS XL1 | RECORD COUNT |
| | | | 2355 | * | |
| 2274 | | 2274 | 2356 | \$SNS EQU * | SENSE DATA FIELD |
| | | 228B | 2357 | DS XL24 | |
| | | | 2358 | * | |
| | | 228C | 2359 | \$DDDF EQU * | READ / WRITE DATA FIELD |

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|------|--------|---------------|-----------|
| | | 228C | 238B | 2360 DS XL256 | |
| | | | 2361 * | | |

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
2363 *****
2364 *
2365 * ROUTINES 5 AND 6 - SYMBOL DEFINITIONS *
2366 *
2367 *****
2368 *
2369 * LOCAL STORE REGISTERS
0001 2371 \$XR1 EQU X'01' INDEX REGISTER 1
0002 2372 \$XR2 EQU X'02' INDEX REGISTER 2
0008 2373 \$ARR EQU X'08' ADDRESS RECALL REGISTER
2374 *
2375 *
2376 * SECTION SENSE SWITCHES
2377 *
0040 2378 \$SSW11 EQU X'40' LOG DATA ON DRIVE 1
0020 2379 \$SSW12 EQU X'20' LOG DATA ON DRIVE 2
0010 2380 \$SSW13 EQU X'10' LOG DATA ON DRIVE 3
0008 2381 \$SSW14 EQU X'08' LOG DATA ON DRIVE 4
0080 2382 \$SSW20 EQU X'80' CLEAR LOG AFTER PRINT (IF OFF)
2383 *
2384 *
2385 * MESSAGE / HALT IDENTIFIERS
2386 *
FF00 2387 \$HLT00 EQU X'FF00' NO HALT
FFF6 2388 \$HLTF6 EQU X'FFF6' 3340 NOT READY OR ERROR
2389 *
2390 *
2391 * PROGRAM INDICATORS (\$IND)
2392 *
0080 2393 \$DRV1 EQU X'80' DRIVE 1 INPUT USED
0040 2394 \$DRV2 EQU X'40' DRIVE 2 INPUT USED
0020 2395 \$DRV3 EQU X'20' DRIVE 3 INPUT USED
0010 2396 \$DRV4 EQU X'10' DRIVE 4 INPUT USED
0008 2397 \$CLEAR EQU X'08' CLEAR ERROR LOG
2398 *
2399 *
2400 * BIT POSITION SYMBOLS
2401 *
0080 2402 \$BIT0 EQU X'80'
0020 2403 \$BIT2 EQU X'20'
0002 2404 \$BIT6 EQU X'02'
0001 2405 \$BIT7 EQU X'01'
2406 *
2407 *
2408 * DCP SECTION REFERENCE TABLE
2409 *
020A 2410 \$S8YT2 EQU X'020A' SECTION SENSE SWITCHES 10-17
020C 2411 \$S8YT4 EQU X'020C' SECTION SENSE SWITCHES 20-27
2412 *
0212 2413 \$STEST EQU X'0212' CHECK CE CONSOLE SWITCHES
0216 2414 \$LINK EQU X'0216' LINK TO NEXT ROUTINE OR SECTION
021A 2415 \$PRINT EQU X'021A' PRINT A MESSAGE
021E 2416 \$UNPK EQU X'021E' UNPACK DATA - HEX TO EBCDIC
0222 2417 \$HALT EQU X'0222' HALT AND DISPLAY HALT IDENTIFIER
2418 *
0A0A 2419 \$UDT EQU X'0A0A' SECTION UDT ADDRESS
2420 *
2421 **
2422 * CONSTANTS
2423 *
2424 *
2425 *
238C 252B 238D 2426 OBRST2 DC AL2(DBUF-256+8)
238E 2718 238F 2427 OBRND2 DC AL2(DBUF+256-8)
2390 2439 2391 2428 CBUF2 DC AL2(CBUF)
2392 2491 2393 2429 CEND2 DC AL2(CBUF+88)
2394 2499 2395 2430 PBUF2 DC AL2(PBUF)

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
2396 2522 2397 2431 ENTADD2 DC AL2(ENTADD)
2398 0010 2399 2432 SIXTEN DC IL2'16'
239A 0008 239B 2433 EIGHT DC IL2'8'
239C F0 239C 2434 OZERO DC DL1'0'
239D F1 239D 2435 DONE DC DL1'1'
239E 00000000 23A1 2436 ZERO DC XL4'0'
23A2 00 23A2 2437 CCNT DC XL1'0' MUST FOLLOW ZERO
23A3 0005 23A4 2438 FIVE DC IL2'5'
23A5 0006 23A6 2439 SIX DC IL2'6'
23A7 000E 23A8 2440 XOE DC XL2'000E'
23A9 FF 23A9 2441 DC XL1'FF'
23AA FFF9 23AA 2442 FFFF EQU *
23AC 0008 23AB 2443 NEG7 DC IL2'-7'
23AE 0000 23AD 2444 OBR2YP DC XL2'8'
23AF 2445 SYNC# DC XL2'0'
2446 * H24 IS ALWAYS X'00XX'
2380 0000 2381 2447 H24 DC XL2'0'
2382 0000 2383 2448 DSKOFS DC XL2'0'
2384 0000 2385 2449 CVTCNT DC XL2'0'
2386 0000 2387 2450 CNTOFS DC XL2'0'
2388 0000 2389 2451 CNTLHG DC XL2'0'
238A 0000 238B 2452 TABIDX DC XL2'0'
238C 7B 238C 2453 I123 DC IL1'123'
238D 6B 238D 2454 I107 DC IL1'107'
238E 77 238E 2455 I119 DC IL1'119'
238F 7E 238F 2456 I126 DC IL1'126'
23C0 15 23C0 2457 I21 DC IL1'21'
23C1 C9D5E5C1D3C9C4 23C7 2458 INV DC CL7'INVALID'
23C8 2459 SYNTBL EQU *
23C8 2460 23C8 2459 SYNTBL EQU *
23CE F0F0F0F1F0F0 23CD 2460 DC DL6'000100' RTN1 SYNC PT CARD 1 COL 0
23CF F0F0F5F7F0F0 23CE 2461 DC DL6'005700' RTN2 SYN PT
23D4 2427 2462 DS 14XL6 CARD #, COL #
2428 2428 2463 TABTBL EQU *
2438 2464 DS 17XL1 CNT,TAB1,TAB2,....,TAB16
2439 2465 CBUF EQU *
2498 2466 DS 96XL1 CONTROL CARD BUFFER
2499 2468 PBUF EQU *
2499 2469 DS 96XL1 CONTROL RECORD BUFFER
2499 2469 DS 96XL1
24F9 2470 QRSNS EQU *
24FC 2471 DS XL4
24FD DS AL2
24FF DS AL2
2501 DS AL2
2502 2474 CSTR2 DS AL2
2503 DS XL6
2509 250A 2476 PRG# DS XL2 * NOTE THAT THIS DS MAY CHANGE
2508 2477 PRG# DS XL1 * IF THE LENGTH OF DEC CHANGES
2511 2478 PRGI DS XL6 * BECAUSE LENGTH OF DEC EQUALS
2512 2479 DEC DS ODL15 * PRG# + PRGC + PRGI + THIS DS
2513 2480 TEMP DS XL2
2514 2481 CNT DS XL1
2514 2482 CNTN DS OXL1
2516 2483 SVCSTR DS AL2
2518 2484 SDRIDX DS AL2
251A 2485 OBRNT2 DS AL2
2522 2486 ENTADD DS XL8
2523 2487 END EQU *
2622 2488 DS XL256
2623 2489 DBUF EQU *
2722 2490 DS XL256
2523 2491 PTRUF EQU DBUF-256
2523 2492 PCHBUF EQU DBUF-256
25A3 2493 RDBUF EQU DBUF-256+X'80'
2494 ORG DBUF+241
2713 2495 HACH# DS OCL5
2496 ORG DBUF+247
271A 2496 ORG DBUF+247
271A 2497 STRDAT DS OCL6
2720 2498 ORG DBUF+253

IBM MAINTENANCE DIAGNOSTIC PROGRAM

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

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FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

| ERR LOC OBJECT CODE | ADDR | STMT | SOURCE STATEMENT |
|---------------------|------|--------|------------------|
| 2720 | 271F | 2499 | NEW DAT DS OCL6 |
| 2720 | 2725 | 2500 | DS CL6 |
| | | 2501 * | |
| | FFFF | 2502 | END |

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|---------|---|-----|-------|------|---|
| \$ACK | A | 004 | 1F2F | 2088 | |
| \$ARR | C | 001 | 0008 | 2373 | 1882 1958 2046 2083 |
| \$BEGIN | A | 004 | 1D2D | 1882 | 1228 1617 |
| \$BGNX | A | 004 | 1DD1 | 1947 | 1882* 1911 1923 1935 2203 |
| \$BGN01 | A | 003 | 1D3F | 1889 | 1891 |
| \$BGN02 | A | 004 | 1D50 | 1896 | |
| \$BGN03 | A | 004 | 1D5B | 1901 | 1897 |
| \$BGN04 | A | 004 | 1D79 | 1913 | 1903 |
| \$BGN05 | A | 004 | 1D97 | 1925 | 1915 |
| \$BGN06 | A | 004 | 1D85 | 1937 | 1927 |
| \$BITCT | A | 001 | 2197 | 2318 | 2125* 2133* |
| \$BITO | C | 001 | 0080 | 2402 | 1484 |
| \$BIT2 | C | 001 | 0020 | 2403 | 1893 |
| \$BIT6 | C | 001 | 0002 | 2404 | 1991 |
| \$BIT7 | C | 001 | 0001 | 2405 | 1465 2066 2085 2097 2132 |
| \$CC | A | 002 | 226C | 2349 | 1963 1976* 1994* |
| \$CKMSK | A | 001 | 2192 | 2310 | 1909* 1921* 1933* 1945* 2056 2074 |
| \$CLEAR | C | 001 | 0008 | 2397 | 1860 1865 1999 2038 |
| \$CTR | A | 001 | 2198 | 2319 | 1380* 1388* 1395 1748* 1756* 1763 |
| \$CYL | A | 002 | 218C | 2303 | 1230* 1619* 1963 1976 1994 |
| \$DDCF | A | 001 | 226A | 2347 | 2337 |
| \$DDCR | A | 002 | 216C | 2337 | 2060 |
| \$DDDF | A | 001 | 228C | 2359 | 1989 2019 2030* 2031 2031* 2338 |
| \$DDDR | A | 002 | 218E | 2338 | 2061 2121 |
| \$DL | A | 002 | 2272 | 2353 | 1997* |
| \$DRV | A | 001 | 2193 | 2312 | 1321* 1346 1348 1593* 1693* 1714 1716 1871* |
| \$DRVAD | A | 001 | 218A | 2301 | 1908* 1920* 1932* 1944* 2050 2065 2096 |
| \$DRVID | A | 001 | 2189 | 2300 | 1243 1632 1907* 1919* 1931* 1943* 2144 |
| \$DRV1 | C | 001 | 0080 | 2393 | 1902 1905 |
| \$DRV2 | C | 001 | 0040 | 2394 | 1914 1917 |
| \$DRV3 | C | 001 | 0020 | 2395 | 1926 1929 |
| \$DRV4 | C | 001 | 0010 | 2396 | 1938 1941 |
| \$D1 | A | 001 | 21AD | 2331 | 1489 1551 1556 1593 1871 |
| \$ECC | A | 006 | 1F8A | 2121 | 2111 |
| \$ECC01 | A | 006 | 1F9E | 2127 | 2134 |
| \$ECC02 | A | 004 | 1FAC | 2130 | 2128 |
| \$ECC03 | A | 006 | 1FB6 | 2133 | 2131 |
| \$ERP | A | 004 | 1F68 | 2108 | |
| \$ERR | A | 004 | 1F24 | 2083 | 2058 2076 |
| \$ERRP | A | 004 | 1FC4 | 2141 | 2094 2106 |
| \$ERRX | A | 004 | 1FC0 | 2136 | 2083* |
| \$FF | A | 001 | 226A | 2348 | 1991 |
| \$HALT | C | 001 | 0222 | 2417 | 2200 |
| \$HD | A | 002 | 218E | 2304 | 1231* 1592* 1620* 1870* 1966 1977 1995 |
| \$HH | A | 002 | 226E | 2350 | 1966 1977* 1989* 1995* |
| \$HLTF6 | C | 001 | FFF6 | 2388 | 2150 2201 |
| \$HLT00 | C | 001 | FF00 | 2387 | 1249 1638 |
| \$IND | A | 001 | 2188 | 2298 | 1226* 1615* 1860* 1865* 1902 1905* 1914 1917* 1926 1929* 1938 1941* |
| | | | | | 1999 2038* |
| | | | | | 1234 1365 1382 1421 1447 1501 1579 1623 1733 1750 1850 1863 |
| \$ID | A | 004 | 1DD5 | 1958 | |
| \$IOX | A | 004 | 1EC1 | 2041 | 1958* |
| \$IOX1 | A | 004 | 1EBD | 2040 | 1959* 2025 |
| \$KILO | A | 004 | 2182 | 2333 | 1549 |
| \$KL | A | 001 | 2270 | 2352 | |
| \$LINK | C | 001 | 0216 | 2414 | 1894 1939 |
| \$MEG | A | 006 | 2188 | 2334 | 1554 |
| \$M01 | A | 001 | 203B | 2212 | 2144* 2148 |
| \$M01N | A | 020 | 204E | 2213 | 2148 2149 |
| \$M02 | A | 001 | 204F | 2215 | 2154 |
| \$M02N | A | 027 | 2069 | 2216 | 1668 2154 2155 |
| \$M03 | A | 001 | 206A | 2218 | 2159 |
| \$M03N | A | 026 | 209E | 2220 | 1679 2159 2160 |
| \$M04 | A | 001 | 209F | 2222 | |
| \$M04N | A | 036 | 20C2 | 2223 | 1241 |
| \$M05 | A | 001 | 20C3 | 2225 | |
| \$M05N | A | 022 | 20D8 | 2226 | 1630 |

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

CROSS-REFERENCE

CROSS-REFERENCE

Table with columns: SYMBOL, T, LEN, VALUE, DEFN, REFERENCES. Lists various symbols like RMSG, RSHFX, RSHF1, etc., and their cross-references.

Table with columns: SYMBOL, T, LEN, VALUE, DEFN, REFERENCES. Lists various symbols like SWITCH, SYNC#, SYNNOV, etc., and their cross-references.

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

FF71 DISK ERROR RECORDING ANALYSIS PROGRAM

OBJECT CARD LISTING

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

T+/8;TBI&-D(C&D /TSI>@YEBI S\$30 HR @ KFJOH*;1&O AHWO/T OAHWB/TO HR @ BFJOH*;1LO AHR 2HEFF710087

T+/9R|D/U*BGGM <2I>M2 B SIDOA :COOAHWO/T OAHWB /T-OBHXH/,C-HHQT 2DD4@ABFTC /ZBF IC- ; 4FF710088

T+/:MH&Z/OBAHE& /ZC -GV8(BFTHW 2-JQC BI?HE@ BI 3|D/UCO HRG /1# EO-DSTCO HE<6 KF UGCA 79&FF710089

T+/#|H- *@Y*SI D S\$30?HX<@ B+.C18 TSS+.;H/UCOCHRG /1#E+0-/SKHA C /O (--HABG /H < AB 8E FF710090

T+/@H=SFHC -;=SF &C ;=2FJ<<MS)&O G>Y/UTU HXL UAA UC*Q/?CGDH\$#3 < A@.HQY: J@.O*H -A&D ;,*FF710091

T+/'E A@H<<MS)&O GIU/UTU HXL UAA UOH* C&HG@<B KI 5@Z EI SSOOOHYV SS3GGH\$Y01217|C S:@ Q30FF710092

T+/* /1*DC -DBF H+-D-DCGDH*C3 - A0/'ECO /VSFMWHD -1C&|HX&*M@I#OHD -STO HX<<@BI2HX< 'E&H \$88FF710093

T+/*#;@BAGTP /17 7C-DS/KF=CODS/KH G(|DS/LOQHR*+ SH HHY,2H N+ /,VB B -.2H (: EHI BF PHEQ 7H&FF710094

T+/'60 D-X&BG C /OHEU-O HCA/S*B G /,BEBA+**\$ /OH E-J&-E*BG /DA(KB :ID S(O05HTOS(@B G /B LO&FF710095

T+S IABI7H-T /OH :ABI#H/G /OH:ABI H/, /OH:ABHCHSI /OH:ABHGHS3 /OH :ABH-HTP /OHE/TM S(+ \$S FF710096

T+SA&/OHS**\$ /17 J1(XV&+) S)S&T&IX D:DC06MCE6)XR1*G D&<LIO*-N5).T2*(8&PN&N 1<GTOMC O&F 41&FF710097

T+SBXQFA-@(| @|J -QFA-@|) @|/-QFA -@-E @-I-QFA-@-M @-R-QFA-@-V @7A -QFA-@?(-QFA @*| 4&D KA FF710098

T+S9+.A1@N O)P DE<PR6)&R&(|O14C S9(LMO)XYOFA-E| 3|A 1)XR5_V 2<X S8*&R:DA-QFA 1<G TOM #/QFF710099

T+SD)1_X05DCD6*X V1MXX1_LT&ICE6+L I5'LE5:(@ATEO'. S8&PE4>.DO;|A8'\$ TO)|D6;PV5_|U5<N -9+H 5H&FF710100

T+SEQ1)V-0:|TO*| H5<PN84A*E+.UOWC S:+.T1|LM1*-AO>T T1:;E6)X06;.C5_X R&DCT1)|LP&DCP1)X HQ+* N8DFF710101

T.SFG@-CO&FCR1*G D5)R 4'\$G1<GT1;| I5<PO&D?O&D?O&(L MK&LDK=TY2</.5(J .8>M R.8FF710102

TF2G DE (D &C 1- |&U SIDHYOS) 9 &FF710103

T+S|FIK&XF2&9IID UWKMS A BIC1 A&F #**UU B ;6_7~/PIS&P A4&U 1/&FF710104

TCB|L1|CO&|GO&|C O'-~O& 49*FF710105

E**+E7*~-DC*PH\$ =*7M&F| I C F& ASC R A SO Q 21350630751 10775'Q&FF710106

----- LAST PAGE -----

FF83 USAGE METER TEST

Table with columns: ERR LOC OBJECT CODE, ADDR, STMT SOURCE STATEMENT. Contains assembly code from address 138 to 163, including instructions like SKIP, UMT, DC, UMT1-5, UMT6-8, UMT9 and various comments.

FF83 USAGE METER TEST

Table with columns: ERR LOC OBJECT CODE, ADDR, STMT SOURCE STATEMENT. Contains assembly code from address 164 to 180, including constants and equates like OCFA, OCFD, OD00, OD01, OD05, ODA8, OE48, O21A, O222, FFFF.

PF03 USAGE METER TEST

CROSS-REFERENCE

Table with columns: SYMBOL, LEN, VALUE, DEFB, REFERENCES. Lists symbols like ADISK, ALLF, ATALL, etc., with their corresponding values and references.

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

PF03 USAGE METER TEST

OBJECT CARD LISTING

Table listing object cards with columns: CL 1 THROUGH 16, CL 17 THROUGH 32, CL 33 THROUGH 48, CL 49 THROUGH 64, CL 65 THROUGH 80, CL 81 THROUGH 96. Contains hex codes and symbols.

LAST PAGE



IBM MAINTENANCE DIAGNOSTIC PROGRAM

0000 3340 CPU AND MEMORY TESTS PROGRAM DO MOD 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|------|------|--------|------------|
| | | 00C2 | 138 | BUSY | EQU X'C2' |
| | | 00C0 | 139 | SEEK | EQU X'CO' |
| | | 00C1 | 140 | READ | EQU X'C1' |
| | | 0100 | 141 | X100 | EQU X'100' |
| | | FFFF | 142 | | END |

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PAGE 2

IBM MAINTENANCE DIAGNOSTIC PROGRAM

0000 3340 CPU AND MEMORY TESTS PROGRAM DO MOD 12

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PAGE 2A

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| HALTFD | A | 002 | 00FC | 0131 | 0068 0119 |
| AB1 | A | 003 | 00B1 | 0105 | |
| ADF | A | 004 | 00B4 | 0107 | 0103 |
| AF070 | A | 002 | 0021 | 0053 | 0054 |
| ALTFD | A | 001 | 00F2 | 0128 | 0131 |
| A0044 | A | 002 | 0075 | 0078 | 0065 |
| A18 | A | 001 | 0016 | 0049 | 0080 0122* |
| A18E | A | 005 | 001F | 0051 | |
| A22 | A | 004 | 0022 | 0054 | 0042 |
| A31 | A | 004 | 002D | 0057 | 0056 |
| A39 | A | 003 | 0035 | 0059 | 0057 0058* |
| A46 | A | 004 | 003B | 0061 | 0059 |
| A66 | A | 004 | 005E | 0071 | |
| A83 | A | 004 | 007C | 0084 | 0076 0123* |
| BUSY | C | 001 | 00C2 | 0138 | 0070 0075 0118 0121 |
| BY23 | A | 003 | 00F1 | 0127 | 0095* 0096 0099* 0100 0107* 0108 |
| B4ERR | A | 003 | 008C | 0090 | 0073 |
| DCR | C | 001 | 00C6 | 0134 | 0054* 0055 0061* 0062 0063* 0064 0068* 0072* 0099 |
| DDCR | A | 002 | 0079 | 0080 | 0072 |
| DDDR | A | 002 | 0078 | 0081 | 0071 |
| DDR | C | 001 | 00C4 | 0135 | 0057* 0058 0065* 0066 0071* 0107 0119* |
| DISP | A | 003 | 0095 | 0094 | 0091 0111 |
| DKERR | A | 003 | 0092 | 0092 | |
| ERROR | A | 003 | 0013 | 0048 | 0041 |
| ERROR1 | C | 001 | 00C0 | 0137 | 0073 0084 |
| FFFF | A | 002 | 0077 | 0079 | 0063 |
| HALTE | A | 003 | 00C6 | 0114 | |
| HALTF | A | 003 | 0079 | 0115 | |
| HALT1 | A | 003 | 0C00 | 0038 | |
| HALT2 | A | 003 | 0010 | 0045 | |
| JUMP1 | A | 003 | 0003 | 0039 | |
| JUMP2 | A | 003 | 0006 | 0040 | |
| JUMP3 | A | 004 | 0009 | 0041 | |
| JUMP4 | A | 003 | 000D | 0042 | |
| NEXT | A | 003 | 0085 | 0086 | |
| NXTSEC | A | 003 | 00FD | 0132 | 0086 |
| ONE | A | 001 | 0088 | 0089 | 0122 |
| RDERR | A | 003 | 00CC | 0117 | 0084 |
| READ | C | 001 | 00C1 | 0140 | 0074 0117 0120 |
| RETRY | A | 004 | 0053 | 0068 | 0124 |
| SEEK | C | 001 | 00C0 | 0139 | 0069 |
| UVWXYZ | A | 001 | 0C00 | 0005 | |
| XR2 | C | 001 | 0002 | 0136 | 0096* 0100* 0108* |
| X100 | C | 001 | 0100 | 0141 | |
| ZERO | A | 002 | 007D | 0082 | 0061 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

0000 3340 CPU AND MEMORY TESTS

PROGRAM DO MOD 12
OBJECT CARD LISTING

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PAGE 3

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

*GBK*GBD***PN*42 48200*EC*827804* 3340*CPU*AND*MEM ORY*TESTS*MOD*12 84228422***** 00000000
T+-:2|CO27B,27C 001**D**H*D7B02|A ?S0**&***&*A**C 0*CGF*BD01-D02- *<*&(3CD*C-2**| OS0K*SZUOD000001
T+-AS<*0*-LCF*K2 11-A7<<QA.3GD*GM 01*D7<Q*=|I**<G B*EY11*A8<Q*:;OG **H330&CA0-A_2- H*DE*2S200000002
T+-BO***E-C**C A0*C2F/Y2-A52F* P*-A7F**H**A7P-A ?-LCE*|D5*-C12F2 G<<Q*2LMB*|G085* 2**<O.200000003
T+-C,2F2<<<2LM 6*|G0863***BN2F* 22F*22F2222DGO*H *33GD*|330&GA0-C EC***E-B.1|H*-> **EK*GQ-0D0000004
TDOC*2F/P**DO** A*****|0.EF2 ***** 1QHOD0000005
E***E7*=-DC*PHS =*7M&F|**|***C **F8***ASC***R*A SO***Q***** 12010630750 828751QYOD0000006

IBM MAINTENANCE DIAGNOSTIC PROGRAM

0010 CPU AND MEMORY TEST LOADER PROGRAM 01 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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PAGE 3A

00FD
DECK 4
SEQ 0
UVWXYZ START 253
TREP
* SECTOR 01

* THIS SECTOR IS READ INTO CORE LOC OFD-1FC BY SECTOR 48 *
* THIS SECTOR CONTAINS LOADERS FOR SECTORS 2,3,4,5,6,7 *
* AND THE MASTER LOADER FOR ALL SUCCEEDING SECTORS. *

* TEST (1) LSR INTERCHANGE *
* (2) BR OR TIO OP DECODE *

00FD F2 87 45
0100 F0 68 6F
0103 00
* JACDOR * TO OVERLAY HALT IN SECTOR 48 IF GOOD
* HALTA HPL X'6F',X'68' * LO HALT, JUMP FAILED TO JUMP
* DC XLI'0' *
* *****
* LOADER FOR SECTOR 3 *
* * SET UP FOR NEXT SECTOR *
26 LOAD3 MVI AC2+6,X'03' *
27 BC LOAD2,0 *
* *****
* LOADER FOR SECTOR 2 *
* *
* TIO HALT2 ERR * CHECK FOR DISK ERROR
32 LDR2 MVC AC2+1|1|,A18 * SET UP CONTROL FIELD FLAG
33 MVC AC4+1|1|,AC2+1 * SET UP CONTROL FIELD FLAG
34 MVC AC5+1|1|,AC2+1 * SET UP CONTROL FIELD FLAG
35 MVC AC6+1|1|,AC2+1 * SET UP CONTROL FIELD FLAG
36 MVC AC7+1|1|,AC2+1 * SET UP CONTROL FIELD FLAG
37 MVC AC8+1|1|,AC2+1 * SET UP CONTROL FIELD FLAG
38 MVC ACON+1|1|,AC2+1 * SET UP CONTROL FIELD FLAG
39 JC LOAD2,0 * GO LOAD SECTOR 2 IF NO DISK ERROR
40 HALT2 HPL X'03',X'68' * L1 HALT, DISK ERROR OR NOT READY
41 LOAD2 LIO AC2,DCR * LOAD DDCR
42 MVI AC2+10,X'00' * ZERO THE N FIELD
43 JC EXIT,0 * GO LOAD SECTOR
44 BACDOR BC LDR2,0 * CHECK FOR DISK ERROR OR NOT READY
45 MALT2A HPL X'57',X'68' * L3 HALT, BRANCH FAILED
46 DC XLI'0' * FAILING FUNCT (1), (2)
* *****
* LOADER FOR SECTOR 4 *
* *
48 LOAD4 LIO AC4,DCR * LOAD DDCR
49 JC EXIT,0 * GO LOAD SECTOR 4
* *****
* LOADER FOR SECTOR 5 *
* *
50 LOAD5 LIO AC5,DCR * LOAD DDCR
51 JC EXIT,0 * GO LOAD SECTOR 5
* *****
* LOADER FOR SECTOR 6 *
* *
52 LOAD6 LIO AC6,DCR * LOAD DDCR
53 JC EXIT,0 * GO LOAD SECTOR 6
* *****

LAST PAGE

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD10 CPU AND MEMORY TEST LOADER PROGRAM D1 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

70 *
71 *       LOADER FOR SECTOR 7
72 *
0162 31 C6 01CA   73 LOAD7 LIO   ACT,DCR           LOAD DDCR
0166 F2 00 0F    74          JC     EXIT,0           GO LOAD SECTOR 7
75 *
76 *****
77 *
78 *       COMMON LOADER FOR SECTORS 8 THRU 47
79 *
0169 3C 00 01DC   80 BOOT  MVI   CNTFLD+1,*-#       SET CONTROL FIELD R BYTE
016D 3C 00 01E0   81        MVI   CNTFLD+5,*-#       SET CONTROL FIELD N BYTE
0171 31 C6 01D6   82        LIO   ACOM,DCR           LOAD DDCR
0175 F2 00 00    83        JC     EXIT,0
84 *
0178 C0 80 0003   85 *****
017C 31 C4 0193   86 EXIT  BC    3,X'80'             NO-O', ALTER TO LOOP SECTOR
0180 F3 C1 00    87        LIO   ADD,DDR             LOAD DDDR
0183 C1 C2 0183   88        SIO   X'00',READ          READ KEY-DATA
0187 C1 C0 01F0   89        TIO   *,BUSY              LOOP UNTIL DISK BUSY DROPS
018B C0 00 0003   90        TIO   COMHLT,ERR          TEST FOR ERROR AFTER DISK SIO
91 *            BC    3,0           BRANCH TO LOC 3 OF SECTOR JUST READ
92 *            HPL   X'76',X'68'    ALTER TO 00 FOR HALT BEFORE EXEC
93 *            *                L2 HALT, PREVIOUS BRANCH FAILED
94 *****
95 *
96 *       CONSTANTS
97 *****
0192 0000         0193 98 ADD  DC    AL2(0)
0194 0196         0195 99 AC2  DC    AL2(#+2)
0196 0000010000   019A 100 DC    XL5'0000010000'         F-CC-HH
0198 0200010000   019F 101 DC    XL5'0200010000'         R-K-DL-N
01A0 0000         01A1 102 DC    XL2'0'                 FILL
103 *****
01A2 F0 70 F8    104 HPL   X'F8',X'70'           SAR BIT 7 FAILED
105 *****
01A5 01A7         01A6 106 AC4 DC    AL2(#+2)
01A7 0000010000   01A8 107 DC    XL5'0000010000'         F-CC-HH
01A8 0400010000   01A9 108 DC    XL5'0400010000'         R-K-DL-N
01B1 01B3         01BA 109 AC5 DC    AL2(#+2)
01B2 0000010000   01BB 110 DC    XL5'0000010000'
01B3 0500010000   01BC 111 DC    XL5'0500010000'
01B4 01B7         01BD 112 AC6 DC    AL2(#+2)
01B5 0000010000   01BE 113 DC    XL5'0000010000'
01B6 01B8         01BF 114 DC    XL5'0600010000'
01B7 0500010000   01C0 115 AC7 DC    AL2(#+2)
01B8 01B8         01C1 116 DC    XL5'0000010000'
01B9 0000010000   01C2 117 DC    XL5'0700010000'
01CA 0600010000   01C3 118 ACOM DC    AL2(CNTFLD-4)
01CB 01C8         01C4 119 CNTFLD DC XL5'0000010000'         F-CC-HH
01CC 0000010000   01C5 120 DC    XL5'0000010000'         R-K-DL-N
01CD 0700010000   121 *****
01CE 01D7         122 *
01CF 0000010000   123 *
01D0 0700010000   124 *
01D1 01D7         125 *
01D2 0000010000   126 *
01D3 0000010000   127 *
01E0 0000010000   128 *
01E1 C1 C0 01F0   129 *
01E5 31 C6 01D6   130 *
01E9 F3 C0 00    131 *
01EC C0 87 0169   132 *
01F0 F0 68 7C    133 *
01F3 C0 87 01E1   134 *
0001 135 XR1 EQU X'01'
    
```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD10 CPU AND MEMORY TEST LOADER PROGRAM D1 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0002 136 XR2 EQU X'02'
0016 137 A18 EQU X'16'
00C4 138 DDR EQU X'C4'
00C6 139 DCR EQU X'C6'
00C1 140 READ EQU X'C1'
00C0 141 ERR EQU X'C0'
00C2 142 BUSY EQU X'C2'
FFFF 143 END
    
```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD40 CPU AND MEMORY DIAGNOSTICS: PROGRAM D4 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000          2      DECK 4
              3      SEQ 0
              4      UVMXYZ START 0
              5      TREP
              6      *
              7      ***** SECTOR 02 *****
              8      *****
              9      *****
             10      *****
             11      *****
             12      *****
             13      *****
             14      *****
             15      *****
             16      *****
             17      *****
             18      *****
             19      *****
             20      *****
             21      *****
             22      *****
             23      *****
             24      *****
             25      *****
             26      *****
             27      *****
             28      *****
             29      *****
             30      *****
             31      *****
             32      *****
             33      *****
             34      *****
             35      *****
             36      *****
             37      *****
             38      *****
             39      *****
             40      *****
             41      *****
             42      *****
             43      *****
             44      *****
             45      *****
             46      *****
             47      *****
             48      *****
             49      *****
             50      *****
             51      *****
             52      *****
             53      *****
             54      *****
             55      *****
             56      *****
             57      *****
             58      *****
             59      *****
             60      *****
             61      *****
             62      *****
             63      *****
             64      *****
             65      *****
             66      *****
             67      *****

0000 F0 73 1B HLT1 HPL H4,HD          INITIAL HALT = D4
0003 F2 7F 20 JMP1 JC JMP5,NOOP1
0006 F2 80 14 JMP2 JC JMP4,NOOP2
0009 C0 7F 001A BR1 BC HLT4,NOOP1
000D C0 FF 002F BR2 BC JMP6,UNCD1
0011 F2 FF 03 JMP3 JC HLT3,UNCD1
0014 F0 73 1B HALT2 HPL H4,HD
0017 F0 73 1B HLT3 HPL H4,HD
001A F0 73 1B HLT4 HPL H4,HD
001D F2 00 03 JMP4 JC HLT6,UNCD2
0020 F0 73 1B HALT5 HPL H4,HD

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD40 CPU AND MEMORY DIAGNOSTICS: PROGRAM D4 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0023 F0 73 1B 68 * HLT6 HPL H4,HD
              69 *
              70 *
              71 *
0026 F2 FF 03 72 * JMP5 JC HLT8,UNCD1
              73 *
0029 F0 73 1B 74 * HLT7 HPL H4,HD
              75 *
              76 *
              77 *
002C F0 73 1B 78 * HLT8 HPL H4,HD
              79 *
              80 *
              81 *
002F F2 00 D2 82 * JMP6 JC BOOT,UNCD2
0032 C0 00 0039 83 * BR3 BC HLT10,UNCD2
              84 *
0036 F0 73 1B 85 * HLT9 HPL H4,HD
              86 *
              87 *
              88 *
0039 F0 73 1B 89 * HLT10 HPL H4,HD
              90 *
              91 *
              92 *
007F 93 * NOOP1 EQU X'7F'
0080 94 * NOOP2 EQU X'80'
00FF 95 * UNCD1 EQU X'FF'
0000 96 * UNCD2 EQU X'00'
0073 97 * HD EQU X'73'
0018 98 * H4 EQU X'18'
018E 99 * AC2 EQU X'18E'
00D2 100 * BOOT EQU X'D2'
FFFF 101 *
          102 *
          103 *
          104 *
          105 *
          106 *
          107 *
          108 *

```

```

* (JMP4) OK ( 1,14,20 )
* (JMP1) ERR, TRY UNCD JUMP.
* (JMP5) ERR ( 4,5,20 )
* (JMP5) OK ( 1,2,18,19,21 )
UNCD JUMP TO BOOTSTRAP.
* (JMP6) ERR, TRY UNCD BRANCH.
* (BR3) ERR (21)
*(BR3)OK ( 2 )
B REG BIT 0 LINE DOWN
ALU-BLANK LINE DOWN.
B REG BIT 0 LINE UP
ALU-BLANK LINE UP.
B REG BIT 0 LINE UP
ALU-BLANK LINE DOWN.
B REG BIT 0 LINE DOWN
ALU-BLANK LINE UP.
-D-

```

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OD40 CPU AND MEMORY DIAGNOSTICS: PROGRAM D4 MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| AC2 | C | 001 | 018E | 0106 | |
| BOOT | C | 001 | 00D2 | 0107 | |
| BR1 | A | 004 | 0009 | 0042 | 0082 |
| BR2 | A | 004 | 0000 | 0044 | |
| BR3 | A | 004 | 0032 | 0083 | |
| HALT2 | A | 003 | 0014 | 0048 | |
| HALT5 | A | 003 | 0020 | 0064 | |
| HD | C | 001 | 0073 | 0104 | 0036 0048 0053 0057 0064 0069 0074 0078 0085 0089 |
| HLT1 | A | 003 | 0000 | 0036 | |
| HLT10 | A | 003 | 0039 | 0089 | 0083 |
| HLT3 | A | 003 | 0017 | 0053 | 0046 |
| HLT4 | A | 003 | 001A | 0057 | 0042 |
| HLT6 | A | 003 | 0023 | 0069 | 0061 |
| HLT7 | A | 003 | 0029 | 0074 | |
| HLT8 | A | 003 | 002C | 0078 | 0072 |
| HLT9 | A | 003 | 0036 | 0085 | |
| H4 | C | 001 | 0018 | 0105 | 0036 0048 0053 0057 0064 0069 0074 0078 0085 0089 |
| JMP1 | A | 003 | 0003 | 0038 | |
| JMP2 | A | 003 | 0006 | 0040 | |
| JMP3 | A | 003 | 0011 | 0046 | |
| JMP4 | A | 003 | 001D | 0061 | 0040 |
| JMP5 | A | 003 | 0026 | 0072 | 0038 |
| JMP6 | A | 003 | 002F | 0082 | 0044 |
| NOOP1 | C | 001 | 007F | 0093 | 0038 0042 |
| NOOP2 | C | 001 | 0080 | 0096 | 0040 |
| UNCD1 | C | 001 | 00FF | 0099 | 0044 0046 0072 |
| UNCD2 | C | 001 | 0000 | 0102 | 0061 0082 0083 |
| UVWXYZ | A | 001 | 0000 | 0004 | |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OD40 CPU AND MEMORY DIAGNOSTICS: PROGRAM D4 MOD 12

OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** 0D400000
T+* :2G<$2X2-2Y* M0G2*F2C*2B*2*0| 0*170*170*172**| 0*170*172*0|0*17 0*172*(.*****92G< $2G<*Q,00D400001
T***#FO*****
E***ET*=-DC*PH$ =*7M&F|***|***C**F2***ASC***R*A SO***Q*****12010630750 828750Q20D400003
    
```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD50 CPU AND MEMORY DIAGNOSTICS: PROGRAM D5 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000          2      DECK 4
              3      SEQ 0
              4      UVWXYZ START 0
              5      TREP
              6      *
              7      ***** SECTOR 03 *****
              8      *****
              9      *****
             10      *****
             11      *****
             12      TEST (1) LD CR INSTRUCTION *****
             13      ***** (2) FIRST E CY *****
             14      ***** (3) CR *****
             15      ***** (4) LSR WRT LD *****
             16      ***** (5) NOT RECOMP *****
             17      ***** (6) ALU BLANK *****
             18      ***** (7) CR RESET *****
             19      ***** (8) MOVE ZONE (KILLS AND NUM ) *****
             20      ***** (9) TIO ACTIVE *****
             21      ***** (10) B REG BIT 3 ACTIVE *****
             22      ***** (11) B REG BIT 4 ACTIVE *****
             23      ***** (12) ALU BIT 7 ACTIVE *****
             24      ***** (13) PROG INTERLOCK *****
             25      ***** (14) ALU BIT 6 *****
             26      ***** (15) CLC 5B *****
             27      ***** (16) INTERNAL *****
             28      *****
             29      *****
             30      0000 F0 73 5D HLT1 HPL H5,HD INITIAL HALT = D5
             31      *
             32      *
             33      *
             34      *
             35      *
             36      *
             37      *
             38      *
             39      *
             40      0003 35 04 0038 HLT2 HPL H5,HD LOAD CR WITH HI,BIN & DEC OVFL & FLS
             41      *
             42      *
             43      *
             44      *
             45      *
             46      *
             47      *
             48      *
             49      *
             50      *
             51      *
             52      *
             53      *
             54      *
             55      *
             56      *
             57      *
             58      *
             59      *
             60      *
             61      *
             62      *
             63      *
             64      *
             65      *
             66      *
             67      *

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD50 CPU AND MEMORY DIAGNOSTICS: PROGRAM D5 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

003C F0 73 5D          68 *
                   69 *
                   70 HLT8 HPL H5,HD
                   71 *
                   72 *
                   73 *
0038 38          0038 74 HIOVFL DC X'138'
                   0004 75 PSR EQU X'04'
                   0083 76 LOEQ EQU X'83'
                   0088 77 DECOV EQU X'88'
                   0090 78 FALSE EQU X'90'
                   00A0 79 BINOV EQU X'A0'
                   0020 80 NBINOV EQU X'20'
                   0073 81 HD EQU X'73'
                   005D 82 H5 EQU X'5D'
                   014D 83 BOOT EQU X'14D'
                   FFFF 84      END

```

* (JMP6) ERR. * FAILING FUNCT (7,8,13)

-D-

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0050 CPU AND MEMORY DIAGNOSTICS: PROGRAM D5 MOD 12

0050 CPU AND MEMORY DIAGNOSTICS: PROGRAM D5 MOD 12

CROSS-REFERENCE

OBJECT CARD LISTING

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| BINOV | C | 001 | 00A0 | 0079 | 0057 |
| BOOT | C | 001 | 0140 | 0083 | 0064 |
| DECOV | C | 001 | 0088 | 0077 | 0044 0049 |
| FALSE | C | 001 | 0090 | 0078 | 0050 0056 |
| HD | C | 001 | 0073 | 0081 | 0030 0036 0040 0046 0052 0059 0066 0070 |
| HIOVFL | A | 001 | 0038 | 0074 | 0032 |
| HLT1 | A | 003 | 0000 | 0030 | |
| HLT2 | A | 003 | 0000 | 0036 | |
| HLT3 | A | 003 | 0010 | 0040 | 0034 |
| HLT4 | A | 003 | 0016 | 0046 | |
| HLT5 | A | 003 | 001F | 0052 | |
| HLT6 | A | 003 | 0028 | 0059 | |
| HLT7 | A | 003 | 0032 | 0066 | 0063 |
| HLT8 | A | 003 | 0035 | 0070 | 0049 0056 |
| H5 | C | 001 | 0050 | 0082 | 0030 0036 0040 0046 0052 0059 0066 0070 |
| JMP1 | A | 003 | 0007 | 0033 | |
| JMP2 | A | 003 | 000A | 0034 | |
| JMP3 | A | 003 | 0013 | 0044 | 0033 |
| JMP4 | A | 003 | 0019 | 0049 | 0044 |
| JMP5 | A | 003 | 001C | 0050 | |
| JMP6 | A | 003 | 0022 | 0056 | 0050 |
| JMP7 | A | 003 | 0025 | 0057 | |
| JMP8 | A | 003 | 0028 | 0063 | 0057 |
| LOEQ | C | 001 | 0083 | 0076 | 0034 |
| NBINOV | C | 001 | 0020 | 0080 | 0063 |
| PSR | C | 001 | 0004 | 0075 | 0032* |
| UVWXYZ | A | 001 | 0000 | 0004 | |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E F R INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*Y ESTS*****MOD*12 84228422***** 00500000

T+**82G(I)(&&*+|R DB~RC*A3P~A3P~R H*A3P~RHF~R6*A 3P~R&D|H~*A3P~H -A<BG*M70*570*54 8*****6.Y0D500001

E***E7*=-DC*PH\$ =*7M&F|***|***C **FZ***ASC***R*A SO***Q***** 12010630750 828750H80D500002

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OD60 CPU AND MEMORY DIAGNOSTICS: PROGRAM D6 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000          2      DECK 4
              3      SEQ 0
              4      UVMXYZ START 0
              5      TREP
              6      *
              7      *          SECTOR 04
              8      *
              9      *          PROG D6      (L) & (JC)
             10      *
             11      *          TEST      (1) LD TO LD
             12      *          (2) ALU BLANK
             13      *          (3) CR
             14      *          (4) BIN ADD SUB NOT MOVE
             15      *          (5) EDIT ACTIVE
             16      *          (6) DEC INSTR ACTIVE
             17      *          (7) ALU BIT 3 ACTIVE
             18      *          (8) ALU BIT 4 ACTIVE
             19      *          (9) ALU BIT 2 ACTIVE
             20      *          (10) INTERNAL
             21      *
             22      *
             23      *
             24      HLT1 HPL H6,HD          INITIAL HALT = D6
             25      *
             26      *
             27      JMP1 JL LOW,PSR        LOAD CR WITH LOW .
             28      *          JMP2          JUMP ON LOW.
             29      *
             30      *          HLT2 HPL H6,HD          * (JMP1) ERR
             31      *          *          * FAILING FUNCT ( 1,2 )
             32      *
             33      *          JMP2 JC HLT3+3,NOVFHE    JUMP ON NOT HI,EQ,FLS, DEC,BIN OVFLW
             34      *
             35      *          HLT3 HPL H6,HD          * (JMP2) ERR
             36      *          *          * FAILING FUNCT (3,4,7,8,9,10)
             37      *
             38      *
             39      *          JMP3 JL EQUAL,PSR        LOAD CR WITH EQUAL.
             40      *          JMP4          JUMP ON EQUAL.
             41      *
             42      *          HLT4 HPL H6,HD          * (JMP3) ERR
             43      *          *          * FAILING FUNCT (1,2,4,5,6)
             44      *
             45      *
             46      *          JMP4 BC BOOT,NOVFHL      BR ON NOT HI, LO,FLS, BIN,DEC OVFL
             47      *
             48      *          HLT5 HPL H6,HD          * (JMP4) ERR
             49      *          *          * FAILING FUNCT (3,10)
             50      *
             51      *
             52      *          LOW DC XL1'02'
             53      *          EQUAL DC XL1'01'
             54      *          PSR EQU X'04'
             55      *          NOVFHL EQU X'3E'
             56      *          NOVFHE EQU X'3D'
             57      *          HD EQU X'73'
             58      *          H6 EQU X'7D'
             59      *          BOOT EQU X'154'
             60      *          END

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

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OD60 CPU AND MEMORY DIAGNOSTICS: PROGRAM D6 MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--------------------------|
| BOOT | C | 001 | 0154 | 0059 | 0046 |
| EQUAL | A | 001 | 0025 | 0053 | 0039 |
| HD | C | 001 | 0073 | 0057 | 0024 0029 0035 0042 0048 |
| HLT1 | A | 003 | 0000 | 0024 | |
| HLT2 | A | 003 | 000A | 0029 | |
| HLT3 | A | 003 | 0010 | 0035 | 0033 |
| HLT4 | A | 003 | 001A | 0042 | |
| HLT5 | A | 003 | 0021 | 0048 | |
| H6 | C | 001 | 007D | 0058 | 0024 0029 0035 0042 0048 |
| JMP1 | A | 003 | 0007 | 0027 | |
| JMP2 | A | 003 | 000D | 0033 | 0027 |
| JMP3 | A | 003 | 0017 | 0040 | |
| JMP4 | A | 004 | 001D | 0046 | 0040 |
| LOW | A | 001 | 0024 | 0052 | 0026 |
| NOVFHE | C | 001 | 003D | 0056 | 0033 |
| NOVFHL | C | 001 | 003E | 0059 | 0046 |
| PSR | C | 001 | 0004 | 0054 | 0026* 0039* |
| UVMXYZ | A | 001 | 0000 | 0004 | |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OD60 CPU AND MEMORY DIAGNOSTICS: PROGRAM D6 MOD 12
OBJECT CARD LISTING

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PAGE 11

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

*GBK*GBD**PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422*****OD600000
T1& V&G1*(1&& I)H B*A3~H*A3-LM D*BP2-&10*77 I-E M&G1*-D*****K2<0D600001
E***E7*=-DC*PH& =*7M&FI**I**C **F& ASC**R A SO**Q*****12010630750 828750880D600002

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD70 CPU AND MEMORY DIAGNOSTICS: PROGRAM D7 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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PAGE 11A

```

0000 0000 2 DECK 4
0000 0000 3 SEQ 0
0000 0000 4 UVWXYZ START 0
0000 0000 5 TREP
0000 0000 6 * SECTOR 05
0000 0000 7 *****
0000 0000 8 *****
0000 0000 9 *****
0000 0000 10 *****
0000 0000 11 *****
0000 0000 12 *****
0000 0000 13 *****
0000 0000 14 *****
0000 0000 15 *****
0000 0000 16 *****
0000 0000 17 *****
0000 0000 18 *****
0000 0000 19 *****
0000 0000 20 *****
0000 0000 21 *****
0000 0000 22 *****
0000 0000 23 *****
0000 0000 24 *****
0000 0000 25 *****
0000 0000 26 *****
0000 0000 27 *****
0000 0000 28 *****
0000 0000 29 *****
0000 0000 30 *****
0000 0000 31 HLT1 HPL H7,HD INITIAL HALT = D7
0000 0000 32 *****
0000 0000 33 L HIGH,PSR LOAD PSR(CR) TO HIGH.
0000 0000 34 COMP1 CLI ZERO,X'01' COMPARE 00 & 01.
0000 0000 35 JL COMP2 JUMP IF CR LOW.
0000 0000 36 JE HLT3 * JUMP IF CR EQUAL.
0000 0000 37 *
0000 0000 38 HLT2 HPL H7,HD * CR HIGH
0000 0000 39 * * FAILING FUNCT (1,7,13,16)
0000 0000 40 HLT3 HPL H7,HD * CR EQUAL
0000 0000 41 *
0000 0000 42 *
0000 0000 43 *
0000 0000 44 COMP2 CLI XFF,X'FF' COMPARE FF & FF.
0000 0000 45 JE COMP3 JUMP IF CR EQUAL.
0000 0000 46 *
0000 0000 47 HLT4 HPL H7,HD * CR NOT EQUAL.
0000 0000 48 * * FAILING FUNCT (4,6,9,10,11,14)
0000 0000 49 COMP3 CLI XFF,X'FF' CHECK FOR STORING (NOT REGEN)
0000 0000 50 JE COMP4 JUMP IF XFF NOT ALTERED BY (CLI).
0000 0000 51 *
0000 0000 52 HLT5 HPL H7,HD * STORAGE ALTERED BY (CLI)
0000 0000 53 * * FAILING FUNCT (5,17)
0000 0000 54 COMP4 CLI XFF,X'02' COMPARE FF WITH 02.
0000 0000 55 BH BOOT BR TO BOOTSTRAP IF CR HIGH.
0000 0000 56 *
0000 0000 57 HLT6 HPL H7,HD * CR NOT HIGH
0000 0000 58 * * FAILING FUNCT (4,8,9,15)
0000 0000 59 HIGH EQU X'19'
0000 0000 60 XFF DC XL2'FFFF'
0000 0000 61 ZERO DC XL2'0000'
0000 0000 62 PSR EQU X'04'
0000 0000 63 HD EQU X'73'
0000 0000 64 H7 EQU X'07'
0000 0000 65 BOOT EQU X'158'
0000 0000 66 FFFF END
    
```

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD70 CPU AND MEMORY DIAGNOSTICS: PROGRAM D7 MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|------------|
| BOOT | C | 001 | 0158 | 0065 | 0055 |
| COMP1 | A | 004 | 0007 | 0034 | |
| COMP2 | A | 004 | 0017 | 0044 | 0035 |
| COMP3 | A | 004 | 0021 | 0049 | 0045 |
| COMP4 | A | 004 | 0028 | 0054 | 0050 |
| HD | C | 001 | 0073 | 0063 | 0031 |
| HIGH | C | 001 | 0019 | 0059 | 0033 |
| HLT1 | A | 003 | 0000 | 0031 | |
| HLT2 | A | 003 | 0011 | 0038 | |
| HLT3 | A | 003 | 0014 | 0040 | 0036 |
| HLT4 | A | 003 | 001E | 0047 | |
| HLT5 | A | 003 | 0028 | 0052 | |
| HLT6 | A | 003 | 0033 | 0057 | |
| H7 | C | 001 | 0007 | 0064 | 0031 |
| PSR | C | 001 | 0004 | 0062 | 0033* |
| UVWXYZ | A | 001 | 0000 | 0004 | |
| XFF | A | 002 | 0037 | 0060 | 0044 |
| ZERO | A | 002 | 0039 | 0061 | 0034 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OD70 CPU AND MEMORY DIAGNOSTICS: PROGRAM D7 MOD 12

OBJECT CARD LISTING

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THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** 0D700000
T+E*92G<G|E&*FL4 A*CX2--X2-E|0*0~ 0*0*!0*78YDC2G< G|~2(*RA*A3A34 B*C~/E$2G<G**2 *****NZ*0D700001
E***E7*=-DC*PH$ =*7M&F|***|***C **F$***ASC***R*A SO***Q***** 12010630750 828750Y80D700002

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

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OD80 CPU AND MEMORY DIAGNOSTICS: PROGRAM D8 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000      2      DECK 4
          3      SEQ 0
          4      UVMXYZ START 0
          5
          6      *
          7      ***** SECTOR 06 *****
          8      *****
          9      *****          PROG D8          *****
         10      *****
         11      *****          (CLI) COMPARE LOGICAL IMMEDIATE          *****
         12      *****
         13      *****          TEST          (1) BINARY OVERFLOW          *****
         14      *****          (2) ALU BLANK 0          *****
         15      *****          (3) ALU BLANK 1          *****
         16      *****          (4) CONDITION REGISTER          *****
         17      *****          (5) TEST ON/OFF INSTR.          *****
         18      *****          (6) BR OR SKP ACTIVE          *****
         19      *****          (7) INTERNAL          *****
         20      *****
         21      *****
         22
         23      0000 F0 73 7F      HLT1  HPL  H8,HD          INITIAL HALT = D8
         24
         25      0003 35 04 0038      L      LOVFLW,PSR          LOAD PSR(CR) TO LOW & DEC OVERFLOW
         26      0007 3D 00 0038      CLI   XFF,X'00'          COMPARE FF & 00.
         27      000B F2 A0 03      JC    HLT2,BINOV          JUMP IF BINARY OVERFLOW IS SET.
         28      000E F2 84 03      JH    HLT2+3              JUMP IF HIGH SET.
         29
         30      0011 F0 73 7F      HLT2  HPL  H8,HD          * PSR(CR) SET WRONG.
         31      *
         32      *
         33      *
         34      0014 3D 00 0039      CLI   X7F,X'00'          COMPARE 7F & 00.
         35      0018 F2 04 07      JNH   HLT3              JUMP IF HIGH NOT SET.
         36      001B 3D 00 003A      CLI   XBF,X'00'          COMPARE BF & 00.
         37      001F F2 84 03      JH    HLT3+3              JUMP IF HIGH SET.
         38      *
         39      0022 F0 73 7F      HLT3  HPL  H8,HD          * PSR(CR) SET WRONG.
         40      *
         41      *
         42      *
         43      0025 3D FF 0038      CLI   XFF,X'FF'          COMPARE FF & FF.
         44      0029 F2 90 08      JF    HLT4              JUMP IF FALSE SET.
         45      002C C0 08 0011      BNOZ  HLT2              GO HALT IF DEC OVERFLOW WAS RESET.
         46      0030 C0 87 0162      B     BOOT              BRANCH TO BOOTSTRAP.
         47      *
         48      0034 F0 73 7F      HLT4  HPL  H8,HD          * PSR(CR) SET WRONG.
         49      *
         50      *
         51      *
         52      0037 FF          DC    XLI'FF'          *
         53      0038 FF          DC    XLI'FF'          *
         54      0039 7F          DC    XLI'7F'          *
         55      003A BF          DC    XLI'BF'          *
         56      003B 0A          DC    XLI'0A'          *
         57
         58      00A0      EQU  X'AO'          *
         59      0034      EQU  X'04'          *
         60      0073      EQU  X'73'          *
         61      007F      EQU  X'7F'          *
         62      0162      EQU  X'162'          *
         63
         64      FFFF      END

```

IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201
PAGE 13A

OD80 CPU AND MEMORY DIAGNOSTICS: PROGRAM D8 MOD 12

CROSS-REFERENCE

```

SYMBOL T LEN VALUE DEFN REFERENCES
BINOV C 001 00A0 0058 0027
BOOT C 001 0162 0062 0046
HD C 001 0073 0060 0023 0030 0039 0048
HLT1 A 003 0000 0023
HLT2 A 003 0011 0030 0027 0028 0045
HLT3 A 003 0022 0039 0035 0037
HLT4 A 003 0034 0048 0044
H8 C 001 007F 0061 0023 0030 0039 0048
LOVFLW A 001 0038 0056 0025
PSR C 001 0004 0059 0025*
UVMXYZ A 001 0000 0004
XBF A 001 003A 0055 0036
XFF A 001 0038 0053 0026 0043
X7F A 001 0039 0054 0034

```

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OD80 CPU AND MEMORY DIAGNOSTICS: PROGRAM D8 MOD 12
OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422 OD800000
T+*=2G*(1&&+34 **CT2Y*12/10*72 *92-6G1&+7H D**A3-37**CT2U*T *B**J0H*AQ7A3-*** *-#2*=CUOD800001
T**#B-.....
E***E7*=-DC*PH\$ =*7H&F|***|**C **F\$**ASC**R*A SO**Q***** 12010630750 828753Q20D800003

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

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OD90 CPU AND MEMORY DIAGNOSTICS: PROGRAM D9 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000 2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP
6 *
7 SECTOR 07
8 *****
9 *****
10 *****
11 *****
12 *****
13 *****
14 *****
15 *****
16 *****
17 *****
18 *****
19 *****
20 *****
21 *****
22 *****
23 *****
24 *****
25 *****
26 *****
27 *****
28 *****
29 *****
30 *****
31 *****
32 *****
33 *****
34 *****
35 *****
36 *****
37 *****
38 *****
39 *****
40 *****
41 *****
42 *****
43 *****
44 *****
45 *****
46 *****
47 *****
48 *****
49 *****
50 *****
51 *****
52 *****
53 *****
54 *****
55 *****
56 *****
57 *****
58 *****
59 *****
60 *****
61 *****
62 *****
63 *****
64 *****
0000 F0 73 5F HLT1 HPL H9,HD INITIAL HALT = D9
0003 35 04 003F L HIGH,PSR LOAD PSR TO HIGH.
0007 3C FF 003E PAD,X'FF' MOVE FF TO PAD.
000B F2 84 13 JH HLT4+3 JUMP IF CR STILL HIGH.
000E 3D 01 003E CLI PAD,X'01' * CHECK RESULT
0012 F2 81 09 JE HLT4 * JUMP IF RESULT IS 01.
0015 F2 82 03 JL HLT3 * JUMP IF RESULT IS 00.
0018 F0 73 5F * HLT2 HPL H9,HD * CR ERR
* * * FAILING FUNCT (2,8,10)
001B F0 73 5F * HLT3 HPL H9,HD * DECODE ERR.
* * * FAILING FUNCT (5,10)
001E F0 73 5F * HLT4 HPL H9,HD * NO COMP A REG.
* * * FAILING FUNCT (1,10)
0021 3D FF 003E CLI PAD,X'FF' CHECK RESULT.
0025 F2 81 03 JE HLT5+3 JUMP IF RESULT IS FF.
0028 F0 73 5F * HLT5 HPL H9,HD * FF NOT STORED IN PAD.
* * * FAILING FUNCT (3,6,9,10)
002B 3C 00 003E MVI PAD,X'00' MOVE 00 INTO PAD.
002F 3D FF 003E CLI PAD,X'FF' CHECK RESULT
0033 3C 08 016A MVI BOOT+1,X'08' SET UP TO READ 8TH RECORD
0037 C0 01 0169 BNE BOOT BRANCH TO BOOTSTRAP IF RESULT NOT FF
003B F0 73 5F * HLT6 HPL H9,HD * STORE OR BLOCK SDR ERR
* * * FAILING FUNCT (4,7,10)
003E 00 003E PAD DC XL1'00'
003F 00 003F HIGH DC XL1'00'
0004 59 PSR EQU X'04'
0073 60 HD EQU X'73'
005F 61 H9 EQU X'5F'
0169 62 BOOT EQU X'169'
FFFF 64 END

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PAGE 14A

IBM MAINTENANCE DIAGNOSTIC PROGRAM

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0090 CPU AND MEMORY DIAGNOSTICS: PROGRAM D9 MOD 12
CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|-----------------|
| BOOT | C | 001 | 0169 | 0062 | 0050* 0051 |
| HD | C | 001 | 0073 | 0060 | 0024 0033 |
| HIGH | A | 001 | 003F | 0057 | 0026 |
| HLT1 | A | 003 | 0000 | 0024 | |
| HLT2 | A | 003 | 0018 | 0033 | |
| HLT3 | A | 003 | 0018 | 0036 | 0031 |
| HLT4 | A | 003 | 001E | 0039 | 0028 0030 |
| HLT5 | A | 003 | 0028 | 0045 | 0043 |
| HLT6 | A | 003 | 0038 | 0053 | |
| H9 | C | 001 | 005F | 0061 | 0024 0033 |
| PAD | A | 001 | 003E | 0056 | 0027* 0029 |
| PSR | C | 001 | 0004 | 0059 | 0042 0048* 0049 |
| UVWXYZ | A | 001 | 0000 | 0004 | 0026* |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

IBM MAINTENANCE DIAGNOSTIC PROGRAM

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PAGE 15A

0090 CPU AND MEMORY DIAGNOSTICS: PROGRAM D9 MOD 12
OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E F INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** 00900000
T+ :2G(-1&E|33 =C#Z/A<*&=&YD I2YHC2G(-2G(-2G(-|~2|?RA*A3P30 **C8**0=|-AE& A*OU*0&Q0D900001
TA **2G(-***** .....
E***E7*=-DC*PHS =*7M&F|***I***C **F&***ASC**R A 'SO***Q***** 12010630750 828753H20D900003

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 4248201
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ODAO CPU AND MEMORY DIAGNOSTICS: PROGRAM DA MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000 DECK 4
UVWXYZ START 0
REP
SECTOR 08

PROG DA
(SBN) SET BITS ON

TEST (1) OR
(2) STORE DATA
(3) SBN DECODE

INITIAL HALT = DA
PUT HEX --00-- IN LOC HEX --FF--
SET ALL BITS ON AND
CHECK RESULT, LOC HEX --FF-- SHUD NOW
CONTAIN HEX --FF--
ERR-SBN FAILED, NOT ALL BITS ON
PUT HEX --00-- IN LOC HEX --FF--
SET NO BITS ON AND
CHECK RESULT, LOC HEX --FF-- SHUD NOW
CONTAIN HEX --00--
ERR-SBN FAILED, NOT ALL BITS OFF
PUT HEX --FF-- IN LOC HEX --FF--
SET NO BITS ON
CHECK RESULT
BR TO NEXT TEST IF ALL BITS ON
*ERR-SBN FAILED, NOT ALL BITS ON

(TBN) TEST BITS ON

TEST (1) TEST FALSE
(2) CONDITION REGISTER
(3) STORE DATA
(4) ALU
(5) TBN DECODE
(6) BIN ADD SUB GROUP
(7) TEST FALSE ACTIVE
(8) DEC COMP A REG

LOAD PSR(CR) TO HIGH.
PUT 00 IN PAD
TEST FOR ALL BITS ON.
JUMP ON LOW, EQUAL, DEC OR BIN OVFLW
JUMP ON FALSE
* PROG DA, HALT 5. ERROR HALT.
* CON. REG NOT SET TO FALSE BY TBN

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ODAO CPU AND MEMORY DIAGNOSTICS: PROGRAM DA MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

004E F0 73 3F
0051 3D 00 00FF
0055 F2 81 03
0058 F0 73 3F
005B 3C FF 00FF
005F 38 FF 00FF
0063 F2 10 03
0066 F0 73 3F
0069 3C FE 00FF
006D 38 01 00FF
0071 F2 10 86
0074 3C F0 00FF
0078 38 02 00FF
007C F2 10 7B
007F 3C FB 00FF
0083 38 04 00FF
0087 F2 10 70
008A 3C F7 00FF
008E 38 08 00FF
0092 F2 10 65
0095 3C EF 00FF
0099 38 10 00FF
009D F2 10 5D
00A0 3C DF 00FF
00A4 38 20 00FF
00A8 F2 10 52
00AF 38 40 00FF
00B3 F2 10 47
00B6 3C 7F 00FF
00BA 38 80 00FF
00BE F2 10 3C

(TBN) TEST BITS ON

TEST (9) ALU (RIPPLE BITS)
(10) INTERNAL

SET ALL BITS ON EXCEPT BIT 7.
TEST FOR BIT 7 ON.
JUMP IF TEST FALSE LATCH NOT SET.
SET ALL BITS ON EXCEPT BIT 6.
TEST FOR BIT 6 ON.
JUMP IF TEST FALSE LATCH NOT SET.
SET ALL BITS ON EXCEPT BIT 5.
TEST FOR BIT 5 ON.
JUMP IF TEST FALSE LATCH NOT SET.
SET ALL BITS ON EXCEPT BIT 4.
TEST FOR BIT 4 ON.
JUMP IF TEST FALSE LATCH NOT SET.

(TBN) TEST BITS ON

TEST (11) ALU (RIPPLE BITS)

SET ALL BITS ON EXCEPT BIT 3.
TEST FOR BIT 3 ON.
JUMP IF TEST FALSE LATCH NOT SET.
SET ALL BITS ON EXCEPT BIT 2.
TEST FOR BIT 2 ON.
JUMP IF TEST FALSE LATCH NOT SET.
SET ALL BITS ON EXCEPT BIT 1.
TEST FOR BIT 1 ON.
JUMP IF TEST FALSE LATCH NOT SET.
SET ALL BITS ON EXCEPT BIT 0.
TEST FOR BIT 0 ON.
JUMP IF TEST FALSE LATCH NOT SET.

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ODCO CPU AND MEMORY DIAGNOSTICS: PROGRAM DC MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

004E F0 73 6C 66 HLT3 HPL HC,HD * FAILING FUNCT (6,8,10,11,13)
67 *
68 *
69 *
70 TST5 CLI XR2LO,X'20' CHECK LOAD/STORE OF XR2 LOWER BYTE.
71 JNE HLT4 JUMP IF XR2LO NOT EQUAL HEX -20-
72 TST6 CLI ARRL0,X'80' CHECK LOAD/STORE OF ARR LOWER BYTE.
73 JE START JUMP IF ARRL0 EQUAL HEX -80-
74 HLT4 HPL HC,HD * FAILING FUNCT (14)
75 *
76 *
77 *
0062 F0 73 6C 78 HLT5 HPL HC,HD * FAILING FUNCT (7,8,9)
79 *
80 *
81 *
82 *****
83 ***** (L, ST, A) LOAD, STORE & ADD REGISTER *****
84 *****
85 ***** TEST (1) AR *****
86 ***** (2) BAR *****
87 ***** (3) LSR SELECT *****
88 *****
89 *****
90 *****
91 *
92 *
0065 35 01 00CE 93 START L XFF,XR1 LOAD XR1 & XR2 WITH FFFF
94 *
95 L XFF,XR2
96 A ONE,XR1 ADD HEX -0001- TO XR1.
97 JNOL HLT7 CHECK FOR BIN. OVFLOW COND.
98 A ONE,XR2 ADD HEX -0001- TO XR2.
99 BOL START1 CHECK FOR BIN. OVFLOW COND.
100 *
101 HLT7 HPL HC,HD * BINARY OVERFLOW NOT SET
102 * * FAILING FUNCT (1,2)
103 *
104 *
105 *****
106 ***** (LA) LOAD ADDRESS *****
107 *****
108 *****
109 ***** TEST (1) XR1 & XR2 SELECT *****
110 ***** (2) (LA) OP DECODE *****
111 ***** (3) INTERNAL *****
112 *****
113 *****

IBM MAINTENANCE DIAGNOSTIC PROGRAM

ODCO CPU AND MEMORY DIAGNOSTICS: PROGRAM DC MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

007F 35 01 00BF 115 START1 L ZEROES,XR1
0083 35 02 00BF 116 L ZEROES,XR2
0087 C2 01 00BB 117 LOAD1 LA HLT10,XR1
118 *
008B 34 02 00FA 119 ST PAD1,XR2
120 *
008F C2 02 FFFF 121 LOAD2 LA X'FFFF',XR2
122 *
0093 34 01 00FC 123 ST PAD2,XR1
0097 34 02 00FE 124 ST PAD3,XR2
125 *
009B 3D 00 00FD 126 CLI PAD3-1,X'00'
009F F2 81 16 127 JE HLT9
128 *
00A2 3D 8B 00FC 129 CLI PAD2,X'BB'
00A6 F2 01 0C 130 JNE HLT8
131 *
00A9 3D 00 00F9 132 * CLI PAD1-1,X'00'
133 *
00AD 3C 0A 016A 134 MVI BOOT+1,X'0A'
00B1 C0 81 0169 135 BE BOOT
136 *
00B5 F0 73 6C 137 HLT8 HPL HC,HD * PROG DC, HALT 8. ERROR HALT.
138 * * FAILING FUNCT 1
139 *
140 *
00B8 F0 73 6C 141 HLT9 HPL HC,HD * PROG DC, HALT 9. ERROR HALT.
142 * * FAILING FUNCT (1,2,3)
143 *
00BB F0 73 6C 144 HLT10 HPL HC,HD * PROG DC, HALT 10. ERROR HALT.
145 * * FAILING FUNCT 2
146 * THE (LA) WAS DECODED AS A (BNE)
147 * INSTRUCTION.
148 *
00BE 0000 00BF 149 ZEROES DC XL2'0000'
00C0 0110 00C1 150 X0110 DC XL2'0110'
00C2 2020 00C3 151 X2020 DC XL2'2020'
00C4 4004 00C5 152 X4004 DC XL2'4004'
00C6 8080 00C7 153 X8080 DC XL2'8080'
00C8 0001 00C9 154 ONE DC XL2'0001'
00CA AA55 00CB 155 XAA55 DC XL2'AA55'
00CC AA 00CD 156 X55AA DC XL1'AA'
00CE 157 XFF DC XL2'FFFF'
158 *
0001 159 XR1 EQU 1
0002 160 XR2 EQU 2
0004 161 PSR EQU 4
0008 162 ARR EQU 8
00FF 163 ALLREG EQU 255
00FA 164 PAD1 EQU 250
00FC 165 PAD2 EQU 252
00FE 166 PAD3 EQU 254
00F1 167 XR1HI EQU 241
00F2 168 XR1LO EQU 242
00F4 169 XR2LO EQU 244
00F6 170 PSRL0 EQU 246
00F8 171 ARRL0 EQU 248
0169 172 BOOT EQU X'1169'
0073 173 HD EQU X'73'
006C 174 HC EQU X'6C'
FFFF 175 *
END

-D-

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ODCO CPU AND MEMORY DIAGNOSTICS: PROGRAM DC MOD 12

ODCO CPU AND MEMORY DIAGNOSTICS: PROGRAM DC MOD 12

OBJECT CARD LISTING

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| ALLREG | C | 001 | 00FF | 0163 | |
| ARR | C | 001 | 0008 | 0162 | 0023* 0029 |
| ARRLO | C | 001 | 00F8 | 0171 | 0029* 0072 |
| BOOT | C | 001 | 0169 | 0172 | 0134* 0135 |
| HC | C | 001 | 006C | 0174 | 0018 0058 |
| HD | C | 001 | 0073 | 0173 | 0018 0058 |
| HLL1 | A | 003 | 0000 | 0018 | |
| HLL10 | A | 003 | 008B | 0144 | 0117 |
| HLL2 | A | 003 | 0030 | 0058 | 0055 |
| HLL3 | A | 003 | 004E | 0066 | |
| HLL4 | A | 003 | 005F | 0074 | 0071 |
| HLL5 | A | 003 | 0062 | 0078 | 0065 |
| HLL7 | A | 003 | 007C | 0101 | 0097 |
| HLL8 | A | 003 | 0085 | 0137 | 0130 |
| HLL9 | A | 003 | 0088 | 0141 | 0127 |
| LOAD1 | A | 004 | 0087 | 0117 | |
| LOAD2 | A | 004 | 008F | 0121 | |
| ONE | A | 002 | 00C9 | 0154 | 0096 0098 |
| PAD1 | C | 001 | 00FA | 0164 | 0119* 0132 |
| PAD2 | C | 001 | 00FC | 0165 | 0123* 0129 |
| PAD3 | C | 001 | 00FE | 0166 | 0124* 0126 |
| PSR | C | 001 | 0004 | 0161 | 0022* 0028 |
| PSRLO | C | 001 | 00F6 | 0170 | 0028* 0054 |
| STAKT | A | 004 | 0065 | 0093 | 0073 |
| START1 | A | 004 | 007F | 0115 | 0099 |
| TST1 | A | 004 | 002F | 0054 | 0030 |
| TST2 | A | 004 | 0036 | 0056 | |
| TST3 | A | 004 | 0040 | 0062 | 0057 |
| TST4 | A | 004 | 0047 | 0064 | |
| TST5 | A | 004 | 0051 | 0070 | 0063 |
| TST6 | A | 004 | 0058 | 0072 | |
| UVWXYZ | A | 001 | 0000 | 0004 | |
| XAA55 | A | 002 | 00C8 | 0155 | |
| XFF | A | 002 | 00CE | 0157 | 0093 0095 |
| XR1 | C | 001 | 0001 | 0159 | 0020* 0026 0093* 0096* 0115* 0117* 0123 |
| XR1HI | C | 001 | 00F1 | 0167 | 0025* 0062 0064 |
| XR1LO | C | 001 | 00F2 | 0168 | 0024* 0026* 0056 |
| XR2 | C | 001 | 0002 | 0160 | 0021* 0027 0095* 0098* 0116* 0119 0121* 0124 |
| XR2LO | C | 001 | 00F4 | 0169 | 0027* 0070 |
| X0110 | A | 002 | 00C1 | 0150 | 0020 |
| X2020 | A | 002 | 00C3 | 0151 | 0021 |
| X4004 | A | 002 | 00C5 | 0152 | 0022 |
| X55AA | A | 001 | 00CC | 0156 | |
| X8080 | A | 002 | 00C7 | 0153 | 0023 |
| ZEROES | A | 002 | 00BF | 0149 | 0115 0116 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

THE CHARACTER ^ INDICATES A BLANK COLUMN AND THE CHARACTERS D E F INDICATE NUMERIC SHIFT.
 CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84288422* ODC00000

T+-:2G(%ED*OLM B*<<5A*CE(%-130 |IH2*OC1(*D*2TE B*|E4A*CG|-*=<B G*82*A*CG2-DG|J* *27H*|EYODC00001

T+-A5-E|O*60* EC 12YDH|E*2-RAE|A 3%C4-|L2*E*1-C 82YDF2G(%2G(%ED *3TMB*<86*EC|2S* H(-H*8%2ODC00002

T+-B0*CX*Y*A*2G(| (%ED*73HB*.WB*EB #(*H*%2HB**24*EC @(*H*%T4**|72-JQ *)OC22-D<|E**=LO H*0Y*POHODC00003

TGEC+OHD2E-A3%|A 3%|A3%*****J*-HD D-H*****EZND*?*** 3K80DC00004

E****E7*=-DC*PH\$ =*7M&F|****|***C **F%***ASC***R*A SO***Q***** 12010630750 82875*YUODC00005

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ODD0 CPU AND MEMORY DIAGNOSTICS: PROGRAM DD MOD 12

ODD0 CPU AND MEMORY DIAGNOSTICS: PROGRAM DD MOD 12

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
101 *****
102 *****
103 ***** (MZZ) MOVE ZONE TO ZONE *****
104 *****
105 ***** TEST (1) ZONE NUM INTERCHANGE *****
106 ***** (2) MOVE NUM *****
107 ***** (3) MOVE ZONE *****
108 ***** (4) MZZ DECODE *****
109 ***** (5) ALU AND-OR FUNCTION *****
110 ***** (6) Q BIT 6 *****
111 ***** (7) INTERNAL *****
112 *****
113 *****
114 *****
115 *****
116 START3 MVI PAD,X'A5' SET PAD (LOC 00FE) TO -A5-.
117 MZZ PAD,HEX96+1 MOVE ZONE OF -96- TO ZONE OF PAD.
118 *****
119 ***** CLI PAD,X'65' GO TO HALT9 IF RESULT
120 ***** JNE HALT9+3 WAS -65-.
121 *****
122 HALT9 HPL HD,HD * PROG DD, HALT 9. ERROR HALT.
123 ***** * FAILING FUNCT (1,7)
124 *****
125 *****
126 *****
127 ***** CLI PAD,X'A5' GO TO HALT10 IF RESULT
128 ***** JE HALT10 WAS -A5-.
129 *****
130 ***** HEX96 CLI PAD,X'96' GO TO HALT10 IF RESULT
131 ***** JNE HALT10+3 WAS -96-.
132 *****
133 HALT10 HPL HD,HD * PROG DD, HALT 10. ERROR HALT.
134 ***** * FAILING FUNCT (2,3)
135 *****
136 *****
137 ***** CLI PAD,X'A9' GO TO HALT11 IF RESULT
138 ***** JNE HALT11+3 WAS -A9-.
139 *****
140 HALT11 HPL HD,HD * PROG DD, HALT 11. ERROR HALT.
141 ***** * FAILING FUNCT 6
142 *****
143 *****
144 ***** CLI PAD,X'95' GO TO HALT12 IF RESULT WAS NOT-95-,
145 ***** MVI BOOT+1,X'08' SET UP TO READ 11TH RECORD
146 ***** BE BOOT GO TO BOOTSTRAP IF RESULT WAS -95-.
147 *****
148 HALT12 HPL HD,HD * PROG DD, HALT 12. ERROR HALT.
149 ***** * FAILING FUNCT (4), (5)
150 *****
151 *****
00FF 152 PAD EQU 255
0169 153 BOOT EQU X'169'
0073 154 HD EQU X'73'
155 *****
FFFF 156 END

```

| CROSS-REFERENCE | | | | | | | | | | | | | | | | | | | |
|-----------------|---|-----|-------|------|------------|-------|-------|------|------|------|------|-------|-------|-------|------|--|--|--|--|
| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES | | | | | | | | | | | | | | |
| BOOT | C | 001 | 0169 | 0153 | 0145* | 0146 | | | | | | | | | | | | | |
| HALT1 | A | 003 | 0000 | 0021 | | | | | | | | | | | | | | | |
| HALT10 | A | 003 | 0086 | 0133 | 0128 | 0131 | | | | | | | | | | | | | |
| HALT11 | A | 003 | 0095 | 0140 | 0138 | | | | | | | | | | | | | | |
| HALT12 | A | 003 | 00A4 | 0148 | | | | | | | | | | | | | | | |
| HALT2 | A | 003 | 0014 | 0032 | | 0030 | | | | | | | | | | | | | |
| HALT3 | A | 003 | 001E | 0039 | | 0037 | | | | | | | | | | | | | |
| HALT4 | A | 003 | 002F | 0050 | | 0045 | 0048 | | | | | | | | | | | | |
| HALT5 | A | 003 | 0039 | 0057 | | | | | | | | | | | | | | | |
| HALT6 | A | 003 | 0051 | 0082 | | 0080 | | | | | | | | | | | | | |
| HALT7 | A | 003 | 0058 | 0089 | | 0087 | | | | | | | | | | | | | |
| HALT8 | A | 003 | 0066 | 0097 | | | | | | | | | | | | | | | |
| HALT9 | A | 003 | 007A | 0123 | | 0121 | | | | | | | | | | | | | |
| HD | C | 001 | 0073 | 0154 | 0021 | 0032 | 0032 | 0039 | 0039 | 0050 | 0050 | 0057 | 0057 | 0082 | 0082 | | | | |
| HEX96 | A | 004 | 0084 | 0130 | 0021 | 0089 | 0097 | 0097 | 0123 | 0123 | 0133 | 0133 | 0140 | 0140 | 0148 | | | | |
| MOVENN | A | 006 | 0007 | 0027 | 0027 | 0077 | 0118 | | | | | | | | | | | | |
| PAD | C | 001 | 00FF | 0152 | 0C25* | 0027* | 0029 | 0036 | 0044 | 0047 | 0054 | 0074* | 0075* | 0077* | 0079 | | | | |
| START2 | A | 004 | 003C | 0074 | C055 | | | | | | | | | | | | | | |
| START3 | A | 004 | 0069 | 0116 | 0093 | 0116* | 0118* | 0120 | 0127 | 0130 | 0137 | 0144 | | | | | | | |
| UVWXYZ | A | 001 | 0000 | 0004 | 0094 | | | | | | | | | | | | | | |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

ODD0 CPU AND MEMORY DIAGNOSTICS: PROGRAM DD MOD 12
OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.
 CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*Y ESTS*****MOD*12 84228422***** ODD000000
T+*:=2G(3)HM*0- C*|2*/L4C*|*2*6| 0*7<Y*C*2-DC2G( 3|RQ**RAA36V*|* 2*8|0*7<Y*DC*2-D C2G<LQ8ODD00001
T+*A5*30J*|82Z&C *B<*OBE|E2**H A*A3*34J*|2-8| 0*7<Z-C*OHD*E-A 3*32V*|2H**C**HM *RE**9H&ODD00002
T<*BW**HA**A3*36 V*|2-8*Y-C*2-D C2G(3)EU**HA**A 3*36N*|22BOE2OHD AE-A3*0***** JLODD000003
E**E7*=-DC*PH$ =*7M&F|**|**C** *F$**ASC**R*A SO**Q***** 12010630750 828752Q-ODD00004
  
```

ODE0 CPU AND MEMORY DIAGNOSTICS: PROGRAM DE MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000 0000 2 DECK 4
3 SEQ 0
4 UVMXYZ START 0
5 TREP
6 * SECTOR 11
7 *****
8 *****
9 ***** (MNZ) MOVE ZONE TO NUMERIC *****
10 *****
11 ***** TEST (1) GATE LSR LO CROSSED TO A *****
12 ***** (2) GATE LSR LO NORMAL TO A *****
13 ***** (3) ZONE NUM INTERCHANGE *****
14 ***** (4) MNZ DECODE *****
15 ***** (5) ALU AND OR FUNCTION *****
16 *****
17
18 HALT1 HPL HE,HD INITIAL HALT = DE
19
20 MVI PAD,X'A5' SET PAD (LOC 00FF) TO -A5-.
21
22 MNZ PAD,X96 MOVE ZONE OF -96- TO NUMERIC OF PAD.
23
24 CLI PAD,X'A6' GO TO HALT2 IF RESULT
25 JNE HALT2+3 WAS -A6-.
26
27 HALT2 HPL HE,HD * PROG DE, HALT 2. ERROR HALT.
28 * FAILING FUNCT (3)
29 *
30
31 CLI PAD,X'A0' GO TO HALT3 IF RESULT
32 JNE HALT3+3 WAS -A0-.
33
34 HALT3 HPL HE,HD * PROG DE, HALT 3. ERROR HALT.
35 * FAILING FUNCT 1
36 *
37
38 CLI PAD,X'AF' GO TO HALT4 IF RESULT
39 JNE HALT4+3 WAS -AF-.
40
41 HALT4 HPL HE,HD * PROG DE, HALT 4. ERROR HALT.
42 * FAILING FUNCT 1,2
43 *
44 *
45
46 CLI PAD,X'A9' GO TO HALT5 IF RESULT WAS NOT -A9-.
47 BE START2 GO TO NEXT TEST IF RESULT WAS -A9-.
48
49 HALT5 HPL HE,HD * PROG DE, HALT 5. ERROR HALT.
50 * FAILING FUNCT (4), (5)
51 *
  
```

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ODEO CPU AND MEMORY DIAGNOSTICS: PROGRAM DE MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ODEO CPU AND MEMORY DIAGNOSTICS: PROGRAM DE MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

53 *****
54 ***** (MZN) MOVE NUMERIC TO ZONE *****
55 *****
56 ***** TEST (1) ZONE NUM INTERCHANGE *****
57 ***** (2) MZN DECODE *****
58 ***** (3) ALU AND-OR FUNCTION *****
59 ***** (4) INTERNAL *****
60 *****
61 *****
62 *****
63 *****
64 START2 MVI PAD,X'A5' SET PAD (LOC 00FF) TO -A5-.
65 *****
66 MZN PAD,X96 MOVE NUMERIC OF -96- TO ZONE OF PAD
67 *****
68 CLI PAD,X'95' GO TO HALT6 IF RESULT
69 JNE HALT6+3 WAS -95-.
70 *****
71 HALT6 HPL HE,MD * PROG DE, HALT 6. ERROR HALT.
72 * * FAILING FUNCT (1), (4)
73 *
74 *
75 *****
76 CLI PAD,X'65' GO TO HALT7 IF RESULT WAS NOT -65-.
77 BF START3 GO TO NEXT TEST IF RESULT WAS -65-.
78 *****
79 HALT7 HPL HE,MD * PROG DE, HALT 7. ERROR HALT.
80 * * FAILING FUNCT (2), (3)
81 *
82 *****
83 ***** (MVC) MOVE LOGICAL CHARACTER *****
84 ***** (CLC) COMPARE LOGICAL CHARACTER *****
85 *****
86 *****
87 ***** TEST (1) MVC DECODE *****
88 ***** (2) OP END TOO SOON *****
89 ***** (3) CLC DECODE *****
90 ***** (4) Q NUM BLANK, Q REG BLANK ** *****
91 ***** (5) I ADDRESS FORMAT *****
92 *****
93 ***** NOTE: IF Q NUMERIC BLANK OR Q REG BLANK LINES *****
94 ***** ARE STUCK DOWN, THE FIRST MVC INSTRUCTION WILL *****
95 ***** TAKE 52 EA-EB CYCLES BEFORE AN INVALID ADDRESS *****
96 ***** IS GENERATED. *****
97 *****
98 *****
99 *****
100 START3 MVI PAD,X'AA' INITIALIZE PAD
101 MVI PAD-1,X'55' HEX -55AA-
102 MVC PAD(2),XEEFF MOVE HEX -EEFF- TO PAD.
103 CLI PAD,X'FF' CHECK DATA MOVED TO LOC HEX -00FF-.
104 JE HALT8+3 JUMP IF EQUAL TO HEX -FF-.
105 * * WRONG DATA IN LOC HEX -00FF-.
106 HALT8 HPL HE,MD * FAILING FUNCT 1
107 *
108 *
109 *
110 CLI PAD-1,X'EE' CHECK DATA MOVED TO LOC HEX -00FE-.
111 JE HALT9+3 JUMP IF EQUAL TO HEX -EE-.
112 *
113 CLI PAD-1,X'FF' CHECK DATA MOVED TO LOC HEX -00FE-.
114 JE HALT10 JUMP IF EQUAL TO HEX -FF-.
115 HALT9 HPL HE,MD * WRONG DATA IN LOC HEX -00FE-.
116 * * FAILING FUNCT (2), (4)
117 *

```

```

118 *****
119 ***** CLC PAD(2),XEEFF TEST (CLC) INSTRUCTION
120 BE START4 *****
121 *****
122 ***** 0088 FO 73 7C HALT10 HPL HE,MD * FAILING FUNCT (3,5)
123 *
124 *
125 *****
126 ***** (MVC) MOVE LOGICAL CHARACTER *****
127 ***** (ALC) ADD LOGICAL CHARACTER *****
128 ***** (SLC) SUBTRACT LOGICAL CHARACTER *****
129 ***** (CLC) COMPARE LOGICAL CHARACTER *****
130 *****
131 ***** TEST (1) CR SET WRONG *****
132 ***** (2) RESULT WRONG *****
133 *****
134 *****
135 *****
136 *****
137 START4 MVC PAD(1),XFF INITIALIZE PAD TO HEX -FF-.
138 ALC PAD(1),X01 ADD HEX -01- TO PAD.
139 JNOL HALT11 JUMP IF BIN OVFLW NOT SET.
140 JNE HALT11 CHECK IF EQ NOT SET.
141 CLC PAD(1),X00 CHECK RESULT.
142 JNE HALT12 JUMP IF NOT EQUAL TO HEX -00-.
143 ALC PAD(1),X'00' ADD HEX -00- TO PAD.
144 JOL HALT11 JUMP IF BIN OVFLW NOT RESET.
145 SLC PAD(1),XFF SUBTRACT HEX -FF- FROM PAD.
146 JOL HALT12 JUMP IF BIN OVFLW SET.
147 MVI BOOT+1,X'0C' SET UP TO READ 12TH RECORD
148 BL BOOT BRANCH IF LOW SET.
149 *
150 HALT11 HPL HE,MD * FAILING FUNCT 1
151 *
152 *
153 *
154 HALT12 HPL HE,MD * FAILING FUNCT 2
155 *
156 *
157 *
158 XFF DC XLI'FF'
159 X01 DC XLI'01'
160 XEEFF DC XLI'EEFF'
161 X96 DC XLI'96'
162 *
163 X00 EQU X'8C'
164 PAD EQU X'255'
165 BOOT EQU X'169'
166 HD EQU X'73'
167 HE EQU X'7C'
168 *
169 END

```

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ODEO CPU AND MEMORY DIAGNOSTICS: PROGRAM DE MOD 12
CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| BOOT | C | 001 | 0169 | 0165 | 0147* 0148 |
| HALT1 | A | 003 | 0000 | 0018 | |
| HALT10 | A | 003 | 0088 | 0121 | 0113 |
| HALT11 | A | 003 | 00C0 | 0150 | 0139 0140 0144 |
| HALT12 | A | 003 | 00C3 | 0154 | 0142 0146 |
| HALT2 | A | 003 | 0014 | 0027 | 0025 |
| HALT3 | A | 003 | 001E | 0034 | 0032 |
| HALT4 | A | 003 | 0028 | 0041 | 0039 |
| HALT5 | A | 003 | 0033 | 0049 | |
| HALT6 | A | 003 | 0047 | 0071 | 0069 |
| HALT7 | A | 003 | 0052 | 0079 | |
| HALT8 | A | 003 | 006A | 0106 | 0104 |
| HALT9 | A | 003 | 0078 | 0115 | 0110 |
| HD | C | 001 | 0073 | 0166 | 0018 0027 0034 0041 0049 0071 0079 0106 0115 0121 0150 0154 |
| HE | C | 001 | 007C | 0167 | 0018 0027 0034 0041 0049 0071 0079 0106 0115 0121 0150 0154 |
| PAD | C | 001 | 00FF | 0164 | 0020* 0022* 0024 0031 0038 0046 0064* 0066* 0068 0076 0100* 0101* |
| START2 | A | 004 | 0036 | 0064 | 0102* 0103 0109 0112 0118 0137* 0138* 0141 0143* 0145* |
| START3 | A | 004 | 0055 | 0100 | 0047 |
| START4 | A | 006 | 0088 | 0137 | 0077 |
| UVWXYZ | A | 001 | 0000 | 0004 | 0119 |
| XEFF | A | 002 | 00C9 | 0160 | 0102 0118 |
| XFF | A | 001 | 00C6 | 0158 | 0137 0145 |
| X00 | C | 001 | 008C | 0163 | 0141 |
| X01 | A | 001 | 00C7 | 0159 | 0138 |
| X96 | A | 001 | 00CA | 0161 | 0022 0066 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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ODEO CPU AND MEMORY DIAGNOSTICS: PROGRAM DE MOD 12
OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E F INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PM*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** ODE00000
T+--:2G(a)RM*0- B*|a*2T6W*|*2*E| 0*70*Y*C*a-DCaG| a|Ea**HA**A3-C6 Z*|*--E*6aG(a)RM *0- P880DE00001
T+--A5*Ea**<Y*V&C *a-DCaG(a)OM**aB A*EPO*70aD-C*|EM *"-OA*|a*2L7**|* 7-E|0*70*#-C=aYD R|a*M9D0DE00002
T+--B0*|#2-E70*70 (*Ea**<x*-Ea.aG| aC***OCFC--**OC GAs*Wa-DTC&***0B <a-D|C--**0**aD* JCO**)*40DE00003
TF&CH*|a*17R-B30 <*0,*--EZaG(a)aG| a*OG**9Q***** K1D0DE00004
E**+E7**--DC*PHS =*7M&F|***|***C **F&***ASC***R*A S0***Q***** 12010630750 828752HU0DE00005

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ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

2 DECK 4
3 SEQ G
4 UVWXYZ START 0
5 TREP
6 *
7 ***** SECTOR 12 *****
8 *****
9 *****
10 *****
11 *****
12 *****
13 *****
14 *****
15 *****
16 *****
17 *****
18 *****
19 *****
20 *****
21 *****
22 *****
23 *****
24 HLT1 HPL HF,HD INITIAL HALT = DF
25 *****
26 L HIGH,ARR SET CR TO HIGH & ARR TO HEX -0000-
27 L HIGH,PSR
28 ZAZ XFO(1),XFO(1) ZERO & ADD DEC 0
29 JE HLT2+3 JUMP IF EQUAL CONDITION SET.
30 *
31 HLT2 HPL HF,HD * FAILING FUNCT (1,2,5,6,7,9)
32 *
33 *
34 *
35 ST SAVARR,ARR SAVE ARR
36 CLC SAVARR(2),ADXFO COMPARE IT WITH ADDRESS OF XFO
37 JE HLT3+3 JUMP IF EQUAL
38 *
39 CLC SAVARR(2),ADNFO GO TO HALT5 IF ARR
40 JE HLT5 WAS DECREMENTED.
41 *
42 HLT3 HPL HF,HD * ARR WRT SELECT
43 * * FAILING FUNCT 2
44 *
45 *
46 BC START2,X'08' BRANCH TO NEXT TEST IF DEC. OVERFLOW
47 * CONDITION NOT SET.
48 HLT4 HPL HF,HD * DECIMAL OVERFLOW WAS SET 2571
49 * * FAILING FUNCT 3
50 *
51 *
52 HLT5 HPL HF,HD *PROG IF, HALT 5. ERROR HALT
53 * * FAILING FUNCT (8)
54 *

```

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ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

56 *****
57 *****
58 *****
59 *****
60 *****
61 *****
62 *****
63 *****
64 *****
65 *****
66 *****
67 *****
68 *****
69 START2 MVI PAD,X'F6' MOVE HEX -F6- INTO PAD.
70 ZAZ PAD(1),XF3(1) ZERO & ADD DEC 3.
71 CLI PAD,X'F3' CHECK RESULT.
72 JE START3 JUMP TO NEXT TEST IF RESULT EQUALS
73 * DECIMAL 3.
74 *
75 * NOTE: PAD AND SAVARR ARE EQUATED TO 255 AND USE THE LAST 2
76 * BYTES OF THIS SECTOR.
77 *****
78 CLI PAD,X'F7' *
79 JNE HLT6+3 * JUMP IF RESULT NOT EQ TO DEC 7.
80 *
81 HLT6 HPL HF,HD
82 *
83 *
84 *
85 CLI PAD,X'F0' *
86 JE HLT9 * JUMP IS RESULT EQUALS DEC 0.
87 CLI PAD,X'F9' *
88 JNE HLT7+3 * JUMP IF RESULT NOT EQ TO DEC 9.
89 *
90 HLT7 HPL HF,HD * FAILING FUNCT 4
91 *
92 *
93 *
94 *
95 CLI PAD,X'F6' *
96 JE HLT8+3 * JUMP IF RESULT EQUALS DEC 6.
97 HLT8 HPL HF,HD * FAILING FUNCT (4)
98 *
99 *
100 *
101 HLT9 HPL HF,HD * CARRY IN ON SUB
102 * * FAILING FUNCT 1,5
103 *

```

```

003A 3C F6 00FF 00FD
003E 04 00 00FF
0044 3D F3 00FF
0048 F2 81 28

```

```

0048 3D F7 00FF
004F F2 01 03
0052 F0 73 3C

```

```

0055 3D F0 00FF
0059 F2 81 14
005C 3D F9 00FF
0060 F2 01 03

```

0063 F0 73 3C

```

0066 3D F6 00FF
006A F2 81 03

```

006D F0 73 3C

0070 F0 73 3C

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ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

105 *****
106 *****
107 ***** (ZAZ) ZERO AND ADD DECIMAL *****
108 *****
109 ***** TEST (1) SDR TO B REGISTER *****
110 ***** (2) RECOMPLEMENT CYCLE *****
111 ***** (3) DECIMAL COMPLEMENT B REGISTER *****
112 ***** (4) FORCE BIT 7 *****
113 ***** (5) B REGISTER SIGN MINUS *****
114 ***** (6) SDR SIGN MINUS *****
115 ***** (7) CHANGE ALU BIT 2 *****
116 ***** (8) CARRY TO BIT 3 *****
117 ***** (9) ARR SELECT *****
118 ***** (10) ADD TO REG , STORE INSTR *****
119 ***** (11) RECOMP GATE *****
120 ***** (12) ALU *****
121 ***** (13) INTERNAL *****
122 *****
123 *****
124 *****
125 START3 MVI PAD,X'00' RE-INITIALIZE PAD TO -00-
126 ZAZ PAD(1),X00(1) ZERO & ADD DEC MINUS ZERO.
127 JL HLT13 GO HALT IF CR SET TO LOW
128 CLI PAD,X'F0' CHECK RESULT.
129 BE START4 JUMP TO NEXT TEST IF SIGN CHANGED.
130 CLI PAD,X'F9' * JUMP IF RESULT EQUALS DEC 9.
131 JE HLT11 * JUMP IF RESULT NOT EQ TO DEC 1.
132 CLI PAD,X'F1'
133 JNE HLT10+3
134 *
135 HLT10 HPL HF,HD * FAILING FUNCT 3
136 *
137 *
138 *
139 *
140 *
141 *
142 *
143 *
144 *
145 *
146 *
147 *
148 *
149 *
150 HLT12 HPL HF,HD * FAILING FUNCT
151 *
152 *
153 *
154 HLT13 HPL HF,HD * FAILING FUNCT (2,5,6,11,12,13)
155 *
156 *
0073 3C 00 00FF 00A4
0077 04 00 00FF
007D F2 82 2D
0080 3D F0 00FF
0084 C0 81 00B0
0088 3D F9 00FF
008C F2 81 11
008F 3D F1 00FF
0093 F2 01 03
0096 F0 73 3C
0099 3D 20 00FF
009D F2 01 03
00A0 F0 73 3C
00A3 3D D0 00FF
00A7 F2 81 03
00AA F0 73 3C
00AD F0 73 3C

```

ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

158 *****
159 ***** (ZAZ) ZERO AND ADD DECIMAL *****
160 *****
161 *****
162 ***** TEST (1) SDR SIGN MINUS *****
163 ***** (2) CHANGE ALU BIT 2 *****
164 ***** (3) NOT FIRST RECOMPLEMENT CYCLE *****
165 ***** (4) FORCE BITS *****
166 ***** (5) Q REGISTER *****
167 ***** (6) 'E' CYCLE *****
168 ***** (7) INTERNAL *****
169 *****
170 *****
171 *****
172 *****
173 *****
174 *****
175 *****
176 *
177 HLT14 HPL HF,HD * FAILING FUNCT (1,2,7)
178 *
179 *
180 *
181 *
182 *
183 *
184 HLT15 HPL HF,HD * FAILING FUNCT 3
185 *
186 *
187 *
188 *
189 *
190 *
191 *
192 *
193 *
194 *
195 *
196 *
197 *
198 *
199 *
200 *
201 *
202 *
203 *****
204 * NOTE: PAD AND SAVARR ARE EQUATED TO 255 AND USE THE LAST 2
205 * BYTES OF THIS SECTION.
206 *****
207 *****
208 XFO DC XL1'F0'
209 ADNFO DC AL2(NEG-1)
210 XBO DC XL1'B0'
211 XF0F3 DC XL2'F0F3'
212 XF3 DC XL1'F3'
213 *
214 XDO EQU X'A4'
215 HIGH EQU X'00'
216 ADXFO EQU X'10'
217 ARR EQU 8
218 PSR EQU 4
219 HF EQU X'3C'
220 HD EQU X'73'
221 BOOT EQU X'169'
222 SAVARR EQU 255
223 PAD EQU 255
224 *
00B0 3C 0F 00FE 00FA
00B4 04 00 00FF
00BA 3D F0 00FF
00BE F2 81 03
00C1 F0 73 3C
00C4 3D 0F 00FE
00C8 F2 81 03
00CB F0 73 3C
00CE 04 10 00FF 00FD
00D4 0D 01 00FF 00FC
00DA 3C 0D 016A
00DE C0 81 00E5
00E2 F0 73 3C
00E5 04 00 00FF 00EC
00EB 3D D3 00FF
00EF C0 01 00C1
00F3 C0 87 C169
00F7 F0
00F8 00E4
00FA B0
00FB F0F3
00FD F3

```

IBM MAINTENANCE DIAGNOSTIC PROGRAM

ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12
 ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
 FFFF 225 END

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ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12
 CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| ALNFO | A | 002 | 00F9 | 0209 | 0039 |
| ADXF0 | C | 001 | 0010 | 0216 | 0036 |
| ARR | C | 001 | 0008 | 0217 | 0026* 0035 |
| BOOT | C | 001 | 0169 | 0221 | 0190* 0201 |
| HD | C | 001 | 0073 | 0220 | 0024 0031 0042 0048 0052 0081 0090 0097 0101 0135 0142 0150 |
| HF | C | 001 | 003C | 0219 | 0154 0177 0184 0193 0024 0031 0042 0048 0052 0081 0090 0097 0101 0135 0142 0150 |
| HIGH | C | 001 | 000D | 0215 | 0154 0177 0184 0193 |
| HLT1 | A | 003 | 0000 | 0024 | 0026 0027 |
| HLT10 | A | 003 | 0096 | 0135 | |
| HLT11 | A | 003 | 00A0 | 0142 | 0133 |
| HLT12 | A | 003 | 00AA | 0150 | 0131 0140 |
| HLT13 | A | 003 | 00AD | 0154 | 0127 0148 |
| HLT14 | A | 003 | 00C1 | 0177 | 0175 0200 |
| HLT15 | A | 003 | 00CB | 0184 | 0182 |
| HLT16 | A | 003 | 00E2 | 0193 | |
| HLT2 | A | 003 | 0014 | 0031 | 0329 |
| HLT3 | A | 003 | 002D | 0042 | 0037 |
| HLT4 | A | 003 | 0034 | 0048 | |
| HLT5 | A | 003 | 0037 | 0052 | 0040 |
| HLT6 | A | 003 | 0052 | 0081 | 0079 |
| HLT7 | A | 003 | 0063 | 0090 | 0088 |
| HLT8 | A | 003 | 006D | 0097 | 0095 |
| HLT9 | A | 003 | 0070 | 0101 | 0086 |
| NEG | A | 006 | 00E5 | 0197 | 0191 0209 |
| PAD | C | 001 | 00FF | 0223 | 0069* 0070* 0071 0078 0085 0087 0094 0125* 0126* 0128 0130 0132 |
| PSR | C | 001 | 0004 | 0218 | 0139 0147 0172* 0173* 0174 0181 0188* 0189 0197* 0199 |
| SAVARR | C | 001 | 00FF | 0222 | 0027* |
| START2 | A | 004 | 003A | 0069 | 0035* 0036 0039 |
| START3 | A | 004 | 0073 | 0125 | 0046 |
| START4 | A | 004 | 0080 | 0172 | 0072 0129 |
| UVWXYZ | A | 001 | 0000 | 0004 | |
| XB0 | A | 001 | 00FA | 0210 | 0173 |
| XD0 | C | 001 | 00A4 | 0214 | 0126 |
| XD3 | A | 004 | 00EB | 0199 | 0197 |
| XFO | A | 001 | 00F7 | 0208 | 0028 0028* |
| XFOF3 | A | 002 | 00FC | 0211 | 0189 |
| XF3 | A | 001 | 00FD | 0212 | 0070 0188 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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ODFO CPU AND MEMORY DIAGNOSTICS: PROGRAM DF MOD 12
OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.
 CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

*GBK*GBD**PM*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** ODF00000
 T+:-:2G2(2-CLM D*4D*C7|~2-2| 0*304B*C*C&D*O* 2AYDK&D*OC92YD H2G220-*+7A3|1A 3|CO*4-QODF00001
 T+:-A5'-C*A***OC :|~<*HARC77|* 2*2|0*30*2*C*2YD M|~U*HA*A3|C7 6*|*2-2|0*330*30 2****P/OODF00002
 T+:-B0*02**|2*Z|H B.L70|*~&B01~U ***HADL71|*2*2| 0*30*H*C*2-DC2GK 2|1|**HA*A3|1A 3|CO*7AHODF00003
 T+:-C,COC=A***OC :|~<*HA*A3|C4 1|*2-2|0*30DD*C *|4|&C*|02C&E D0HD*9~A3|*2**|2 *#C4*0A8ODF00004
 TD&C*40C*O*D*0*B 6*OX0*+K02|13 ***** ***** ***** ***** *****2*DODF00005
 E**:*E7*=-DC*PH\$ =*7M&F|***|***C **F\$***ASC***R*A SO***Q***** *****12010630750 8287528YODF00006

OE00 CPU AND MEMORY DIAGNOSTICS: PROGRAM EO MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000          2          DECK 4
              3          SEQ 0
              4          START 0
              5          TREP
              6          *
              7          *****SECTOR 13*****
              8          *****
              9          *****
             10          *****
             11          *****
             12          *****
             13          *****
             14          *****
             15          *****
             16          *****
             17          *****
             18          *****
             19          *****
             20          *****
             21          *****
             22          *****
             23          *****
             24          *****
             25          HLT1  HPL  HO,HE          INITIAL HALT = EO
             26          *
             27          JOZ  NEXT          RESET DEC OVERFLOW IF PRESENT.
             28          MVI  PAD,X'D9*     INITIALIZE PAD TO MINUS DEC 9.
             29          AZ   PAD(1),XD9(1)  ADD MINUS DEC 9 TO PAD.
             30          JNOZ HLT4          JUMP IF DEC OVERFLOW NOT SET
             31          JNL  HLT3          JUMP IF LOW NOT SET
             32          CLI  PAD,X'D8*     CHECK RESULT
             33          JNE  HLT2          JUMP IF WRONG
             34          AZ   PAD(1),XF2(1)  ADD DEC 2 TO PAD
             35          JOZ  HLT4          GO TO HALT 3 IF DEC OVFLW SET
             36          JNL  HLT3          GO TO HALT 3 IF LOW COND. WAS SET
             37          CLI  PAD,X'D6*     CHECK RESULT
             38          BE   START2        GO TO NEXT TEST IF RESULT CORRECT
             39          *
             40          HLT2  HPL  HO,HE          * WRONG RESULT
             41          *                    * FAILING FUNCT 1,4
             42          *
             43          HLT3  HPL  HO,HE          * CR WRONG
             44          *                    * FAILING FUNCT (5,6,7,8)
             45          *
             46          HLT4  HPL  HO,HE          * CR WRONG
             47          *                    * FAILING FUNCT (3,8,9,10)
             48          *
             49          *****
             50          *****
             51          *****
             52          *****
             53          *****
             54          *****
             55          *****
             56          *****
             57          *****
             58          *****
             59          *****
  
```

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OE00 CPU AND MEMORY DIAGNOSTICS: PROGRAM EO MOD 12

OE00 CPU AND MEMORY DIAGNOSTICS: PROGRAM EO MOD 12
CROSS-REFERENCE

| ERR LOC | OBJE CT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|------------------|------|--------|--------|-------------------------|
| 003A | 04 08 00FF 00AE | 61 | START2 | ZAZ | PAD(9),DATA(9) |
| 0040 | 0D 08 00FF 00AE | 62 | | CLC | PAD(9),DATA |
| 0046 | F2 81 03 | 63 | | JE | HLT5+3 |
| 0049 | F0 7C 6F | 64 | * | | |
| | | 65 | HLT5 | HPL | HO,HE |
| | | 66 | * | | |
| | | 67 | * | | |
| 004C | 3C D0 00FF | 68 | | MVI | PAD,X'D0' |
| 0050 | 0C 07 00FE 00FF | 69 | | MVC | PAD-1(8),PAD |
| 0056 | 06 08 00FF 00AE | 70 | | AZ | PAD(9),DATA(9) |
| 005C | 0D 08 00FF 00AE | 71 | | CLC | PAD(9),DATA |
| 0062 | C0 81 0069 | 72 | | BE | START3 |
| 0066 | F0 7C 6F | 73 | * | | |
| | | 74 | HLT6 | HPL | HO,HE |
| | | 75 | * | | |
| | | 76 | * | | |
| | | 77 | ***** | | |
| | | 78 | ***** | | |
| | | 79 | ***** | | (SZ) SUBTRACT DECIMAL |
| | | 80 | ***** | | |
| | | 81 | ***** | TEST | (1) DEC COMP A REGISTER |
| | | 82 | ***** | | (2) CR LOW LATCH |
| | | 83 | ***** | | (3) ITC ACTIVE |
| | | 84 | ***** | | (4) SUB DEC INST |
| | | 85 | ***** | | |
| | | 86 | ***** | | |
| | | 87 | * | | |
| | | 88 | * | | |
| 0069 | 3C F1 00FF | 89 | START3 | MVI | PAD,X'F1' |
| 006D | 07 00 00FF 00A2 | 90 | | SZ | PAD(1),XD1(1) |
| 0073 | F2 04 26 | 91 | | JNH | HLT8 |
| 0076 | 3D F1 00FF | 92 | | CLI | PAD,X'F1' |
| 007A | F2 81 22 | 93 | | JE | HLT9 |
| 007D | 3D F2 00FF | 94 | | CLI | PAD,X'F2' |
| 0081 | F2 01 15 | 95 | | JNE | HLT7 |
| 0084 | 07 00 00FF 00A5 | 96 | | SZ | PAD(1),XF3(1) |
| 008A | F2 02 0F | 97 | | JNL | HLT8 |
| 008D | 3D D1 00FF | 98 | | CLI | PAD,X'D1' |
| 0091 | 3C 0E 016A | 99 | | MVI | BOOT+1,X'0E' |
| 0095 | C0 81 0169 | 100 | | BE | BOOT |
| 0099 | F0 7C 6F | 101 | * | | |
| | | 102 | HLT7 | HPL | HO,HE |
| | | 103 | * | | |
| | | 104 | * | | |
| 009C | F0 7C 6F | 105 | HLT8 | HPL | HO,HE |
| | | 106 | * | | |
| | | 107 | * | | |
| 009F | F0 7C 6F | 108 | HLT9 | HPL | HO,HE |
| | | 109 | * | | |
| | | 110 | * | | |
| 00A2 | D1 | 00A2 | 111 | XD1 | DC XL1'D1' |
| 00A3 | D9 | 00A3 | 112 | XD9 | DC XL1'D9' |
| 00A4 | F2 | 00A4 | 113 | XF2 | DC XL1'F2' |
| 00A5 | F3 | 00A5 | 114 | XF3 | DC XL1'F3' |
| 00A6 | F9FBF7F6F5F4F3F2 | 00A6 | 115 | DATA | DC DL9'987654321' |
| 00AE | F1 | 0004 | 116 | PSR | EQU X'04' |
| | | 00FF | 117 | PAD | EQU 255 |
| | | 0169 | 118 | BOOT | EQU X'169' |
| | | 007C | 119 | HE | EQU X'7C' |
| | | 006F | 120 | HO | EQU X'6F' |
| | | FFFF | 121 | END | |

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| BOOT | C | 001 | 0169 | 0118 | 0099* 0100 |
| DATA | A | 009 | 00AE | 0115 | 0061 0062 0070 0071 |
| HE | C | 001 | 007C | 0119 | 0025 0040 0043 0046 0065 0074 0102 0105 0108 |
| HLT1 | A | 003 | 0000 | 0025 | |
| HLT2 | A | 003 | 0031 | 0040 | 0033 |
| HLT3 | A | 003 | 0034 | 0043 | 0031 0036 |
| HLT4 | A | 003 | 0037 | 0046 | 0030 0035 |
| HLT5 | A | 003 | 0049 | 0065 | 0063 |
| HLT6 | A | 003 | 0066 | 0074 | |
| HLT7 | A | 003 | 0099 | 0102 | 0095 |
| HLT8 | A | 003 | 009C | 0105 | 0091 0097 |
| HLT9 | A | 003 | 009F | 0108 | 0093 |
| HO | C | 001 | 006F | 0120 | 0025 0040 0043 0046 0065 0074 0102 0105 0108 |
| NEXT | A | 004 | 0006 | 0028 | 0027 |
| PAD | C | 001 | 00FF | 0117 | 0028* 0029* 0032 0034* 0037 0061* 0062 0068* 0069 0069* 0070* 0071 |
| PSR | C | 001 | 0004 | 0116 | 0089* 0090* 0092 0094 0096* 0098 |
| START2 | A | 006 | 003A | 0061 | 0058 |
| START3 | A | 004 | 0069 | 0089 | 0072 |
| UVWXYZ | A | 001 | 0000 | 0004 | |
| XD1 | A | 001 | 00A2 | 0111 | 0090 |
| XD9 | A | 001 | 00A3 | 0112 | 0029 |
| XF2 | A | 001 | 00A4 | 0113 | 0034 |
| XF3 | A | 001 | 00A5 | 0114 | 0096 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

OE00 CPU AND MEMORY DIAGNOSTICS: PROGRAM EO MOD 12
OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** 0E000000
T+* :2G1?2Y-|IU *0Q*|2*Y*HMI|H BGT7Q|*2*J&F**C *RL2SAG2*-Z*5-C *OHD*+7A2\$*A2\$*A 2\$0&*~LY0E000001
T+*A5B*C**R8|B*C **R#2-6|0-F224*C *C**~C*A--*OB >C&-*OB>OHD*E~A 2\$331*|2G**C**R. 2ABQ*98X0E000002
T+*B>|~D**HAHT7 2*|*2*JHG**C**HP 2*-2*4&C*|*8AE3B A*OX0-F*0-F*0-F* J6~.3~T7*7P42*. 1****\$9Y0E000003
E**I*E7*~DC*PH\$ =*7M&F|***|***C **F&***ASC***R*A SO***Q***** 12010630750 828751QU0E000004

OE10 CPU AND MEMORY DIAGNOSTICS: PROGRAM E1 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000 2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP
6 * SECTOR 14
7 *****
8 *****
9 *****
10 *****
11 *****
12 *****
13 *****
14 *****
15 *****
16 *****
17 *****
18 *****
19 *****
20 *****
21 *****
22 *****
23 *****
24 *****
25 *****
26 *****
27 *****
28 *****
29 *****
30 *****
31 *****
32 *****
33 *****
34 *****
35 *****
36 *****
37 *****
38 *****
39 *****
40 *****
41 *****
42 *****
43 *****
44 *****
45 *****
46 *****
47 *****
48 *****

0000 F0 7C 03 HALT1 HPL H1,HE INITIAL HALT = E1
0003 0C 01 00FF 00D2 MVC PAD(2),X2020 SET PAD (LOC 00FE & 00FF) TO -2020-
0009 35 04 00DB L LO,PSR SET PSR (CR) TO LOW CONDITION.
000D 0A 01 00FF 00DD ED PAD(2),XE1F0 EDIT XE1F0. RESULT SHUD BE -F1F0-.
0013 C0 84 0032 BH START2 GO TO NEXT IF CR SET TO HI
0017 0D 01 00FF 00DD CLC PAD(2),XE1F0 * GO TO HALT3 IF RESULT
001D F2 81 0C JE HALT3 * WAS -F1F0-.
0020 0D 01 00FF 00D2 CLC PAD(2),X2020 GO TO HALT4 IF RESULT
0026 F2 81 06 JE HALT4 WAS -2020-.
0029 F0 7C 03 HALT2 HPL H1,HE * PROG E1, HALT 2. ERROR HALT.
* FAILING FUNCT (3,4,5)
002C F0 7C 03 HALT3 HPL H1,HE * PROG E1, HALT 3. ERROR HALT.
* FAILING FUNCT (1,4)
002F F0 7C 03 HALT4 HPL H1,HE * PROG E1, HALT 4. ERROR HALT.
* FAILING FUNCT (3,6)

----- LAST PAGE -----

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OE10 CPU AND MEMORY DIAGNOSTICS: PROGRAM E1 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

50 *****
51 *****
52 ***** TEST (1) B REG 20 , RIPPLE TEST *****
53 *****
54 *****
55 *****
56 *****
57 *****
58 *****
59 *****
60 *****
61 *****
62 *****
63 *****
64 *****
65 *****
66 *****
67 *****
68 *****
69 *****
70 *****
71 *****
72 *****
73 ***** TEST (1) SIGN CONTROL *****
74 ***** (2) CONDITION REG *****
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 *****

```

| | | | | | | | | |
|------|----|----|------|------|--------|-----|---------------|--------------------------------------|
| 0032 | OC | 01 | 00FF | 00D2 | START2 | MVC | PAD(2),X2020 | SET PAD TO -2020 |
| 0038 | 0A | 01 | 00FF | 00DD | | ED | PAD(2),XE1F0 | EDIT -E1F0- |
| 003E | 0D | 01 | 00FF | 00D2 | | CLC | PAD(2),X2020 | GO TO HALT5 IF RESULT |
| 0044 | F2 | 81 | 15 | | | JE | HALT5 | WAS -2020- |
| 0047 | 0C | 04 | 00FF | 00D9 | | MVC | PAD,PATTRN(5) | SET PAD (LOC 00FB THRU 00FF) |
| 004D | 0A | 04 | 00FF | 00DA | | ED | PAD,XFF(5) | TO -2824222100- |
| 0053 | 0D | 04 | 00FF | 00D9 | | CLC | PAD,PATTRN(5) | EDIT XFF. PAD SHOULD NOT BE ALTERED. |
| 0059 | F2 | 81 | 03 | | | JE | START3 | GO TO HALT5 IF PAD WAS ALTERED. |
| 005C | F0 | 7C | 03 | | | HPL | HI,HE | GO TO NEXT TEST IF PAD NOT ALTERED |
| | | | | | | | | * PROG E1, HALT 5. ERROR HALT. |
| | | | | | | | | * FAILING FUNCT (1) |
| 005F | 3C | 20 | 00FF | | START3 | MVI | PAD,X'20' | SET PAD (LOC 00FF) TO -20- |
| 0063 | 35 | 04 | 0005 | | | L | HI,PSR | SET PSR (CR) TO HIGH CONDITION. |
| 0067 | 0A | 00 | 00FF | 00D4 | EDIT1 | ED | PAD(1),XB1 | EDIT XB1. RESULT SHUD BE -F1- |
| 006D | F2 | 02 | 23 | | | JNL | HALT7 | GO TO HALT6 IF CR NOT SET TO LOW. |
| 0070 | 3D | F1 | 00FF | | | CLI | PAD,X'F1' | GO TO HALT7 IF EDIT1 DID |
| 0074 | F2 | 01 | 19 | | | JNE | HALT6 | NOT SET PAD TO -F1- |
| 0077 | 3C | 20 | 00FF | | | MVI | PAD,X'20' | SET PAD (LOC 00FF) TO -20- |
| 007B | 35 | 04 | 0005 | | | L | HI,PSR | SET PSR (CR) TO HIGH CONDITION. |
| 007F | 0A | 00 | 00FF | 00D3 | EDIT2 | ED | PAD(1),XD1 | EDIT XD1. RESULT SHUD BE -F1- |
| 0085 | F2 | 02 | 0B | | | JNL | HALT7 | GO TO HALT7 IF CR NOT SET TO LOW. |
| 0088 | 3D | F1 | 00FF | | | CLI | PAD,X'F1' | GO TO HALT6 IF EDIT2 DID |
| 008C | C0 | 81 | 0096 | | | BE | START4 | NOT SET PAD TO -F1- |
| 0090 | F0 | 7C | 03 | | | HPL | HI,HE | * PROG E1, HALT 6. ERROR HALT. |
| | | | | | | | | * FAILING FUNCT 1 |
| 0093 | F0 | 7C | 03 | | | HPL | HI,HE | * PROG E1, HALT 7. ERROR HALT. |
| | | | | | | | | * FAILING FUNCT 2 |

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OE10 CPU AND MEMORY DIAGNOSTICS: PROGRAM E1 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

107 *****
108 *****
109 ***** TEST (1) CONDITION REGISTER (FIRST EA CYCLE) *****
110 ***** (2) ALU CONTROLS *****
111 ***** (3) EA CYCLE ACTIVE *****
112 *****
113 *****
114 *****
115 *****
116 *****
117 *****
118 *****
119 *****
120 *****
121 *****
122 *****
123 *****
124 *****
125 *****
126 *****
127 *****
128 *****
129 *****
130 *****
131 *****
132 *****
133 *****
134 *****
135 *****
136 *****
137 *****
138 *****
139 *****
140 *****
141 *****
142 *****
143 *****
144 *****
145 *****
146 *****
147 *****
148 *****
149 *****
150 *****
151 *****
152 *****
153 *****
154 *****
155 *****
156 *****
157 *****
158 *****
159 *****
160 *****

```

| | | | | | | | | |
|------|------------|----|------|------|--------|-----|-----------------|-------------------------------------|
| 0096 | 35 | 04 | 0005 | | START4 | L | HI,PSR | SET PSR (CR) TO HIGH CONDITION. |
| 009A | 0C | 01 | 00FF | 00D2 | | MVC | PAD,X2020(2) | SET PAD (LOC 00FE & 00FF) TO -2020- |
| 00A0 | 0A | 01 | 00FF | 00CE | | ED | PAD,XD5F1(2) | EDIT XD5F1. RESULT SHUD BE -F5F1- |
| 00A6 | F2 | 04 | 21 | | | JNH | HALT9 | GO TO HALT9. IF CR NOT SET TO HIGH. |
| 00A9 | 0D | 01 | 00FF | 00DG | | CLC | PAD,XF5F1(2) | GO TO HALT8 IF RESULT IS NOT -F5F1- |
| 00AF | F2 | 01 | 15 | | | JNE | HALT8 | |
| 00B2 | 3C | 00 | 00FF | | | MVI | PAD,X'D0' | SET PAD TO MINUS ZERO |
| 00B6 | 0A | 00 | 00FF | 00D0 | | ED | PAD,XF5F1(1) | EDIT -F1-. CR SHUD BE HIGH. |
| 00BC | F2 | 82 | 0B | | | JL | HALT9 | GO HALT IF CR WAS SET TO LOW. |
| 00BF | 3C | 0F | 016A | | | MVI | BOOT+1,X'0F' | SET UP TO READ 15TH SECTOR |
| 00C3 | C0 | 87 | 0169 | | | B | BOOT | GO TO BOOTSTRAP. |
| 00C7 | F0 | 7C | 03 | | | HPL | HI,HE | * PROG E1, HALT 8. ERROR HALT. |
| | | | | | | | | * FAILING FUNCT 2 |
| 00CA | F0 | 7C | 03 | | | HPL | HI,HE | * PROG E1, HALT 9. ERROR HALT. |
| | | | | | | | | * FAILING FUNCT 1,3 |
| 00CE | D5F1 | | | | | DC | XL2'D5F1' | |
| 00D0 | F5F1 | | | | | DC | XL2'F5F1' | |
| 00D2 | 2020 | | | | | DC | XL2'2020' | |
| 00D3 | D1 | | | | | DC | XL1'D1' | |
| 00D4 | B1 | | | | | DC | XL1'B1' | |
| 00D5 | 2824222100 | | | | | DC | XL5'2824222100' | |
| 00DA | FF | | | | | DC | XL1'FF' | |
| 00DB | 02 | | | | | DC | XL1'02' | |
| 00DD | E1F0 | | | | | DC | XL2'E1F0' | |
| 007C | | | | | | DC | X'03' | |
| 0169 | | | | | | DC | X'7C' | |
| 00FF | | | | | | DC | X'169' | |
| 0004 | | | | | | DC | 255 | |
| 0005 | | | | | | DC | X'04' | |
| | | | | | | DC | X'05' | |
| FFFF | | | | | | | END | |

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OE10 CPU AND MEMORY DIAGNOSTICS: PROGRAM E1 MOD 12

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CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| BOOT | C | 001 | 0169 | 0155 | 0133* 0134 |
| EDIT1 | A | 006 | 0067 | 0083 | |
| EDIT2 | A | 006 | 007F | 0094 | |
| HALT1 | A | 003 | 0000 | 0022 | |
| HALT2 | A | 003 | 0029 | 0038 | |
| HALT3 | A | 003 | 002C | 0042 | 0033 |
| HALT4 | A | 003 | 002F | 0046 | 0036 |
| HALT5 | A | 003 | 005C | 0068 | 0060 |
| HALT6 | A | 003 | 0090 | 0101 | 0088 |
| HALT7 | A | 003 | 0093 | 0104 | 0085 0096 |
| HALT8 | A | 003 | 00C7 | 0136 | 0125 |
| HALT9 | A | 003 | 00CA | 0140 | 0122 0131 |
| HE | C | 001 | 007C | 0154 | 0022 0038 0042 0046 0068 0101 0104 0136 0140 |
| HI | C | 001 | 0005 | 0158 | 0081 0092 0116 |
| HI | C | 001 | 0003 | 0153 | 0022 0038 0042 0046 0068 0101 0104 0136 0140 |
| LO | A | 001 | 00DB | 0151 | 0026 |
| PAD | C | 001 | 00FF | 0156 | 0024* 0028* 0032 0035 0057* 0058* 0059 0062* 0064* 0065 0079* 0083* |
| PATRN | A | 005 | 00D9 | 0149 | 0087 0090* 0094* 0098 0118* 0120* 0124 0127* 0129* |
| PSR | C | 001 | 0004 | 0157 | 0024* 0081* 0092* 0116* |
| START2 | A | 006 | 0032 | 0057 | 0030 |
| START3 | A | 004 | 005F | 0079 | 0066 |
| START4 | A | 004 | 0096 | 0116 | 0099 |
| UVWXYZ | A | 001 | 0000 | 0004 | |
| XB1 | A | 001 | 00D4 | 0148 | 0083 |
| XD1 | A | 001 | 00D3 | 0147 | 0094 |
| XD5F1 | A | 002 | 00CE | 0144 | 0120 |
| XE1F0 | A | 002 | 00DD | 0152 | 0028 0032 0058 |
| XFF | A | 001 | 00DA | 0150 | 0064 |
| XF5F1 | A | 002 | 00DD | 0145 | 0124 0129 |
| X2020 | A | 002 | 00D2 | 0146 | 0024 0035 0057 0059 0118 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE10 CPU AND MEMORY DIAGNOSTICS: PROGRAM E1 MOD 12

PART NO. 4248201
PAGE 33A

OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*Y ESTS*****MOD*12 84228422***** 0E100000
T+ :2GOCC*D*OC K1&&60YA*|a*7*B D*CHI*EC*(72-80 (*EC*(1.2-880-| 0-10-<<EC*(H H*E**#8*0E100001
T+-A5*OC|C&D*OC KAYDNC*E*OCRB-E *OCECE&&*OCRAVD CAGOCIB**3MD**M H**C*(L2*S<|a&C *a-D*33QOE100002
T+-8OFLO-|a5A** EB-**OCLA-H.|-D *aBA*|80-|0-< 5A**EC*D*OCKB-D *OC+a-E/C&D*OC a-D*8CYOE100003
T.C|EL3&|aH**C *(C2--aCOEDOH* AE-aA*aA*P1'-D -HIF1RBESH&C**>G 0***** *UOE100004
E**|*E7*=-DC*PH8 =*7N&F|***|**C **F2**ASC**R*A SO**Q***** 12010630750 828751H-0E100005
    
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OE20 CPU AND MEMORY DIAGNOSTICS: PROGRAM E2 MOD 12

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
0000 0000 2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP 0
6 * SECTOR 15
7 *****
8 *****
9 *****
10 *****
11 *****
12 *****
13 *****
14 *****
15 *****
16 *****
17 *****
18 *****
19 HALT1 HPL H2,HE
20 L LO,ARR
21 L LO,PSR
22 MVI PAD,X'00'
23 ITC PAD(1),X00F4
24 ST SAVARR,ARR
25 CLC SAVARR(1),X00F4
26 JE HALT3
27 CLC SAVARR(1),LO
28 BNE START2
29
30 HALT2 HPL H2,HE
31 *
32 *
33 *
34 HALT3 HPL H2,HE
35 *
36 *
37 *
38 HALT4 HPL H2,HE
39 *
40 *
41 *
42 *****
43 *****
44 *****
45 *****
46 *****
47 *****
48 *****
49 *****
50 *****
51 *****
52 *****
53 *****
54 *****
55 START2 MVI PAD,X'00'
56 L X1BFF,ARR
57 ITC PAD(1),XFF
58 ST SAVARR,ARR
59 CLI PAD,X'FF'
60 JNE PADCHK
61 CLC SAVARR(1),X00F6
62 BE START3
63 HALT5 HPL H2,HE
64 *
65 *
66 *
67 PADCHK CLI PAD,X'00'

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PART NO. 4248201
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OE20 CPU AND MEMORY DIAGNOSTICS: PROGRAM E2 MOD 12

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
005F F2 81 03 68 HALT6 JE HALT7
0062 F0 7C 76 69 HALT6 HPL H2,HE
70 *
71 *
72 *
73 HALT7 HPL H2,HE
74 *
75 *
76 *
77 *****
78 *****
79 *****
80 *****
81 *****
82 *****
83 *****
84 *****
85 *****
86 *****
87 *****
88 *****
89 START3 MVC PAD+2,X007(3)
90 ITC PAD,XFE(3)
91 ST SAVARR,ARR
92 CLC PAD+2,XFF7(3)
93 JE ARCHK
94 CLI PAD+1,X'EE'
95 JE HALT9
96 HALT8 HPL H2,HE
97 *
98 *
99 *
100 HALT9 HPL H2,HE
101 *
102 *
103 *
104 ARCHK CLI SAVARR,X'F7'
105 BE START4
106 HALT10 HPL H2,HE
107 *
108 *

```

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EC NO. 827804

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

110 *****
111 *****
112 ***** (ITC) INSERT AND TEST CHARACTERS *****
113 *****
114 ***** TEST (1) SIG LOGIC *****
115 *****
116 *****
117 *****
118 *****
0099 OC 04 00F9 00CC START4 MVC PAD+4,RIPPLE(5) SET PAD TO -F001F8FDF9--
009F 08 04 00F5 00D2 ITC PAD,XFF(5) INSERT & TEST PAD WITH -FF-
00A5 34 08 00FB 00C7 ST SAVARR,ARR STORE ARR IN SAVARR
00A9 0D 00 00FB 00C7 CLC SAVARR(1),X00F9 GO TO HALT11IF ARR NOT EQ -00F9-
00AF F2 81 03 JE PADCK GO TO PADCHK IF RESULT IS EQ -00F9-
00B2 FO 7C 76 125 HALT11 HPL H2,HE * PROG E2, HALT 11.
126 * * FAILING FUNCT 1
127 *
128 *
00B5 OD 04 00F9 00D1 129 PADCK CLC PAD+4,RESULT(5) GO TO HALT12IF PAD NOT -FFFFFFFF9-
00BB 3C 10 016A 130 MVI BOOT+1,X'10' SET UP TO READ 16TH SECTOR
00BF CO 81 0169 131 BE BOOT GO TO BOOT IF PAD IS -FFFFFFFF9-
00C3 FO 7C 76 132 HALT12 HPL H2,HE * PROG E2, HALT 12.
133 * * FAILING FUNCT 1
134 *
135 *
00C6 00F9 00C7 136 *
00C8 F001F8FDF9 00CC 137 X00F9 DC XL2'00F9'
00CD FFFFFFFF9 00D1 138 RIPPLE DC XL5'F001F8FDF9'
00D2 FF 00D2 139 RESULT DC XL5'FFFFFFF9'
00D3 18FF 00D4 140 XFF DC XL1'FF'
00D5 0000F7 00D7 141 X18FF DC XL2'18FF'
00D8 FF 00D8 142 X007 DC XL3'0000F7'
00D9 EE 00D9 143 XFE DC XL1'FE'
00DA FFFF7 00DC 144 DC XL1'EE'
00DD 00F6 00DE 145 XFF7 DC XL3'FFFF7'
00DF 0002 00E0 146 X00F6 DC XL2'00F6'
00E1 00F4 00E2 147 LO DC XL2'0002'
148 X00F4 DC XL2'00F4'
149
00FB 150 SAVARR EQU X'FB'
0004 151 PSR EQU X'04'
007C 152 HE EQU X'7C'
0076 153 H2 EQU X'76'
0169 154 BOOT EQU X'169'
00F5 155 PAD EQU X'F5'
0008 156 ARR EQU X'08'
157
FFFF 158 END

```

-E-

CROSS-REFERENCE

```

SYMBOL T LEN VALUE DEFN REFERENCES
ARR C 001 0008 0156 0020* 0024 0056* 0058 0091 0121
ARRCHK A 004 008E 0104 0093
BOOT C 001 0169 0154 0130* 0131
HALT1 A 003 0000 0019
HALT10 A 003 0096 0106
HALT11 A 003 0082 0125
HALT12 A 003 00C3 0133
HALT2 A 003 002C 0030
HALT3 A 003 002F 0034 0026
HALT4 A 003 0032 0038
HALT5 A 003 0058 0063
HALT6 A 003 0062 0069
HALT7 A 003 0065 0073 0068
HALT8 A 003 0088 0096
HALT9 A 003 0088 0100 0095
HE C 001 007C 0152 0019 0030 0034 0038 0063 0069 0073 0096 0100 0106 0125 0133
H2 C 001 0076 0153 0019 0030 0034 0038 0063 0069 0073 0096 0100 0106 0125 0133
LO A 002 00E0 0147 0020 0021 0027
PAD C 001 00F5 0155 0022* 0023* 0055* 0057* 0059 0067 0089* 0090* 0092 0094 0119* 0120*
PADCHK A 004 005B 0067 0129 0060
PADCK A 006 0085 0129 0123
PSR C 001 0004 0151 0021*
RESULT A 005 00D1 0139 0129
RIPPLE A 005 00CC 0138 0119
SAVARR C 001 00FB 0150 0024* 0025 0027 0058* 0061 0091* 0104 0121* 0122,
START2 A 004 0075 0055 0028
START3 A 006 0068 0089 0062
START4 A 006 0099 0119 0105
UVWXYZ A 001 0000 0004
XFE A 001 0008 0143 0090
XFF A 001 00D2 0140 0057 0120
XFF7 A 003 00DC 0145 0092
X00F4 A 002 00E2 0148 0023 0025
X00F6 A 002 00DE 0146 0061
X00F9 A 002 00C7 0137 0122
X007 A 003 00D7 0142 0089
X18FF A 0C2 00D4 0141 0056

```

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE30 CPU AND MEMORY DIAGNOSTICS: PROGRAM E3 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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60 *****
61 *****
62 ***** INDEXING TESTS *****
63 ***** TEST (1) XR1 & XR2 SELECT *****
64 ***** (2) SEL XR2 GATE *****
65 ***** (3) CARRY CONTROLS- CARRY FORCED AT 7-8 *****
66 *****
67 *****
68 *****
69 *****
70 START2 L X000A,ARR LOAD XR1 & ARR WITH -000A-.
71 L X000A,XR1
72 L X0005,XR2 LOAD XR2 WITH -0005-.
73 *****
74 *****
75 BRNCH1 8C X'FF'(,XR2),NOOP INDEXED BRANCH NO-OP. THE ARR
76 * SHOULD NOW CONTAIN -0104-.
77 *****
78 ST PAD,ARR STORE THE ARR IN LOC -00FE & 00FF-.
79 *****
80 CLC PAD,X0104(2) COMPARE THE STORED ARR WITH -0104-.
81 BE LOAD1 GO TO NEXT TEST IF EQUAL.
82 *****
83 CLI PAD,X'0E' * COMPARE STORED ARR LO WITH -0E-.
84 JNE HALT5+3 * GO TO HALT5 IF EQUAL.
85 * * BYPASS HALT5 IF NOT EQUAL.
86 *****
87 HALT5 HPL H3,HE * PROG E3, HALT 5. ERROR HALT.
88 * * FAILING FUNCT 1
89 *****
90 *****
91 CLI PAD,X'09' * COMPARE STORED ARR LO WITH -09-.
92 JNE HALT7 * GO TO HALT6 IF EQUAL.
93 * * GO TO HALT7 IF NOT EQUAL
94 *****
95 HALT6 HPL H3,HE * PROG E3, HALT 6. ERROR HALT.
96 * * FAILING FUNCT (1,2)
97 *
98 *****
99 HALT7 HPL H3,HE * PROG E3, HALT 7. ERROR HALT.
100 * * FAILING FUNCT 3
101 *

```

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OE30 CPU AND MEMORY DIAGNOSTICS: PROGRAM E3 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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```

103 *****
104 ***** INDEXING TESTS *****
105 *****
106 ***** TEST (1) LSR LO = FF. *****
107 ***** (2) LSR WRITE HI AT I-X CLOCK 2. *****
108 ***** (3) GATE LSR HI TO B AT I-X CLOCK 2. *****
109 ***** (4) FORCE BIT 7 TO B. *****
110 ***** (5) SEL XR2 GATE *****
111 ***** (6) INTERNAL *****
112 *****
113 *****
114 *****
115 *****
116 *****
117 *****
118 *****
119 *****
120 *****
121 MOVE MVC X'02FF',BRANCH+2(3) MOVE THE INDEXED UNCONDITIONAL
122 * BRANCH TO LOC -02FD THRU 02FF-.
123 *****
124 B X'02FD' GO TO LOC -02FD-. THE INDEXED BRANCH
125 * AT LOC -02FD- WILL BRANCH BACK TO
126 * THE NEXT INSTRUCTION (STORE)
127 *****
128 STORE ST PAD,ARR STORE THE ARR (OLD IAR) IN
129 * LOC -00FE & 00FF-.
130 *****
131 CLI PAD-1,X'03' COMPARE STORED ARR HI WITH -03-.
132 BE LOAD2 GO TO NEXT TEST IF EQUAL.
133 *****
134 CLI PAD-1,X'02' * COMPARE STORED ARR HI WITH -02-.
135 JNE HALT9 * GO TO HALT8 IF EQUAL.
136 * * GO TO HALT9 IF NOT EQUAL
137 *****
138 HALT8 HPL H3,HE * PROG E3, HALT 8. ERROR HALT.
139 * * FAILING FUNCT (1,2,4)
140 *
141 *****
142 HALT9 HPL H3,HE * PROG E3, HALT 9. ERROR HALT.
143 * * FAILING FUNCT 3 WITH ARR=0100
144 *
145 *****
146 HALT10 HPL H3,HE * PROG E3, HALT 10. ERROR HALT
147 * * FAILING FUNCT (5), (6)
148 *
149 *****
150 BRANCH B STORE(,XR1) INDEXED UNCONDITIONAL BRANCH.

```

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

152 *****
153 *****
154 ***** INDEXING TESTS *****
155 *****
156 ***** TESTS (1) RIPPLE THE LSR LO = FF LOGIC. *****
157 *****
158 *****
159 *****
160 *****
161 *****
162 *****
163 *****
164 *****
165 *****
166 *****
167 *****
168 *****
169 *****
170 *****
171 *****
172 *****
173 *****
174 *****
175 *****
176 *****
177 *****
178 *****
179 *****
180 *****
181 *****
182 *****
183 *****
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186 *****
187 *****
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189 *****
190 *****
191 *****
192 *****
193 *****
194 *****
195 *****
196 *****
197 *****
198 *****
199 *****
200 *****
201 *****
202 *****
203 *****
204 *****
205 *****
206 *****
207 *****
208 *****
209 *****
210 *****
211 *****
212 *****
213 *****
214 *****

```

```

009F 35 01 00DA
00A3 35 02 00DA
00A7 0C 05 00FD 00D8

```

```
00AD C0 87 00F8
```

```
00B1 34 08 00FF
```

```
00B5 3D 01 00FE
00B9 F2 81 14
00BC C0 87 00FB
```

```
00C0 34 08 00FF
```

```
00C4 3D 01 00FE
00C8 3C 11 016A
00CC C0 01 0169
```

```
00D0 F0 7C 57
```

```
00D3 D0 87 B1
```

```
00D6 D0 87 C0
```

```

00D9 0000
00DB 0001
00DD 0005
00DF 0019
00E1 00FF
00E3 0104
00E5 000A
00E7 0C0001

```

```

00DA 196 X0000 DC XL2'0000'
00DC 197 X0001 DC XL2'0001'
00DE 198 X0005 DC XL2'0005'
00E0 199 X0019 DC XL2'0019'
00E2 200 X00FF DC XL2'00FF'
00E4 201 X0104 DC XL2'0104'
00E6 202 X000A DC XL2'000A'
00E9 203 FIXLD DC XL3'0C0001'

```

```

0001 204 XR1 EQU X'01'
0002 206 XR2 EQU X'02'
0008 207 ARR EQU X'08'
0080 208 NOOP EQU X'80'
00FF 209 PAD EQU X'FF'
0169 210 BOOT EQU X'169'
0057 211 H3 EQU X'57'
007C 212 HE EQU X'7C'
213
FFFF 214 END

```

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OE30 CPU AND MEMORY DIAGNOSTICS: PROGRAM E3 MOD 12

CROSS-REFERENCE

```

SYMBOL T LEN VALUE DEFN REFERENCES
ARR C 001 0008 0207 0031* 0037 0070* 0078 0128 0171 0180
BOOT C 001 0169 0210 0183* 0184
BRANCH A 003 009C 0150 0121
BRNCH1 A 003 0046 0075
BRNCH2 A 003 00D6 0193 0163
BRNCH3 A 003 00D3 0191
CHECK1 A 006 001E 0040
FIXLD A 003 00E9 0203 0038
HALT1 A 003 0000 0026 0024
HALT10 A 003 0099 0146
HALT11 A 003 00D0 0187 0174
HALT2 A 003 0031 0047
HALT3 A 003 0034 0052 0044
HALT4 A 003 0037 0056 0032
HALT5 A 003 005E 0087 0084
HALT6 A 003 0068 0095
HALT7 A 003 0068 0099 0092
HALT8 A 003 0093 0138
HALT9 A 003 0096 0142 0135
HE C 001 007C 0212 0026 0047 0052 0056 0087 0095 0099 0138 0142 0146 0187
H3 C 001 0057 0211 0026 0047 0052 0056 0087 0095 0099 0138 0142 0146 0187
LOAD A 004 0003 0030
LOAD1 A 004 006E 0117 0081
LOAD2 A 004 009F 0161 0132
MOVE A 006 0076 0121
MOVE1 A 006 00A7 0163
NOOP C 001 008A 0208 0034 0075
PAD C 001 00FF 0209 0037* 0040 0043 0078* 0080 0083 0091 0128* 0131 0134 0171* 0173
START2 A 004 003A 0070 0180* 0182
STORE A 004 0080 0128 0041
STORE1 A 004 0081 0171 0150
STORE2 A 004 00C0 0180 0191
UVWXYZ A 001 0000 0004 0193
XR1 C 001 0001 0205 0030* 0034 0071* 0117* 0150 0161* 0191 0193
XR2 C 001 0002 0206 0072* 0075 0119* 0162*
X00FF A 002 00E2 0200 0040
X000A A 002 00E6 0202 0070 0071
X0000 A 002 00DA 0196 0117 0161 0162
X0001 A 002 00DC 0197 0030 0031 0043
X0005 A 002 00DE 0198 0072
X0019 A 002 00E0 0199 0119
X0104 A 002 00E4 0201 0080

```

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OE30 CPU AND MEMORY DIAGNOSTICS: PROGRAM E3 MOD 12
OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 8422842a***** 0E300000
T+*AGIP(ED*7CM H*(OK*-DK*CX&-18 4B*C*C*HAD-CZC&D *MOC50HD*+-4A*12 *71RA*MAAN*MAAN*MA AN3M*J220E300001
T+*A5B*CW(ED*9TM B*(#--124B*C*C&D *MOCUOHD*$T4+*1" 2*E10-E*1B&C*2-D CaG1P2G1P(ED*6TM B*+**~CYOE300002
T+*BOC*HB*OB:OH* B*LG*H*12*OC=OHD *X34B*1#2*E10-E- 0-E-0-E-E/8*5*EC E1&H*6-OE*14*6<B G*1-*=EHOE300003
T+*CZ(*-#34A*1# 2-JL*/OC#1*-#34 A*182D&E&D*DAE-A 2H*BG&1BGO*****D *AL*R*12AA**HC** A*****M#HOE300004
E**#*E7**~DC*PH$ =*7M&F1***1***C **F&***ASC***R*A SC***Q***** 12010630750 828751Y-OE300005

```

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000 0000 0000 0000
2 DECK 4
3 SEQ 0
4 UVMXYZ START 0
5 TREP
6 *
7 * SECTOR 17
8 *****
9 *****
10 ***** PROG E4 *****
11 ***** INDEXING TESTS *****
12 ***** TESTS (1) RIPPLE THE LSR LO = FF LOGIC. *****
13 *****
14 *****
15 *****
16 *****
17 ***** USING HALT1,1
18 ***** USING HALT1,2
19 HALT1 HPL H4,HE INITIAL HALT = E4
20 LOAD L X000,XR1 LOAD XR1 WITH -0000-.
21 MOVE1 MVC X'00FD'(3),BRNCH1+2 MOVE BRNCH1 TO LOC -00FB THRU 00FD-.
22 * GO TO BRNCH1 AT LOC -00FB-.
23 * BRNCH1 WILL BRANCH BACK TO STORE1
24 * AT LOC -0010-. (NEXT INSTRUCTION)
25 * STORE THE ARR IN LOC -00FE & 00FF-.
26 *
27 * COMPARE STORED ARR HI WITH -01-.
28 * GO TO HALT2 IF ARR HI = -01-.
29 *
30 STORE1 ST PAD,ARR
31 *
32 CLT PAD-1,X'01'
33 JE HALT2
34 *
35 MOVE2 MVC X'00DF'(3),BRNCH2+2 MOVE BRNCH2 TO LOC -00DB THRU 00DF-.
36 * GO TO BRNCH2 AT LOC -00DD-.
37 * BRNCH2 WILL BRANCH BACK TO STORE2
38 * AT LOC -0025-. (NEXT INSTRUCTION)
39 *
40 * STORE THE ARR IN LOC -00FE & 00FF-.
41 *
42 STORE2 ST PAD,ARR
43 *
44 CLI PAD-1,X'01'
45 BNE MOVE4
46 *
47 * COMPARE STORED ARR HI WITH -01-.
48 * GO TO NEXT TEST IF ARR HI NOT -01-.
49 * GO TO HALT2 IF ARR HI = -01-.
50 *
51 *
52 HALT2 HPL H4,HE * PROG E4, HALT 2. ERROR HALT.
53 * * FAILING FUNCT 1
54 *
55 BRNCH1 B STORE1(XR1) INDEXED BRANCH TO LOC -0010-.
56 *
57 BRNCH2 B STORE2(XR1) INDEXED BRANCH TO LOC -0025-.
58 *
59 *****
60 ***** TESTS (1) RIPPLE THE LSR LO = FF LOGIC *****
61 *****
62 *****
63 *****
64 *****
65 *****
003A 0C 02 00EF 006A MOVE4 MVC X'00EF'(3),BRNCH3+2 MOVE BRNCH3 TO LOC -00ED THRU 00EF-.
0040 0C 02 00ED B X'ED' GO TO BRNCH3 AT LOC -00ED-.

```

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OE40 CPU AND MEMORY DIAGNOSTICS: PROGRAM E4 MOD 12

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

```

66 * BRNCH3 WILL BRANCH BACK TO STORE3
67 * AT LOC -0044-. (NEXT INSTRUCTION)
68 *
69 STORE3 ST PAD,ARR STORE THE ARR IN LOC -00FE & 00FF-.
70 *
71 CLI PAD-1,X'01' COMPARE STORED ARR HI WITH -01-.
72 JE HALT3 GO TO HALT3 IF ARR HI = -01-.
73 *
74 MOVE5 MVC X'00BF'(3),BRNCH4+2 MOVE BRNCH4 TO LOC -00BD THRU 00BF-.
75 *
76 B X'BD' GO TO BRNCH4 AT LOC -00BD-.
77 *
78 * BRNCH4 WILL BRANCH BACK TO STORE4
79 * AT LOC -0059-. (NEXT INSTRUCTION)
80 *
81 STORE4 ST PAD,ARR STORE THE ARR IN LOC -00FE & 00FF-.
82 *
83 CLI PAD-1,X'01' COMPARE THE STORED ARR HI WITH -01-.
84 BNE MOVE6 GO TO NEXT TEST IF ARR HI NOT -01-.
85 * GO TO HALT3 IF ARR HI = -01-.
86 *
87 HALT3 HPL H4,HE * PROG E4, HALT 3. ERROR HALT.
88 * * FAILING FUNCT 1
89 *
90 *
91 BRNCH3 B STORE3(,XR1) INDEXED BRANCH TO LOC -0044-.
92 *
93 BRNCH4 B STORE4(,XR1) INDEXED BRANCH TO LOC -0059-.
94 *
95 *****
96 ***** TESTS (1) RIPPLE THE LSR LO = FF LOGIC *****
97 *****
98 *****
99 *****
100 *****
101 LOAD4 L X0000,XR1 LOAD XR1 WITH -0000-.
102 *
103 MOVE6 MVC X'007F'(3),BRNCH5+2 MOVE BRNCH5 TO LOC -007D THRU 007F-.
104 *
105 B X'7D' GO TO BRNCH5 AT LOC -007D-.
106 *
107 * BRNCH5 WILL BRANCH BACK TO STORE5
108 * AT LOC -0080-. (NEXT INSTRUCTION)
109 *
110 DC XL4'0' RESERVED SPACE
111 *
112 STORE5 ST PAD,ARR STORE THE ARR IN LOC -00FE & 00FF-.
113 *
114 CLI PAD-1,X'01' COMPARE STORED ARR HI WITH -01-.
115 JE HALT4 GO TO HALT4 IF ARR HI = -01-.
116 *
117 MOVE7 MVC X'00F7'(3),BRNCH6+2 MOVE BRNCH6 TO LOC -00F5 THRU 00F7-.
118 *
119 B X'F5' GO TO BRNCH6 AT LOC -00F5-.
120 *
121 * BRNCH6 WILL BRANCH BACK TO STORE6
122 * AT LOC -0095-. (NEXT INSTRUCTION)
123 *
124 STORE6 ST PAD,ARR STORE THE ARR IN LOC -00FE & 00FF-.
125 *
126 CLI PAD-1,X'01' COMPARE THE STORED ARR HI WITH -01-.
127 BNE LOAD1 GO TO NEXT TEST IF ARR HI NOT -01-.
128 * GO TO HALT4 IF ARR HI = -01-.
129 *
130 HALT4 HPL H4,HE * PROG E4, HALT 4. ERROR HALT.

```

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OE40 CPU AND MEMORY DIAGNOSTICS: PROGRAM E4 MOD 12

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

```

131 * * FAILING FUNCT 1
132 *
133 *
134 BRNCH5 B STORE5(,XR1) INDEXED BRANCH TO LOC -0080-.
135 *
136 BRNCH6 B STORE6(,XR1) INDEXED BRANCH TO LOC -0095-.
137 *
138 *****
139 *****
140 ***** TEST (1) 2 ND OP INDEXED *****
141 ***** (2) XR1,XR2 SELECT *****
142 *****
143 *****
144 *****
145 LOAD1 L X0003,XR1 SET XR1 TO POINT TO LOC -00AA-
146 LOAD2 L X000C,XR2 SET XR2 TO POINT TO LOC -00B3-
147 LOAD3 L OVFLS,PSR SET PSR TO LG,BIN OVFL & FALSE.
148 *
149 JC MOVE8,0
150 *
151 X000C DC XL2'00B3'
152 OVFLS DC XL1'F2'
153 *
154 DC XL4'0' RESERVED SPACE
155 *
156 MOVE8 MVC PAD,0(1,XR1) MOVE LOAD1 OP CODE -35- TO LOC 00FF
157 *
158 JC X'08',X'F2' BYPASS NEXT 8 BYTES
159 *
160 DC XL1'0'
161 *
162 HALT5 HPL H4,HE * PROG E4, HALT 5. ERROR HALT.
163 * * FAILING FUNCT 1
164 *
165 XG000 DC XL2'0000'
166 X0003 DC XL2'00AA'
167 *
168 MOVE9 MVC PAD-1,0(1,XR2) MOVE LOAD3 Q CODE -04- TO LOC 00FE
169 MVI BOOT+1,X'12' SET UP TO READ 18TH SECTOR
170 JC CHECK,0
171 DC XL4'0' RESERVED SPACE
172 *
173 CHECK CLC PAD(2),X0435 BRANCH TO BOOT IF PROPER INDEX REGS
174 BE BOOT WERE SELECTED DURING MOVE8 & MOVE9.
175 *
176 HALT6 HPL H4,HE * PROG E4, HALT 6. ERROR HALT.
177 * * FAILING FUNCT 2
178 *
179 *
180 DC XL3'0' RESERVED SPACE
181 X0435 DC XL2'0435'
182 *
183 ARR EQU X'08'
184 XR1 EQU 1
185 XR2 EQU 2
186 PSR EQU 4
187 PAD EQU 255
188 BOOT EQU X'169'
189 HE EQU X'7C'
190 H4 EQU X'18'
191 *
192 END

```

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OE40 CPU AND MEMORY DIAGNOSTICS: PROGRAM E4 MOD 12

OE40 CPU AND MEMORY DIAGNOSTICS: PROGRAM E4 MOD 12
OBJECT CARD LISTING

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| ARR | C | 001 | 0008 | 0183 | 0030 0042 0069 0081 0112 0124 |
| BOOT | C | 001 | 0169 | 0188 | 0169* 0174 |
| BRNCH1 | A | 003 | 0034 | 0052 | 0023 |
| BRNCH2 | A | 003 | 0037 | 0054 | 0035 |
| BRNCH3 | A | 003 | 0068 | 0091 | 0062 |
| BRNCH4 | A | 003 | 0068 | 0093 | 0074 |
| BRNCH5 | A | 003 | 00A4 | 0134 | 0103 |
| BRNCH6 | A | 003 | 00A7 | 0136 | 0117 |
| CHECK | A | 006 | 00E0 | 0173 | 0170 |
| HALT1 | A | 003 | 0000 | 0019 | 0016 0017 |
| HALT2 | A | 003 | 0031 | 0048 | 0033 |
| HALT3 | A | 003 | 0065 | 0087 | 0072 |
| HALT4 | A | 003 | 00A1 | 0130 | 0115 |
| HALT5 | A | 003 | 00C9 | 0162 | |
| HALT6 | A | 003 | 00EA | 0176 | |
| HE | C | 001 | 007C | 0189 | 0019 0048 0087 0130 0162 0176 |
| H4 | C | 001 | 0018 | 0190 | |
| LOAD | A | 004 | 0003 | 0021 | |
| LOAD1 | A | 004 | 00A2 | 0145 | 0127 |
| LOAD2 | A | 004 | 00A5 | 0146 | |
| LOAD3 | A | 004 | 00B5 | 0147 | |
| LOAD4 | A | 004 | 00E5 | 0101 | |
| MOVE1 | A | 006 | 0007 | 0023 | |
| MOVE2 | A | 006 | 0018 | 0035 | |
| MOVE4 | A | 006 | 003A | 0062 | 0045 |
| MOVE5 | A | 006 | 004F | 0074 | |
| MOVE6 | A | 006 | 0072 | 0103 | 0084 |
| MOVE7 | A | 006 | 0088 | 0117 | |
| MOVE8 | A | 005 | 00C0 | 0156 | 0149 |
| MOVE9 | A | 005 | 00D0 | 0168 | |
| OVFALS | A | 001 | 008B | 0152 | |
| PAD | C | 001 | 00FF | 0187 | |
| PSR | C | 001 | 0004 | 0186 | |
| STORE1 | A | 004 | 0010 | 0030 | |
| STORE2 | A | 004 | 0025 | 0042 | |
| STORE3 | A | 004 | 0044 | 0069 | |
| STORE4 | A | 004 | 0059 | 0081 | |
| STORE5 | A | 004 | 0080 | 0112 | |
| STORE6 | A | 004 | 0095 | 0124 | |
| UVWXYZ | A | 001 | 0000 | 0004 | |
| XR1 | C | 001 | 0001 | 0184 | 0021* 0052 0054 0091 0093 0101* 0134 0136 0145* 0156 |
| XR2 | C | 001 | 0002 | 0185 | 0146* 0168 |
| X000C | A | 002 | 00BA | 0151 | |
| X0000 | A | 002 | 00CD | 0165 | 0021 0101 |
| X0003 | A | 002 | 00CF | 0166 | |
| X0435 | A | 002 | 00F1 | 0181 | |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E F INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```
*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** 0E400000
T+ :2G0S(ED 3EO B 14 (7RG:3&H 12 *EC=2YDOC*H*70 90H*7L&H 12*EC =0*D*+7A2F*BGD(8 G1EO :8Y0E400001
T+-A5-C?F, /OC _1- *34A 1#2-JQ <-B*F7/OB'I- *34A 1# 2A2G0 84H)D4H)R(ED 3EO B 62 :2*0E400002
T+-B0 Hs /OA*** **C&H 12*EC=2YD OC*H*OBZOM* 1LE H 12*EC=0 D 07A 2F*BG-(BGVLM A <2 5- **91H0E400003
T+-C>TMD .72** *3*H*****G***OC 22--2G0S*****DSO **18 1AHAE7H*A *****1*EC*1G*-EE 22G0/Q/80E400004
TA&C1FO *****E5***** ***** ***** ***** ***** ***** *****E:80E400005
E****E7*-DC*PHS =*7H&F1***|***C **F*ASC**R*A SO***Q***** 12010630750 828750Q30E400006
```

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OE50 CPU AND MEMORY DIAGNOSTICS: PROGRAM E5 MOD 12

OE50 CPU AND MEMORY DIAGNOSTICS: PROGRAM E5 MOD 12

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
106 *****
107 *
108 *
109 * THIS PROGRAM TESTS THE FIRST AND/OR SECOND INDEXED OPERAND
110 * INSTRUCTIONS (OP BITS 0-3)
111 *
112 * DECODING FAILURES -FIRST OR SECOND OPERAND ADDRESS STUCK DOWN-
113 * WILL BE INDICATED BY SAR CHECK AND HALTING OF THE MACHINE
114 * CYCLE.
115 *
116 *
117 *****
118 *
119 *
0075 120 USING START4,1
0075 121 USING START4,2
0075 C2 01 0000 122 START4 LA 0,XR1
0079 C2 02 0000 123 LA 0,XR2
124 *
007D 4D 00 FF 00FF 125 CLC PAD(1,XR1),PAD -CHECK BIT 1
0082 5D 00 FF FF 126 CLC PAD(1,XR1),PAD(,XR1) -CHECK BIT 1+3
0086 6D 00 FF FF 127 CLC PAD(1,XR1),PAD(,XR2) -CHECK BIT 1+2
128 *
008A 8D 00 FF 00FF 129 CLC PAD(1,XR2),PAD -CHECK BIT 0
008F 9D 00 FF FF 130 CLC PAD(1,XR2),PAD(,XR1) -CHECK BIT 0+3
0093 AD 00 FF FF 131 CLC PAD(1,XR2),PAD(,XR2) -CHECK BIT 0+2
132 *
0097 7D 00 FF 133 CLI PAD(,XR1),X'00' -CHECK BIT 1+2+3
009A 8D 00 FF 134 CLI PAD(,XR2),X'00' -CHECK BIT 0+2+3
135 *
136 *
137 *****
138 *
139 * RELOAD LOADER PROGRAM
140 *****
009D C0 87 00A4 141 B *+7
00A1 F0 7C 5D 142 COMHLT HPL H5,HE DISK ERROR HALT
00A4 C1 C0 00A1 143 TIO COMHLT,ERR TEST FOR ERROR BEFORE DISK SIO
00A8 31 C4 00D4 144 LIO DDFADR,DDR LOAD DDR
00AC 31 C6 00D6 145 LIO ALDADR,DCR LOAD DDCR
00B0 F3 C1 00 146 SIO X'00',READ READ LOADER PROGRAM
00B3 F1 C2 00B3 147 TIO *,BUSY LOOP UNTIL DISK BUSY DROPS
00B7 C1 C0 00A1 148 COMHLT,ERR TEST FOR ERROR AFTER DISK SIO
00B8 3C 03 018E 149 BOOT37 MVI BOOT+37,X'03' SET UP BRANCH
00BF 3C 13 016A 150 MVI BOOT+1,X'13' SET UP TO READ 19TH SECTOR
00C3 0C 04 01DB 00DB 151 MVC CNTFLO(5),ALOAD+5 RESTORE CONTROLFIELD
00C9 C0 87 0169 152 B BOOT
153 *
00CD 9999 00CE 154 X9999 DC XL2'9999'
00CF FEFE 00D0 155 XFEFE DC XL2'FEFE'
00D1 FFF6 00D2 156 XFFF6 DC XL2'FFF6'
00D3 00FD 00D4 157 DDFADR DC AL2(253)
00D5 00D7 00D6 158 ALOAD DC AL2(*+2)
00D7 0000010000 00DB 159 DC XL5'0000010000' F-CC-MH
00DC 0100010000 00E0 160 DC XL5'0100010000' R-K-DL-N
161 *
00C6 162 DCR EQU X'C6'
00C4 163 DDR EQU X'C4'
01DB 164 CNTFLO EQU X'01DB'
00C0 165 ERR EQU X'C0'
00C2 166 BUSY EQU X'C2'
0002 167 DIAG EQU X'02'
00C1 168 READ EQU X'C1'
0100 169 X00 EQU X'100'
0001 170 XR1 EQU X'01'
0002 171 XR2 EQU X'02'
007C 172 HE EQU X'7C'
005D 173 H5 EQU X'5D'

```

```

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT
0169 174 BOOT EQU X'169'
00FF 175 PAD EQU 255
FFFF 176 END
177 END

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE50 CPU AND MEMORY DIAGNOSTICS: PROGRAM E5 MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| ALOAD | A | 002 | 00D6 | 0158 | 0048* 0145 0151 |
| BOOT | C | 001 | 0169 | 0174 | 0045 0149* 0150* 0152 |
| BOOT37 | A | 004 | 00B8 | 0149 | 0047* |
| BUSY | C | 001 | 00C2 | 0166 | 0147 |
| CNTFLD | C | 001 | 01D8 | 0164 | 0048 0151* |
| COMHLT | A | 003 | 00A1 | 0142 | 0143 0148 |
| DCR | C | 001 | 00C6 | 0162 | 0145* |
| DDFADR | A | 002 | 00D4 | 0157 | 0144* |
| DDR | C | 001 | 00C4 | 0163 | 0144* |
| DIAG | C | 001 | 0002 | 0167 | |
| ERR | C | 001 | 00C0 | 0165 | 0143 0148 |
| HALT1 | A | 003 | 0000 | 0018 | |
| HALT2 | A | 003 | 001A | 0030 | |
| HALT3 | A | 003 | 001D | 0035 | 0028 |
| HALT4 | A | 003 | 0047 | 0055 | |
| HALT5 | A | 003 | 006C | 0089 | |
| HALT6 | A | 003 | 006F | 0096 | 0080 |
| HALT7 | A | 003 | 0072 | 0100 | 0083 |
| HE | C | 001 | 007C | 0172 | 0018 0030 0035 0089 0096 0100 0142 |
| H5 | C | 001 | 005D | 0173 | 0018 0030 0035 0089 0096 0100 0142 |
| PAD | C | 001 | 00FF | 0175 | 0022* 0024 0027 0074* 0076* 0079 0082 |
| | | | | | 0127 0127 0130 0130 0131 0131 0132 0085 0125 0125 0126 0126 |
| | | | | | 0146 0132 0135 0136 |
| READ | C | 001 | 00C1 | 0168 | |
| SENSE | A | 004 | 0050 | 0076 | |
| START2 | A | 004 | 0020 | 0045 | 0025 |
| START3 | A | 006 | 004A | 0074 | 0053 |
| START4 | A | 004 | 0075 | 0122 | 0086 0120 0121 |
| UV:XYZ | A | 001 | 0000 | 0004 | |
| XFFFE | A | 002 | 00D0 | 0155 | 0082 |
| XFFF6 | A | 002 | 00D2 | 0156 | 0020 |
| XR1 | C | 001 | 0001 | 0170 | 0020* 0022 0122* 0125 0126 0126 0127 0131 0135 |
| XR2 | C | 001 | 0002 | 0171 | 0123* 0127 0130 0131 0132 0132 0136 |
| X00 | C | 001 | 0100 | 0169 | 0049* 0050* 0051 0051* 0052 |
| X9999 | A | 002 | 00CE | 0154 | 0074 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE50 CPU AND MEMORY DIAGNOSTICS: PROGRAM E5 MOD 12

OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422*****OE500000
T+--:2G1)1ED*4T& A*|2**C*OHD*HC7 *|*2*E|0-E70-E4 *OF+2YDD|***?O D*(2A630**E*2*OG *C|2*OR<OE500001
T+-A5*-8A*37**&C *-&A*E*#*C*D*#OC +<***#37=*|*2*JE (*&C*(C2-E8**C =OHD*)-A2P-A2P-A 2P*H*3QOE500002
T+-B0*E**O-H**D4 *#OC*P&C**64**# (=|2**94**#=_|*# *-&C*?&C*OH*Z|A 2P*G*FD11*CM<*Q *5?<2EHOE500003
T.OC-0&CA0-B30* *YLOC*Q82DOEDC*5 A60C$OH*AERWR*?# **C*(#***D***D **&*****3#UOE500004
E***E7*=-DC*PH$ =*7M&F|***|***C **F***ASL***R*A SD***Q*****12010630750 828750H-OE500005
    
```

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OE60 CPU AND MEMCRY DIAGNOSTICS: PROGRAM E6 MOD 12

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
0000                2      DECK 4
                    3      SEQ 0
                    4      UVMXYZ START 0
                    5      TREP
                    6      *
                    7      *      SECTOR 19
                    8      *
                    9      *
                   10      *      PROG E6
                   11      *
                   12      *      (CLI) COMPARE LOGICAL IMMEDIATE
                   13      *
                   14      *      TEST (1) SINGLE EB CYCLE INSTR
                   15      *
                   16      *
0000 FO 7C 7D      17      HALT1 HPL H6,HE          INITIAL HALT = E6
                   18      *
0003 3D 00 007F    19      CLI XFF00,X'00'        COMPARE 00 TO 00
0007 C0 81 000E    20      BE START2              GO TO NEXT TEST IF CR SET TO EQUAL
0008 FO 7C 7D      21      HALT2 HPL H6,HE          * PROG E6, HALT 2. ERROR HALT
                   22      *
                   23      *      * FAILING FUNCT (1)
                   24      *
                   25      *
                   26      *
                   27      *
                   28      *
                   29      *      (CLC) COMPARE LOGICAL CHARACTER
                   30      *
                   31      *      TEST (1) OP END
                   32      *
                   33      *
000E 3C 00 00FF    34      START2 MVI PAD,X'00'        PLACE HEX -FF00- IN
0012 3C FF 00FE    35      MVI PAD-1,X'FF'        LOC FE & FF.
                   36      *
0016 0D 01 00FF 007D 37      CLC PAD(2),X00FF        COMPARE PAD WITH HEX -00FF-
001C F2 82 07      38      JL HALT4              GO TO HALT4 IF CR SET LD
001F C0 84 0029    39      BH START3              GO TO NEXT TEST IF CR SET HI
0023 FO 7C 7D      40      HALT3 HPL H6,HE          * PROG E6, HALT 3. ERROR HALT
                   41      *
                   42      *      * FAILING FUNCT (1)
                   43      *
                   44      *
0026 FO 7C 7D      45      HALT4 HPL H6,HE          * PROG E6, HALT 4. ERROR HALT
                   46      *
                   47      *      * FAILING FUNCT 1
                   48      *
                   49      *
                   50      *
                   51      *

```

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OE60 CPU AND MEMORY DIAGNOSTICS: PROGRAM E6 MOD 12

```

ERR LOC OBJECT CODE  ADDR STMT SOURCE STATEMENT
53 *****
54 *
55 *      (AZ) ADD DECIMAL
56 *
57 *      TEST (1) OP BIT 7
58 *      (2) A REG BIT 2 ACTIVE
59 *
60 *****
61 *
62 *
63 0029 3C D9 00FF  START3 MVI PAD,X'D9'        SET PAD TO MINUS DECIMAL 9.
64 *
65 002D 06 00 00FF 00D9  AZ PAD(1),X'D9'(1)        ADD MINUS DECIMAL 9 TO PAD.
66 *
67 0033 3D FO 00FF  CLI PAD,X'FO'          GO TO HALT5 IF RESULT EQUALS DECIMAL
68 *      BNE TST1          ZERO, GO TO NEXT TEST IF RESULT IS
69 *      *      NOT DECIMAL ZERO
70 *
71 003B FO 7C 7D      HALT5 HPL H6,HE          * PROG E6, HALT 5. ERROR HALT
72 *      *      * FAILING FUNCT (1,2)
73 *
74 *
75 *      *****
76 *      APL TEST
77 *
78 *      TEST (1) APL DECODE
79 *      (2) I/O COND B
80 *      (3) IR SKP TRUE
81 *
82 *
83 *
84 TST1 TIO HALT7,X'CO'        TEST FOR ERROR OR NOT READY.
85 MVC ADCF(5),CNTFLD        SET UP CONTROL FIELD
86 LIO AD255,X'C6'          LOAD DDCR
87 LIO DF,X'C4'            LOAD DDRR
88 SIO X'OC',X'C3'        SCAN EQUAL 32 SECTORS
89 TST2 TIO APLTST,X'C2'    GO TO APLTST ON BUSY
90 *
91 HALT6 HPL H6,HE          * PROG E6, HALT 6. ERROR HALT.
92 *      *      * TST1 OR TST2 ERROR
93 *
94 *
95 HALT7 HPL H6,HE          * PROG E6, HALT 7. ERROR HALT.
96 *      *      * FAILING FUNCT (3)
97 *
98 APLTST APL 0,X'C2'        WAIT HERE ON BUSY
99 *
100 TST3 TIO HALT8,X'C2'        GO TO HALT8 IF STILL BUSY
101 MVI BOOT+1,X'14'        SET UP TO READ 20TH SECTOR
102 B BOOT
103 DC XLI'0'
104 *
105 HALT8 HPL H6,HE          * PROG E6, HALT 8. ERROR HALT.
106 *      *      * APL INSTR WAS NO-OPED
107 *
108 *
109 AD255 DC AL2(#+2)
110 ADCF DC XL5'0000010000'
111 DC XL5'0100010020'
112 X00FF DC XL2'00FF'
113 XFF00 DC XL2'FF00'
114 DF DC XL2'400'
115 *
116 PAD EQU 255
117 BOOT EQU X'169'
118 CNTFLD EQU X'1DB'

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE60 CPU AND MEMORY DIAGNOSTICS: PROGRAM E6 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

007C 119 HE EQU X*7C:
 007D 120 H6 EQU X*7D:
 FFFF 121 END

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE60 CPU AND MEMORY DIAGNOSTICS: PROGRAM E6 MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| ADCF | A | 005 | 0076 | 0110 | 0085* |
| AD255 | A | 002 | 0071 | 0109 | 0086 |
| APLTST | A | 003 | 005D | 0099 | 0089 |
| BOOT | C | 001 | 0169 | 0117 | 0101* 0102 |
| CNTFLD | C | 001 | 01DB | 0118 | 0085 |
| DF | A | 002 | 0081 | 0114 | 0087 |
| HALT1 | A | 003 | 0000 | 0017 | |
| HALT2 | A | 003 | 0008 | 0023 | |
| HALT3 | A | 003 | 0023 | 0045 | |
| HALT4 | A | 003 | 0026 | 0049 | 0041 |
| HALT5 | A | 003 | 003B | 0071 | |
| HALT6 | A | 003 | 0057 | 0091 | |
| HALT7 | A | 003 | 005A | 0095 | 0084 |
| HALT8 | A | 003 | 006D | 0105 | 0100 |
| HE | C | 001 | 007C | 0119 | 0017 0023 0045 0049 0071 0091 0095 0105 |
| H6 | C | 001 | 007D | 0120 | 0017 0023 0045 0049 0071 0091 0095 0105 |
| PAD | C | 001 | 00FF | 0116 | 0036* 0037* 0039 0063* 0065* 0067 |
| START2 | A | 004 | 000E | 0036 | 0021 |
| START3 | A | 004 | 0029 | 0063 | 0343 |
| TST1 | A | 004 | 003E | 0084 | 0069 |
| TST2 | A | 004 | 0053 | 0089 | |
| TST3 | A | 004 | 0060 | 0100 | |
| UVWXYZ | A | 001 | 0000 | 0004 | |
| XFFF0 | A | 002 | 007F | 0113 | 0019 |
| X00FF | A | 002 | 007D | 0112 | 0039 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OE60 CPU AND MEMORY DIAGNOSTICS: PROGRAM E6 MOD 12

OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PM*42 48200*EC*827804* CPU*AND*MEMORY*T ESTS*****MOD*12 84228422***** 0E600000
T+* :261*|E**~2B A**#0~G42**C**||2 *~4A*|2**~RBA2B D*BX0~G70~G426&C "A~**"OCR|~**"2 A*C8*8Q*0E600001
T+~A52G1*0*~0~0 D*GQA63GF*GD11*B A22<<0*H*P~A2~~A 2~~GB*~GB*F42E*E DOH*AE&CO~G4*~* **&*~J&0E600002
T80BA**D**&~*|** " **&***** ..... ***** ..... ***** 5140E600003
E***E7*~DC*PH$ =*7M&F|***|***C **F$***ASC***R*A SO***Q***** ***** 12010630750 8287508U0E600004

```

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OE70 CPU AND MEMORY DIAGNOSTICS: PROGRAM E7 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000 2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP
6 *
7 ***** SECTOR 20 *****
8 ***** PROG E7 *****
9 ***** (L10) & (SNS), LOAD & SENSE I/O LSR'S *****
10 *****
11 *****
12 ***** * PRINTER * *****
13 ***** * PRINTER * *****
14 *****
15 ***** FAILURE TO SELECT ANY LSR WILL CAUSE *****
16 ***** 'A' REG CHECK DURING (SNS) EB CYCLE. *****
17 *****
18 ***** FAILURE TO SELECT CORRECT LSR WILL *****
19 ***** RESULT IN ERROR HALT. *****
20 *****
21 *****
22 *****
23 HALT1 HPL H7,HE INITIAL HALT = E7
24
25 0003 31 E4 004F L10 XCFFF,X'E4' LOAD PRINTER IMAGE ADDRESS LSR
26 * WITH -CFFF-.
27
28 0007 31 E6 0051 L10 X3FF8,X'E6' LOAD PRINTER DATA ADDRESS LSR
29 * WITH -3FF8-.
30
31 000B 30 E4 00FB SNS 251,X'E4' STORE PRINTER IMAGE ADDRESS LSR
32 * IN LOC HEX -00FA & 00FB-.
33
34 000F 30 E6 00FD SNS 253,X'E6' STORE PRINTER DATA ADDRESS LSR
35 * IN LOC HEX -00FC & 00FD-.
36
37 0013 3D FE 00FD CLI 253,X'FE' GO TO HALT4 IF DATA SWITCHES
38 0017 F2 81 19 JE HALT4 WERE ALSO GATE TO I/O BUSS
39
40 001A 0D 01 00FD 0051 CLC 253(2),X3FF8 GO TO HALT2 IF PRINTER DATA ADDRESS
41 0020 F2 81 03 JE HALT2+3 LSR WAS LOADED INCORRECTLY
42
43 0023 F0 7C 07 HALT2 HPL H7,HE * PROG E7, HALT 2. ERROR HALT.
44 * *
45 * REFER TO CHART.
46 * DATA ADDRESS LSR SELECTION ERROR
47
48 0026 0D 01 00FB 004F CLC 251(2),XCFFF GO TO HALT3 IF IMAGE ADDRESS
49 002C CD 81 0036 BE START2 LSR WAS LOADED INCORRECTLY
50
51 0030 F0 7C 07 HALT3 HPL H7,HE * PROG E7, HALT 3. ERROR HALT ***
52 * *
53 * IMAGE ADDR LSR SELECTION ERROR
54
55 0033 F0 7C 07 HALT4 HPL H7,HE * PROG E7, HALT 4. ERROR HALT
56 * *
57 * THE DATA SNS WERE ORED IN ALSO

```

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OE70 CPU AND MEMORY DIAGNOSTICS: PROGRAM E7 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

57 *****
58 ***** (LIO) & (SNS), LOAD & SENSE I/O LSR'S *****
59 *****
60 *****
61 ***** * PRINTER * *****
62 *****
63 *****
64 ***** FAILURE TO SENSE THE CORRECT VALUE *****
65 ***** WILL RESULT IN LSR CHECK *****
66 *****
67 *****
68 *****
69 *****
70 START2 LIO X3000,X'E4' LOAD PRINTER IMAGE ADDRESS LSR
71 * WITH -3000-.
72 *****
73 * LIO XC007,X'E6' LOAD PRINTER DATA ADDRESS LSR
74 * WITH -C007-.
75 *****
76 * SNS 251,X'E4' STORE PRINTER IMAGE ADDRESS LSR
77 * IN LOC HEX -00FA & 00FB-.
78 *****
79 * SNS 253,X'E6' STORE PRINTER DATA ADDRESS LSR
80 * IN LOC HEX -00FC & 00FD-.
81 *****
82 MVI BOOT+1,X'15' SET UP TO READ 21ST SECTOR
83 B BOOT LSR'S WERE SENSED CORRECTLY,BRANCH
84 *****
85 *****
004E CFFF 004F 86 XCFFF DC XL2'CFFF'
0050 3FF8 0051 87 X3FF8 DC XL2'3FF8'
0052 3000 0053 88 X3000 DC XL2'3000'
0054 C007 0055 89 XC007 DC XL2'C007'
90 *****
0169 91 BOOT EQU X'169'
007C 92 HE EQU X'7C'
0007 93 H7 EQU X'07'
00FA 94 PAD EQU 250
95 *****
FFFF 96 END
    
```

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OE70 CPU AND MEMORY DIAGNOSTICS: PROGRAM E7 MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---------------------|
| BOOT | C | 001 | 0169 | 0091 | 0082* 0083 |
| HALT1 | A | 003 | 0000 | 0023 | |
| HALT2 | A | 003 | 0023 | 0043 | 0041 |
| HALT3 | A | 003 | 0030 | 0050 | |
| HALT4 | A | 003 | 0033 | 0053 | 0038 |
| HE | C | 001 | 007C | 0092 | 0023 0043 0050 0053 |
| H7 | C | 001 | 0007 | 0093 | 0023 0043 0050 0053 |
| PAD | C | 001 | 00FA | 0094 | |
| START2 | A | 004 | 0036 | 0070 | 0048 |
| UVWXYZ | A | 001 | 0000 | 0004 | |
| XCFFF | A | 002 | 004F | 0086 | 0025 0047 |
| XC007 | A | 002 | 0055 | 0089 | 0073 |
| X3FF8 | A | 002 | 0051 | 0087 | 0028 0040 |
| X3000 | A | 002 | 0053 | 0088 | 0070 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OE70 CPU AND MEMORY DIAGNOSTICS: PROGRAM E7 MOD 12
OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```
* GBK GBD *** PN 42 48200 EC 827804 CPU AND MEMORY T ESTS ***** MOD 12 84228422 ***** 0E700000
T+ : @GOG<; & L3G W ED09 C#<+Q *L7 = 172-JU I &C *EG 2-&10~*( &C# *D# -&6@GOG@GOG<; & *M3D *EZ*0E700001
TF-AN9-AN<+& =3C W 14@E&E D0H*AE*# *|"-0<*G ***** ***** Q, %0E700002
E***E7*=-DC"PH$ =*7H&F| ***** C **F% *** ASC *** R A SO *** Q ***** 12010630750 828750Y80E700003
```

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OE80 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM E8 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```
0000 2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP
6 * SECTOR 21
7 *****
8 *
9 *
10 *
11 *
12 *
13 *
14 *
15 *
16 *****
17 HALT1 HPL UNITS,TENS INITIAL HALT
18 LD LA X'0080',XR1 LOAD XR1 WITH HIGHER CORE ADDRESS
19
20
21 MVI PAD(XR1),X'00' BYPASS
22 MVI PAD,X'FF' HALT IF
23 CLI PAD(XR1),X'FF' SAR DECODE
24 JNE HALT2+3 WAS CORRECT
25
26 HALT2 HPL X'10',X'80' * PROG E8, HALT 2, ERROR HALT
27 * * FAILURE: SAR DECODE, THE FAILING
28 * * SAR BIT IS DISPLAYED IN
29 * * THE Q REGISTER
30 *
31
32 CLI HALT2+1,X'20' EXIT THIS PROGRAM IF SAR
33 BE EIGHT BITS 8 THRU 3 HAVE BEEN TESTED.
34
35 ALC LD+3(2),LD+3 DOUBLE HIGHER CORE ADDRESS
36 SLC HALT2+1(1),HALT2+2 DECREMENT HALT DISPLAY
37 B LD GO TEST NEXT SAR BIT
```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE80 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM E8 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

002F 0000      0030      39
                    40 DATASW DC   XL2'0'
                    41
0031 F2 90 00      42 EIGHT JF   B
0034 0E 01 0084 0084 43 B      ALC   ADO,ADO(2)
                    44
003A F0 7F 3E      45      HPL   X'3E',X'7F'
                    46
003D 3C 93 017F      47      MVI   BOOT+22,X'93'
0041 3C 00 016E      48      MVI   BOOT+5,X'00'
0045 3C 00 018E      49      MVI   BOOT+37,X'00'
0049 3C 16 016A      50      MVI   BOOT+1,X'16'
004D 30 00 0030      51      SMS   DATASW,X'00'
0051 3D E9 0030      52      CLI   DATASW,X'E9'
0055 C0 81 01E1      53      BE    BOOT25
                    54
0059 3C 00 016E      55      MVI   BOOT+5,X'00'
005D 3C 1F 016A      56      MVI   BOOT+1,X'1F'
0061 3D F2 0030      57      CLI   DATASW,X'F2'
0065 C0 81 01E1      58      BE    BOOT25
                    59
0069 3C 21 016A      60      MVI   BOOT+1,X'21'
006D 3D F4 0030      61      CLI   DATASW,X'F4'
0071 C0 81 01E1      62      BE    BOOT25
                    63
0075 0C 04 01DB 0089 64      MVC   CNTFLD(5),DCP
007B 3C 01 016A      65      MVI   BOOT+1,X'01'
007F C0 87 01E1      66      B     BOOT25
                    67
0083 0000      0084 68 ADD   DC   AL2(0)
0085 0000030011    0089 69 DCP   DC   XLS'0000030011'
                    70
0169 71 BOOT   EQU  X'169'
01E1 72 BOOT25 EQU  X'1E1'
00FF 73 PAD   EQU  255
007F 74 UNITS EQU  X'7F'
007C 75 TENS  EQU  X'7C'
0001 76 XR1   EQU  1
01DB 77 CNTFLD EQU  X'01DB'
                    78
FFFF 79      END

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE80 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM E8 MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| ADO | A | 002 | 0084 | 0068 | 0043 0043* |
| B | A | 006 | 0034 | 0043 | 0042 |
| BOOT | C | 001 | 0169 | 0071 | 0047* 0048* 0049* 0050* 0055* 0056* 0060* 0065* |
| BOOT25 | C | 001 | 01E1 | 0072 | 0053 0058 0062 0066 |
| CNTFLD | C | 001 | 01DB | 0077 | 0064* |
| DATASW | A | 002 | 0030 | 0040 | 0051* 0052 0057 0061 |
| DCP | A | 005 | 0089 | 0069 | 0064 |
| EIGHT | A | 003 | 0031 | 0042 | 0033 |
| HALT1 | A | 003 | 0000 | 0017 | |
| HALT2 | A | 003 | 0014 | 0026 | 0024 0032 0036 0036* |
| LD | A | 004 | 0003 | 0019 | 0035 0035* 0037 |
| PAD | C | 001 | 00FF | 0073 | 0021* 0022* 0023 |
| TENS | C | 001 | 007C | 0075 | 0017 |
| UNITS | C | 001 | 007F | 0074 | 0017 |
| UVMXYZ | A | 001 | 0000 | 0004 | |
| XR1 | C | 001 | 0001 | 0076 | 0019* 0021 0023 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

RESET 'TEST FALSE'
CLEAR 'LOGICAL OVERFLOW'
BP HALT
REPAIR LOADER AFTER MEM. CHECK
SETUP TO GET INITIAL HALTS
READ DATA SWITCHES

SET UP FOR LOAD OF DCP

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OE80 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM E8 MOD 12
OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

*GBK*GBD***PN*42 48200*EC*827804* 3340*CPU*E*MEMOR Y*TESTS***MOD*12 84228422*****OEB000000
T+:-:2G1*0-D*-GO *33*|**2*E| 0-A*H**NOHD*&B A**Q*A-a**AM*E*8 G**<**IR&**8A*H& */|**P,00E800001
T+-A5-362UOE*|** A\$TO**Q82E-ED<*** <C7Z*CC*-&G/|** A\$TO-0Y*a-00HD A8L0/0Y**00HD A8&0*\$1&OE800002
TDOBIA*G\$*HU2*E& D0H*A8E****C*AD *****9Y*OE800003
E***E7*=-DC*PH\$ =*7M&F|***|***C**F\$***ASC***R*A S0***Q*****12010630750 828753QUOE800004

OE90 CPU AND MEMORY DIAGNOSTICS: PROGRAM E9 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000 2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP
6 * SECTOR 22
7 *****
8 *****
9 ***** PROG E9, SAR DECODE *****
10 *****
11 ***** THIS PROGRAM TESTS FOR PROPER DECODING OF SAR BITS *****
12 ***** 1 & 0 AND THE ABILITY TO ADDRESS CORE LOC 16,384 *****
13 ***** THROUGH 65,535. CONSOLE ADDRESS SWITCHES MUST *****
14 ***** BE SET TO SPECIFY CORE SIZE. *****
15 *****
16 *****
17
18 HALT1 HPL UNITS,TENS INITIAL HALT
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
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42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58

0003 3D 00 0050
0007 3D 80 004F
000B F2 82 12

000E 3C 00 8040
0012 3C FF 0040
0016 3D FF 8040
001A F2 01 0A

001D F0 00 6F

0020 3D 40 004F
0024 F2 82 65

0027 3C 00 4040
002B 3C FF 0040
002F 3D FF 4040
0033 F2 01 5D
0036 F2 87 50
0039 000000000000C700 0088
0041 000000000000100
0049 000000000000000
0051 000000000000000
0059 000000000000000
0061 000000000000000
0069 000000000000000
0071 000000000000000
0079 000000000000000
0081 000000000000000
0089 F0 10 00

008C 3D 20 004F
0090 F2 82 12

TEST1 SNS CORISZ-1,X'80'
CLI CORISZ-1,X'80'
JL TEST2

BIT0 MVI X'8040',X'00'
MVI X'0040',X'FF'
CLI X'8040',X'FF'
JNE BIT1

HALT2 HPL X'6F',X'00'

TEST2 CLI CORISZ-1,X'40'
JL TEST3

BIT1 MVI X'4040',X'00'
MVI X'0040',X'FF'
CLI X'4040',X'FF'
JNE BIT2
J HALT3
DC XL80'0'

HALT3 HPL X'00',X'10'

TEST3 CLI CORISZ-1,X'20'
JL RETURN

***** THIS PROGRAM TESTS FOR PROPER DECODING *****
***** OF SAR BIT 2. *****

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OE90 CPU AND MEMORY DIAGNOSTICS: PROGRAM E9 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

59
60 BIT2 MVI 8447,X'00'
61 MVI PAD,X'FF'
62 CLI 8447,X'FF'
63 JNE RETURN
64
65 HALT4 HPL X'00',X'20'
66 *
67 *
68 *
69 *
70 *
71 RETURN MVC CNTFLD+5,#+70(61)
72 B X'303'
    
```

```

TEST SAR BIT 2 DECODE AND ABILITY
TO ADDRESS >8K BUT <20K OF STORAGE.
EXIT THIS PROGRAM IF SAR BIT 2
WAS DECODED CORRECTLY.
* PROG E9, HALT 4. ERROR HALT
* FAILURE: SAR DECODE BIT 2. THE
* FAILING SAR BIT IS
* DISPLAYED IN THE Q
* REGISTER
    
```

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OE90 CPU AND MEMORY DIAGNOSTICS: PROGRAM E9 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0300 74 USING COMHLT,XR1
0300 75 ORG X'300'
0300 76 COMHLT HPL UNITS,TENS E9 HALT - DISK ERROR
0300 77 LA X'0300',XR1
0300 78 TIO COMHLT(XR1),ERR
0300 79 LIO ADO(XR1),DFDR
0300 80 SECD1 LIO ACOM(XR1),DFCR
0300 81 SIO DIAG,READ
0300 82 WAIT TIO WAIT(XR1),BUSY
0300 83 TIO COMHLT(XR1),ERR
0300 84 SECD B **4
0300 85
0300 86 MVI CNTFLD+5(XR1),X'00' RE-INITIALIZE THE CONTROL FIELD
0300 87 MVI CNTFLD+1(XR1),X'18' SET UP TO READ 2ND SECTOR
0300 88 MVC SECD+3(XR1),ADO(2,XR1) SETUP TO BEGIN EXECUTION
0300 89 LIO ADLD(XR1),DFDR
0300 90 B SECD(XR1) GO READ SECOND SECTOR
0300 91
0300 92 ADO DC AL2(0)
0300 93 ADLD DC AL2(256)
0300 94 ACOM DC AL2(CNTFLD-4)
0300 95 CNTFLD DC XL5'0000010000'
0300 96 DC XL5'1700010000'
0300 97
0001 98 XR1 EQU 1
00C4 99 DFDR EQU X'C4'
00C6 100 DFDR EQU X'C6'
0002 101 DIAG EQU X'02'
00C1 102 READ EQU X'C1'
00C0 103 ERR EQU X'C0'
00C2 104 BUSY EQU X'C2'
0050 105 CORsiz EQU 80
00FF 106 PAD EQU 255
0169 107 BOOT EQU X'169'
005F 108 UNITS EQU X'5F'
007C 109 TENS EQU X'7C'
0000 110
FFFF 111 END
    
```

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OE90 CPU AND MEMORY DIAGNOSTICS: PROGRAM E9 MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| ACOM | A | 002 | 0332 | 0094 | 0080 |
| ADLD | A | 002 | 0330 | 0093 | 0089 |
| ADD | A | 002 | 032E | 0092 | 0079 0088 |
| BIT0 | A | 004 | 000E | 0024 | |
| BIT1 | A | 004 | 0027 | 0038 | 0027 |
| BIT2 | A | 004 | 0093 | 0060 | 0041 |
| BOOT | C | 001 | 0169 | 0107 | |
| BUSY | C | 001 | 00C2 | 0104 | 0082 |
| CNTFLD | A | 005 | 0337 | 0095 | 0071* 0086* 0087* 0094 |
| COMHLT | A | 003 | 0300 | 0076 | 0074 0078 0083 |
| CORSIZ | C | 001 | 0050 | 0105 | 0020* 0021 0035 0050 |
| DFCR | C | 001 | 00C6 | 0100 | 0080* |
| DFDR | C | 001 | 00C4 | 0099 | 0079* 0089* |
| DIAG | C | 001 | 0002 | 0101 | 0081 |
| ERR | C | 001 | 00C0 | 0103 | 0078 0083 |
| HALT1 | A | 003 | 0000 | 0018 | |
| HALT2 | A | 003 | 001D | 0029 | |
| HALT3 | A | 003 | 0089 | 0044 | 0042 |
| HALT4 | A | 003 | 00A2 | 0065 | |
| PAD | C | 001 | 00FF | 0106 | 0061* |
| READ | C | 001 | 00C1 | 0102 | 0081 |
| RETURN | A | 006 | 00A5 | 0071 | 0051 0063 |
| SECD | A | 004 | 0319 | 0084 | 0088* |
| SECD1 | A | 003 | 030D | 0080 | 0090 |
| TENS | C | 001 | 007C | 0109 | 0018 0076 |
| TEST1 | A | 004 | 0007 | 0021 | |
| TEST2 | A | 004 | 0020 | 0035 | 0022 |
| TEST3 | A | 004 | 008C | 0050 | 0036 |
| UNITS | C | 001 | 005F | 0108 | 0018 0076 |
| UVWXYZ | A | 001 | 0000 | 0004 | |
| WAIT | A | 003 | 0313 | 0082 | 0082 |
| XR1 | C | 001 | 0001 | 0098 | 0074 0077* 0078 0079 0080 0082 0083 0086 0087 0088 0088 0089 |
| | | | | 0090 | |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OE90 CPU AND MEMORY DIAGNOSTICS: PROGRAM E9 MOD 12
OBJECT CARD LISTING

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THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.

| CL 1 THROUGH 16 | CL 17 THROUGH 32 | CL 33 THROUGH 48 | CL 49 THROUGH 64 | CL 65 THROUGH 80 | CL 81 THROUGH 96 |
|-------------------|------------------|------------------|------------------|------------------|-------------------|
| *GBK*GBD**PN*42 | 48200*EC*827804* | CPU*E*MEMORY*TES | TS*****MOD*12 | 84228422***** | *****0E900000 |
| T+*:*2G1-<***MC6 | **D*2-/H2*HA*\|\|2 | *E*7*DC2*E,O*F2 | *E*A\|2YIV\|*A*E*3 | *D**4A*2-E\|2Y) | E*****8H*0E900001 |
| T+*A5***** | ***** | ***** | ***** | ***** | *****-#*0E900002 |
| T+*B>***** | ***** | E*C4-*D*2-/H2*BC | **\|\|2**37*H\|*2*E\| | OH**<\|<2*+?/0< | C*****-R*0E900003 |
| T+*:<:2G1-0-DC*(G | **GGD.XGF<?\|A*_G | BD*G**<BG*152*C1 | 2FC/**J0>*&04H* | (***A**<3***A*** | P**D*LC00E900004 |
| T*E<2***** | ***** | ***** | ***** | ***** | *****1T00E900005 |
| E***E7*=-DC*PH\$ | =*7H&F *** ***C* | **F2***ASC***R*A | SO***Q***** | *****12010630750 | 828753H20E900006 |

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```

0000      2 DECK 4
          3 SEQ 0
          4 UVWXYZ START 0
          5 TREP
          6 * SECTORS 23 & 24
          7 *****
          8 *
          9 *
         10 * PROG EA SAR DECODE AND SAR BIT FAILURE TEST
         11 *
         12 * THIS PROGRAM TESTS FOR PROPER DECODING OF SAR BITS IN BSM'S
         13 * ABOVE 16K, TESTS THE ABILITY TO ADDRESS EACH CORE LOCATION
         14 * WITHIN A 16K BSM, AND CHECKS FOR STORAGE ALTERATIONS IN
         15 * CORE DUE TO SAR BIT FAILURE.
         16 *
         17 * THE TESTS WILL BE PERFORMED IN THE FOLLOWING MANNER:
         18 * 1) ONLY THE AMOUNT OF CORE SET ON THE LEFTMOST ADDRESS
         19 * SWITCH WILL BE TESTED, THE OTHER ADDRESS SWITCHES
         20 * WILL NOT BE READ.
         21 * 2) IF LESS THAN 16K OF CORE IS TO BE TESTED, THE SAR
         22 * DECODE PORTION OF THE TEST IS SKIPPED; THE FIRST 16K
         23 * ARE CHECKED OUT BY PREVIOUS PROGRAMS.
         24 * 3) IF MORE THAN 16K OF CORE IS TO BE TESTED, EACH BSM
         25 * WILL BE TESTED FOR SAR DECODE OF BITS 15-4, 3, AND 2.
         26 * THE TESTING OF SAR DECODE OF BITS 3 AND 2 DEPENDS
         27 * ON WHETHER THERE IS MORE THAN 4K (SAR BIT 3) OR MORE
         28 * THAN 8K (SAR BIT 2) OF CORE IN THAT BSM.
         29 * 4) SAR DECODE TEST ENDS WHEN ALL SELECTED BSM'S ARE TESTED.
         30 *
         31 * NOTE: DUE TO THE NATURE OF SAR DECODE FAILURES, ERROR
         32 * HALTS ON SAR DECODE ERRORS WILL BE IDENTIFIED BY
         33 * Q REGISTER DISPLAY:
         34 *
         35 * Q REG SAR BIT Q REG SAR BIT
         36 * -----
         37 * -F0- 15 -80- 8
         38 * -F2- 14 -70- 7
         39 * -D0- 13 -60- 6
         40 * -C0- 12 -50- 5
         41 * -B0- 11 -40- 4
         42 * -A0- 10 -30- 3
         43 * -90- 9 -20- 2
         44 * -10- -10- 1
         45 *
         46 * 5) THE AMOUNT OF CORE SPECIFIED ON THE LEFTMOST ADDRESS
         47 * SWITCH IS FILLED WITH HEX -FF-.
         48 * 6) HIGHEST CORE LOCATION HAS HEX -00- ENTERED.
         49 * 7) ALL OTHER CORE LOCATIONS ARE TESTED FOR ALTERED
         50 * CONTENTS (DATA NOT HEX-FF-) USING XR1 AS POINTER.
         51 * 8) DECREMENT POINTER
         52 * 9) STEPS 6-8 PERFORMED FOR ALL CORE ABOVE HEX -200-
         53 * 10) SAR BIT FAILURE TEST ENDS WHEN ALL SELECTED CORE
         54 * TESTED.
         55 *
         56 * NOTE: ERRORS WILL BE INDICATED BY A -EA- HALT.
         57 *
         58 * TO DETERMINE THE FAILING BSM:
         59 *
         60 * I-OP I-Q I-R FAILING BSM
         61 * -----
         62 * 01E2 01E3 01E4 0 - 16K
         63 * 01E9 01EA 01EB 16 - 32K
         64 * 01F0 01F1 01F2 32 - 48K
         65 * 01F7 01F8 01F9 48 - 64K
         66 *
         67 * TO DETERMINE THE FAILING LOCATION:
         68 * 1) PUSH 'STOP' BUTTON
         69 * 2) XR2 CONTAINS THE ADDRESS INTO WHICH -00-
         70 * WAS STORED

```

```

          70 * 3) THE FAILING LOCATION (INTO WHICH -00- WAS
          71 * ALSO WRITTEN) CAN BE FOUND BY ADDING HEX -FF-
          72 * TO THE CONTENTS OF XR1. FOR EXAMPLE:
          73 * IF XR1 = X'000', THE FAILING LOCATION = X'DFF'.
          74 *
          75 *
          76 * 11) ADDRESS DATASWITCH 1 (LEFTMOST) IF SET TO
          77 *
          78 * 0 TESTS CORE TO 4K
          79 * 1 TESTS CORE TO 8K
          80 * 2 TESTS CORE TO 12K
          81 * 3 TESTS CORE TO 16K
          82 * 4 TESTS CORE TO 20K
          83 * 5 TESTS CORE TO 24K
          84 * 6 TESTS CORE TO 28K
          85 * 7 TESTS CORE TO 32K
          86 * 8 TESTS CORE TO 36K
          87 * 9 TESTS CORE TO 40K
          88 * A TESTS CORE TO 44K
          89 * B TESTS CORE TO 48K
          90 * C TESTS CORE TO 52K
          91 * D TESTS CORE TO 56K
          92 * E TESTS CORE TO 60K
          93 * F TESTS CORE TO 64K
          94 *
          95 * *****
          96 *
          97 *
          98 * USING RETRN1,1
          99 * USING RETRN1,2
         100 * RESTRT HPL X'3F',X'7C' PRE-EXECUTION HALT
         101 * LA RETRN1,XR2
         102 * MVC SAVXR2(,XR2),X0000(14,XR2) .RESET COUNTERS
         103 * SNS DATASW(,XR2),X'00' .READ ADDRESS SWITCHES
         104 * MVI DATASW(,XR2),X'00' .MASK UNWANTED ADDRESS
         105 * MNN DATASW-1(,XR2),DATASW(,XR2) SWITCHES AND SET MAX CORE
         106 * MZZ CORSIZ-1(,XR2),DATASW-1(,XR2) .SET CORSIZE COUNT
         107 * MVC BRANCH+3(,XR2),AHALT4(2,XR2) .RESET BRANCH TO HALT 4
         108 * CLC CORSIZ(,XR2),X4000(2,XR2) .CHECK IF MORE THAN 16K SET
         109 * BL EXIT(,XR2) IF NOT,EXIT ADDRESSING TST
         110 *
         111 * MVI COMPAR+1(,XR2),X'40' .RESET FOR SAR BIT 4 TEST
         112 * ALC SWITCH(,XR2),X4000(2,XR2) .SET UP FOR 16K
         113 * SLC DATASW(,XR2),X4000(2,XR2)
         114 *
         115 * ALC BRANCH+3(,XR2),X0006(2,XR2) .SET BRANCH TO HALT 5
         116 * CLI CORSIZ-1(,XR2),X'80' .LESS THAN 32K?
         117 * JL BOMSET .SET UP FOR 16K
         118 * ALC SWITCH(,XR2),X4000(2,XR2)
         119 * SLC DATASW(,XR2),X4000(2,XR2)
         120 *
         121 * ALC BRANCH+3(,XR2),X0006(2,XR2) .SET BRANCH TO HALT 6
         122 * CLI CORSIZ-1(,XR2),X'CO' .LESS THAN 48K?
         123 * JL BOMSET .IF YES, GO TO BOMSET
         124 * ALC SWITCH(,XR2),X4000(2,XR2) .SET UP FOR 48K
         125 * SLC DATASW(,XR2),X4000(2,XR2)
         126 *
         127 * ALC BRANCH+3(,XR2),X0006(2,XR2) .SET BRANCH TO HALT 7
         128 *
         129 * BUMSET MVC CORFIL,X0000(2) .RESET CORE FILL COUNTER
         130 * RETRN2+1(,XR2),X'80' .RESET NO-OP
         131 * CLC DATASW(,XR2),X4000(2,XR2) .SET UP TO CHECK NEXT BSM,
         132 * JL KONT1 BYPASS IF BSM NOT FULL
         133 * MVI RETRN2+1(,XR2),X'97' .SET BRANCH TO ADDR. TEST
         134 * CORFIL-1(,XR2),X'3F' .SET TO TEST 4K IN ADDR TST
         135 * MVI COMPAR+1(,XR2),X'20' .SET TO CHECK SAR BITS 2&3
         136 * CLC SWITCH(,XR2),X0000(2,XR2) .BYPASS CHECKING SAR BIT
         137 * JE TST5 FAILURES IF IN 0-16K BSM

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OEAO CPU AND MEMORY DIAGNOSTICS: PROGRAM EA MOD 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT | STATEMENT |
|---------|---------------|------|--------|--------------------------------|-----------------------------|
| 0077 | B5 01 84 | 138 | KONT1 | L SWITCH(,XR2),XR1 | .SET UP XR1 TO TEST BSM |
| 007A | 4C 00 00 0094 | 139 | LOAD | MVC O(1,XR1),TST1 | .MOVF TST1 TO NEXT BSM |
| 007F | 2E 02 007E 98 | 140 | ALC | LOAD+4,X10001(3,XR2) | ONE BYTE AT A TIME |
| 0084 | 3D 46 007C | 141 | CLI | LOAD+2,X'46' | .CHECK IF TST1 MOVED TO BSM |
| 0088 | CO 01 007A | 142 | BNE | LOAD | |
| 008C | 2C 02 007E 38 | 143 | MVC | LOAD+4,ATST1(3,XR2) | .RESTORE LOAD TO TST1 ADDR. |
| 0091 | DO 87 00 | 144 | B | O(,XR1) | .BRANCH TO TST1 IN NEXT BSM |
| 0094 | F2 F0 F0 | 145 | TST1 | JC X'F0',X'F0' | .NO-OP *THESE THREE NO-OPS |
| 0097 | F2 F0 F0 | 146 | JC | X'D0',X'F0' | .NO-OP * CATCH SAR BIT 15 |
| 009A | F2 F0 F0 | 147 | JC | X'F0',X'F0' | .NO-OP * 14,AND 13 FAILURES |
| 009D | CO 87 00A7 | 148 | B | RETRN1 | .BRANCH BACK TO MAIN PROG |
| 00A1 | 40 | 149 | DC | CL1 | |
| 00A2 | 0000 | 150 | ADD | DC AL2(O) | |
| 00A3 | | 151 | DC | | |
| 00A4 | F0 80 F0 | 152 | HSAR11 | HPL X'F0',X'B0' | *SAR BIT 11 FAILURE |
| 00A7 | BC 80 23 | 153 | RETRN1 | MVI HSARER+1(,XR2),X'80' | .RESET HALT INDICATOR |
| 00AA | AC 01 88 91 | 154 | MVC | PAD(,XR2),X0080(2,XR2) | .RESET PAD FOR TEST2 |
| 00AE | B6 01 88 | 155 | A | PAD(,XR2),XR1 | .SET UP XR1 FOR TEST |
| 00B1 | F2 87 03 | 156 | J | LD | |
| 00B4 | F0 A0 F0 | 157 | HSAR10 | HPL X'F0',X'A0' | *SAR BIT 10 FAILURE |
| 00B7 | B4 02 8C | 158 | LD | ST SAVXR2(,XR2),XR2 | .SAVE CONTENTS OF XR2 |
| 00BA | B5 02 84 | 159 | L | SWTCH(,XR2),XR2 | .SET UP XR2 FOR TEST |
| 00BD | 7C 00 40 | 160 | MVI | 64(,XR1),X'00' | .TEST FOR PROPER SAR DECODE |
| 00C0 | BC FF 40 | 161 | MVI | 64(,XR2),X'FF' | |
| 00C3 | 7D FF 40 | 162 | CLI | 64(,XR1),X'FF' | |
| 00C6 | F2 01 03 | 163 | JNE | RESET | |
| 00C9 | F0 80 10 | 164 | HSARER | HPL X'10',X'80' | .RESET XR2 TO ORIG VALUE |
| 00CC | 35 02 0133 | 165 | RESET | L SAVXR2,XR2 | |
| 00D0 | CO 87 00E0 | 166 | B | COMPAR | |
| 00D4 | F0 90 F0 | 167 | HSAR09 | HPL X'F0',X'90' | *SAR BIT 9 FAILURE |
| 00D7 | 40 | 168 | DC | CL1 | |
| 00D8 | 01C8 | 169 | AHALT4 | DC AL2(MALT4) | |
| 00DA | 0000 | 170 | BSMSW | DC XL2'0' | |
| 00DC | 0000 | 171 | DC | XL2'0' | |
| 00DE | 0094 | 172 | ATST1 | DC AL2(TST1) | |
| 00E0 | BD 40 23 | 173 | COMPAR | CLI HSARER+1(,XR2),X'40' | .WHEN SAR BITS 8-4 TESTED, |
| 00E3 | EO 81 50 | 174 | BE | RETRN2(,XR2) | LEAVE THIS LOOP. |
| 00E6 | EO 80 9F | 175 | TST3 | BC TST5(,XR2),X'80' | .BYPASS WHEN ONLY ONE BSM |
| 00E9 | B6 01 88 | 176 | A | PAD(,XR2),XR1 | .DOUBLE PAD DISPLACEMENT |
| 00EC | AE 01 88 88 | 177 | ALC | PAD(,XR2),PAD(2,XR2) | .DOUBLE PAD |
| 00F0 | AF 00 23 24 | 178 | SLC | HSARER+1(1,XR2),HSARER+2(,XR2) | .DECREMENT Q CODE FOR ERROR |
| 00F4 | EO 87 10 | 179 | B | LD(,XR2) | HALT & GO TEST NEXT SARBIT |
| 00F7 | EO 80 9F | 180 | RETRN2 | BC TST5(,XR2),X'80' | .GO TO ADDR TEST WHEN RESET |
| 00FA | BD 10 7D | 181 | KONT2 | CLI DATASW-1(,XR2),X'10' | .MORE THAN 4K IN BSM?IF NOT |
| 00FD | BC 0F 81 | 182 | MVI | CORFIL-1(,XR2),X'0F' | SET UP TO FILL 4K OF CORE |
| 0100 | | 183 | ORG | * | |
| 0100 | EO 82 9F | 184 | TREP | BL TST5(,XR2) | AND GO TO ADDRESS TEST |
| 0103 | BC 87 51 | 185 | MVI | RETRN2+1(,XR2),X'87' | .ACTIVATE BRANCH TO TST5 |
| 0106 | BD 20 7D | 186 | CLI | DATASW-1(,XR2),X'20' | .TEST IF 8K IN BSM |
| 0109 | BC 1F 81 | 187 | MVI | CORFIL-1(,XR2),X'1F' | .SET UP TO FILL 8K OF CORE |
| 010C | BC 30 3A | 188 | MVI | COMPAR+1(,XR2),X'30' | .SET UP TO TEST SAR BIT 3 |
| 010F | EO 82 3F | 189 | BL | TST3(,XR2) | |
| 0112 | BD 30 7D | 190 | CLI | DATASW-1(,XR2),X'30' | .TEST IF 12K IN BSM |
| 0115 | BC 2F 81 | 191 | MVI | CORFIL-1(,XR2),X'2F' | .SET UP TO FILL 12K OF CORE |
| 0118 | BC 20 3A | 192 | MVI | COMPAR+1(,XR2),X'20' | .SET UP TO TEST SAR BIT 2&3 |
| 011E | EO 82 3F | 193 | BL | TST3(,XR2) | |
| 011E | BC 3F 81 | 194 | MVI | CORFIL-1(,XR2),X'3F' | .SET UP TO FILL 16K OF CORE |
| 0121 | EO 87 9F | 195 | B | TST3(,XR2) | |

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OEAO CPU AND MEMORY DIAGNOSTICS: PROGRAM EA MOD 12

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT | STATEMENT |
|---------|-------------|------|--------|---|-----------------------------|
| 0124 | 0000 | 206 | | ***** PROGRAM CONSTANTS AND EQUATES ***** | |
| 0126 | 0000 | 207 | DATASW | DC XL2'0' | ** CONSTANTS WERE ENTERED |
| 0127 | 0000 | 208 | CORSIZ | DC XL2'0' | ** HERE TO ENABLE THE USE |
| 0128 | 0000 | 209 | CORFIL | DC XL2'0' | ** OF XR2 FOR INDEXING. |
| 012A | 0000 | 210 | SWTCH | DC XL2'0' | ** |
| 012C | 0000 | 211 | SAVXR1 | DC XL2'0' | ***** |
| 012E | 0000 | 212 | PAD | DC XL2'0' | ***** |
| 0130 | 0000 | 213 | X0000 | DC XL2'0000' | |
| 0132 | 0000 | 214 | SAVXR2 | DC XL2'0' | |
| 0134 | 1000 | 215 | X1000 | DC XL2'1000' | |
| 0136 | 4000 | 216 | X4000 | DC XL2'4000' | |
| 0138 | 80 | 217 | X0080 | DC XL1'80' | |
| 0139 | FFFF | 218 | NEGONE | DC XL2'FFFF' | |
| 013B | 0006 | 219 | X0006 | DC XL2'0006' | |
| 013D | 010001 | 220 | X10001 | DC XL3'010001' | |
| | | 221 | X0200 | EQU RESET+2 | |
| | | 222 | NEG256 | EQU NEGONE+1 | |
| | | 223 | XR1 | EQU 1 | |
| | | 224 | XR2 | EQU X'02' | |
| | | 225 | | ***** | |
| 0140 | BC 87 40 | 226 | EXIT | MVI TST3+1(,XR2),X'87' | .SET UP TO BYPASS WHEN ONE |
| 0143 | EO 87 53 | 227 | B | KONT2(,XR2) | BSM ONLY |
| 0146 | BC 80 40 | 228 | TST5 | MVI TST3+1(,XR2),X'80' | .NO-OP BYPASS BRANCH |
| 0149 | AC 01 D2 82 | 229 | MVC | HITEST+3(,XR2),CORFIL(2,XR2) | .START SETUP TO -NFFF- |
| 014D | B5 01 84 | 230 | L | SWTCH(,XR2),XR1 | .SET UP XR1 AS POINTER |
| 0150 | B6 01 82 | 231 | A | CORFIL(,XR2),XR1 | .FILL CORE WITH -FF- |
| 0153 | 7C FF FF | 232 | MVI | 255(,XR1),X'FF' | |
| 0156 | 5C FF FE | 233 | MVC | 254(,XR1),255(256,XR1) | |
| 015A | B6 01 94 | 234 | A | NEG256(,XR2),XR1 | |
| 015D | B4 01 86 | 235 | ST | SAVXR1(,XR2),XR1 | |
| 0160 | AD 01 86 27 | 236 | CLC | SAVXR1(,XR2),X0200(2,XR2) | .CHECK IF AT UPPER PROGRAM |
| 0164 | EO 84 AF | 237 | BH | FILL(,XR2) | LIMIT |
| 0167 | AE 01 D2 84 | 238 | ALC | HITEST+3(,XR2),SWTCH(2,XR2) | .SET UP HIGHEST CORE LOC IN |
| 016B | BC FF D2 | 239 | MVI | HITEST+3(,XR2),X'FF' | BSM -NFFF- TO RECEIVE -00- |
| 016E | AC 01 34 84 | 240 | MVC | BSMSW(,XR2),SWTCH(2,XR2) | .SET UP TO TEST CORE ONE |
| 0172 | AC 01 34 93 | 241 | ALC | BSMSW(,XR2),NEGONE(2,XR2) | BSM AT A TIME |
| 0176 | 3C 00 0000 | 242 | HITEST | MVI *-*,X'00' | |
| 017A | B5 01 D2 | 243 | L | HITEST+3(,XR2),XR1 | .SET UP XR1 TO TEST FOR |
| 017D | B6 01 94 | 244 | A | NEG256(,XR2),XR1 | INCORRECT ADDRESSING |
| 0180 | B4 02 8C | 245 | ST | SAVXR2(,XR2),XR2 | .STORE IN XR2 THE ADDRESS |
| 0183 | 35 02 0179 | 246 | L | HITEST+3,XR2 | INTO WHICH -GO- STORED |
| 0187 | 7D FF FF | 247 | CLI | 255(,XR1),X'FF' | .CHECK IF -00- WAS ENTERED |
| 018A | CO 01 01C8 | 248 | BRANCH | HALT4 | IN ANY OTHER LOCATION. |
| 018E | 35 02 0133 | 249 | L | SAVXR2,XR2 | .IF NO ERROR, RESTORE XR2 |
| 0192 | B6 01 93 | 250 | A | NEGONE(,XR2),XR1 | .DECR XR1 & CHECK NEXT CORE |
| 0195 | B4 01 86 | 251 | ST | SAVXR1(,XR2),XR1 | LOC IF ALL CORE NOT CHECKD |
| 0198 | AD 01 86 27 | 252 | CLC | SAVXR1(,XR2),X0200(2,XR2) | .CHECK IF AT UPPER PROGRAM |
| 019C | F2 81 07 | 253 | JE | KONT3 | LIMIT |
| 019F | AD 01 86 84 | 254 | CLC | SAVXR1(,XR2),SWTCH(2,XR2) | |
| 01A3 | EO 01 D9 | 255 | BNE | SETUP(,XR2) | |
| 01A6 | AF 01 D2 8E | 256 | KONT3 | SLC HITEST+3(,XR2),X1000(2,XR2) | .SET NEXT LOC TO WRITE -00- |
| 01AA | AD 01 D2 34 | 257 | CLC | HITEST+3(,XR2),BSMSW(2,XR2) | .IF ZEROS ENTERED IN ALL |
| 01AE | EO 01 CF | 258 | BNE | HITEST(,XR2) | BSM LOCATIONS, CONTINUE |
| 01B1 | AD 01 80 7E | 259 | CLC | CORSIZ(,XR2),DATASW(2,XR2) | .CHECK IF ALL BSMS TESTED |
| 01B5 | F2 81 29 | 260 | JE | LOADER | |
| 01B8 | AF 01 E6 95 | 261 | SLC | BRANCH+3(,XR2),X0006(2,XR2) | .SET TO NEXT BSM HALT |
| 01BC | AF 01 84 90 | 262 | SLC | SWTCH(,XR2),X4000(2,XR2) | .SET UP TO CHECK NEXT BSM |

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OEA0 CPU AND MEMORY DIAGNOSTICS: PROGRAM EA MOD 12
CROSS-REFERENCE

SYMBOL T LEN VALUE DEFN REFERENCES
X4000 A 002 0137 0217 0108 0112 0113 0118 0119 0124 0125 0131 0272 0273
TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OEA0 CPU AND MEMORY DIAGNOSTICS: PROGRAM EA MOD 12
OBJECT CARD LISTING

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THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E F INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

*GBK*GBD***PN*42 48200*EC*827804* CPU* &*MEMORY*TES TS*****MOD*12 84228422***** OEA00000
T+-:2G0*0-H*Z:0 (THD0*G:a*G:Y*75 =D*A*-EOA9TR_*QB &8HR?D*:-,FDURa A-ZB>*;EN?QA*2YH ;,-D*P&&OEA00091
T+-A5/IB?P: &,-G HV\$7*-HBC*8A/IB ?P:&,-GHW&OA* KU A<\$2*ME4A-ZC2-/B a/5Fa|BFaHCD_*QK RaYD*8UOEA00002
T+-B03#MA/DO***B M.-H*-Z-*J-A20*D *;SOB*G884H*2a?C 0a?C&a?C00H*Z4* **|B0a-2*H:0ASIF 6*Q*-BH0EA00003
T+-C,aY*CaRCo_*R <_&HD-*A*?|*-*-* *a-DCaH*&(EHa<aB G*+COU|A***-**** **IK*EB|---NC--I= 6*Q*;*I&OEA00004
TDOC*,-FHSRa*H2L -/1C--I=*DG6aC8D K9QOEA00005
E 12010630750 82875***OEA00006
T+-D:8HR-?H)J?KA *?A=A?C*:8HH*?LA *?B=A?B*:8HH*?C= ABH** A* & B * **a*L/0OEA00007
T+-E5*QA*Fa/4C -/5+a-DB%*}HB_&F D_-FB-|**P|**=**Q AV.&A/D4A/S--/R= >*}RD?|*K,*D4/RB A(I<4Y8OEA00008
T+-FO|****.MA4,Q AV.&BTCHB*PV***** **&GH(EHa<QAU#& A/D4A/S-2-&:_QE D8*GR,OGKTD4A4TL -*a*Q1QOEA00009
T+-G,,&F*-?HAREa A9Z0?QK&,-E=U<B G*E-0-C*2/0*0-C* 2/0X0-C*2/010-C* */0**<*QA*LGd*RI 30&H*ZQOEA00010
TDOG*0*HA*KBG**< A*-**&*FE*A* E-DOEA00011
E***E7*=-DC*PH\$ =*7M&F|***|***C **Fz***ASC***R*A S0***Q 12010630750 82875*Q2OEA00012

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OECO CPU AND MEMORY DIAGNOSTICS: PROGRAM EC MOD 12

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

```

2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP
6 *
7 * SECTOR 25
8 *
9 *
10 * THIS PROGRAM LOADS SECTOR 1, WHICH IS THE LOADER
11 * PROGRAM, AND BRANCHS TO IT.
12 *
13 *
14 COMHLT HPL X'6C',X'7C'
15 LIO ACOM,DFCR
16 TIO COMHLT,ERR TEST FOR ERROR BEFORE DOING SEEK
17 SID X'00',X'CO' SEEK HEAD 0
18 LIO DDFADR,DFDR
19 LIO ALOAD,DFCR
20 SID DIAG,READ
21 TIO *,BUSY
22 TIO COMHLT,ERR READ 1 SECTOR
23 MVI BOOT+37,X'00' LOOP UNTIL DISK BUSY DROPS
24 MVI BOOT+5,X'00' TEST FOR ERROR AFTER DISK SID
25 MVI BOOT+1,X'1A' SET TO BRANCH TO '0000'
26 B BOOT25 SETUP TO READ WITH HEAD 1
27 BR TO SELECT HEAD 1 AND RD A SECTOR
28 DDFADR DC AL2(253)
29 ACOM DC AL2(+2)
30 DC XL5'0000010000'
31 DC XL5'0100010000'
32 ALOAD DC AL2(+2)
33 DC XL5'0000010000'
34 DC XL5'0100010000'
35
36 BOOT EQU X'169'
37 BOOT25 EQU X'1E1'
38 DFCR EQU X'C6'
39 DFDR EQU X'C4'
40 ERR EQU X'CO'
41 BUSY EQU X'C2'
42 DIAG EQU X'00'
43 READ EQU X'C1'
44
45 FFFF END

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OECO CPU AND MEMORY DIAGNOSTICS: PROGRAM EC MOD 12

CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|-------------------|
| ACOM | A | 002 | 0034 | 0029 | 0015 |
| ALOAD | A | 002 | 0040 | 0032 | 0019 |
| BOOT | C | 001 | 0169 | 0036 | 0023* 0024* 0025* |
| BOOT25 | C | 001 | 01E1 | 0037 | 0026 |
| BUSY | C | 001 | 00C2 | 0041 | 0021 |
| COMHLT | A | 003 | 0000 | 0014 | 0016 0022 |
| DFADR | A | 002 | 0032 | 0028 | 0018 |
| DFCR | C | 001 | 00C6 | 0038 | 0015* 0019* |
| DFDR | C | 001 | 00C4 | 0039 | 0018* |
| DIAG | C | 001 | 0000 | 0042 | 0020 |
| ERR | C | 001 | 00C0 | 0040 | 0016 0022 |
| READ | C | 001 | 00C1 | 0043 | 0020 |
| UVWXYZ | A | 001 | 0000 | 0004 | |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OECO CPU AND MEMORY DIAGNOSTICS: PROGRAM EC MOD 12
OBJECT CARD LISTING

OEE0 CPU AND MEMORY DIAGNOSTICS: PROGRAM EE MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

*GBK*GBD***PN*42 48200*EC*827804* CPU* & MEMORY*YES TS*****MOD*12 84228422*****OEC00000
T+* :@G1Z<*Q*(KG ***C30**11**2<*Q * &11A<GB*AXAO** *I**ATTO**082F-E DOH*A8&C*CM***D ***D*&Z&OEC00001
TCOAR**D***AA*** A**A D ***** ***** ***** *****: #&OEC00002
E***E7*=-DC*PH\$ =*7M&F|***I***C* **FZ***ASC***R A SO***Q*****12010630750 82875*Y8OEC00003

00C0

DECK 4
SEQ 0
START 0
TREP
SECTOR 26

PROG EE HALF-SELECT CORE TEST - LOWER CORE
THIS PROGRAM DETECTS THE DROPPING OR PICKING OF AN ODD NUMBER OF BITS WITHIN A BYTE CAUSED BY THAT BYTE BEING HALF-SELECTED 64 TIMES.
THE TEST WILL BE PERFORMED IN THE FOLLOWING MANNER:
1) ALL CORE LOCATIONS ARE TESTED WITH FIRST THE WORST CASE PATTERN IN CORE AND THEN WITH THE COMPLEMENT WORST CASE PATTERN IN CORE
2) ONLY THE AMOUNT OF CORE SET ON THE LEFTMOST ADDRESS SWITCH WILL BE TESTED.
3) SET UP CONSOLE ADDRESS SWITCHES PRIOR TO RESETTING THE HALT.
4) FUNCTIONS OF THE CONSOLE ADDRESS SWITCHES (DATASH) ARE:

| (LEFTMOST) SWITCH 1 | SWITCH 2 | SWITCH 3+4 |
|---------------------|---------------------------------------|---------------------------------------|
| 0 TESTS CORE TO 4K | 0 PROGRAM EXECUTED ONCE ONLY | 00 NORMAL POSITION, WC PATERN FILL. |
| 1 TESTS CORE TO 8K | 1 BYPASS PROGRAM | XY ANY OTHER ENTRY SETS -EP- HALT AND |
| 2 TESTS CORE TO 12K | 2 LOOP PROGRAM | ALLOWS CE TO SE- |
| 3 TESTS CORE TO 16K | 4 COMPLEMENT FILL PATTERN USED | LECT FILL PATTERN |
| 4 TESTS CORE TO 20K | 6 LOOP & COMPLEMENT FILL PATTERN USED | ON THESE TO SW. 2 |
| 5 TESTS CORE TO 24K | | A BYTE AT A TIME, |
| 6 TESTS CORE TO 28K | | FOR A TOTAL OF 4 |
| 7 TESTS CORE TO 32K | | BYTES. 00 CAN BE |
| 8 TESTS CORE TO 36K | | USED AS A BYTE OF |
| 9 TESTS CORE TO 40K | | PATTERN AFTER -EP- |
| A TESTS CORE TO 44K | | HALT SET (SEE 5) |
| B TESTS CORE TO 48K | | |
| C TESTS CORE TO 52K | | |
| D TESTS CORE TO 56K | | |
| E TESTS CORE TO 60K | | |
| F TESTS CORE TO 64K | | |

5) NOTE: TURNING ADDRESS SWITCHES 3+4 (RIGHTMOST) TO A SETTING OTHER THAN 00 WILL SET AN -EP- (ENTER PATTERN) HALT WHICH WILL ALLOW THE CE TO ENTER HIS OWN 'WORST CASE' PATTERN. THE PATTERN IS ENTERED A BYTE AT A TIME ON SWITCHES 3+4. THE INITIAL SETTING OF SWITCHES TO A SETTING OTHER THAN 00 SELECTS THIS OPTION. THE INITIAL SWITCH SETTING IS NOT THE FIRST BYTE OF PATTERN. AFTER THE -EP- HALT, THE SWITCHES CAN BE SET TO ANY DESIRED COMBINATION, EVEN TO 00. THE BYTE OF PATTERN THAT IS ENTERED IS THE SETTING ON SWITCHES 3+4 WHEN THE HALT IS RESET. THE -EP- HALT IS DISPLAYED FOUR TIMES, THUS ALLOWING THE CE TO CHOCSE THE FILL PATTERN.

THE HALF-SELECT ERROR WILL BE INDICATED BY
1) PROCESSOR CHECK &
2) '6' REG PARITY CHECK
& SAR WILL CONTAIN THE FAILING LOCATION.

THE PROGRAM WILL RUN FOR 40 SECONDS ON A 64K MEMORY & PROPORTIONATELY LESS TIME ON SMALLER MEMORIES.

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| OEED | CPU AND MEMORY DIAGNOSTICS: | PROGRAM EE | MOD 12 |
|---------|-----------------------------|------------|-----------------------------------|
| ERR LOC | OBJECT CODE | ADDR STMT | SOURCE STATEMENT |
| | | 0000 71 | USING START,1 |
| | | 0000 72 | USING START,2 |
| 0000 | 3C 87 0013 | 73 | START MVI IPLFLG+1,X'87' |
| | | 74 | |
| 0004 | F0 7C 7C | 75 | BEGIN HPL X'7C',X'7C' |
| | | 76 | |
| 0007 | C2 01 0000 | 77 | INIT LA 0,X'01' |
| 0008 | C2 02 0000 | 78 | LA 0,X'02' |
| | | 79 | |
| 000F | 80 00 D4 | 80 | SNS DATASW(,XR2),X'00' |
| | | 81 | |
| 0012 | F2 80 07 | 82 | IPLFLG JC KONT6,X'80' |
| 0015 | 8C 00 D4 | 83 | MVI DATASW(,XR2),X'00' |
| 0018 | A8 03 D3 D4 | 84 | MNN DATASW-1(,XR2),DATASW(,XR2) |
| | | 85 | |
| 001C | B8 01 D3 | 86 | KONT6 TBN DATASW-1(,XR2),X'01' |
| 001F | F2 10 A9 | 87 | JT LOADER |
| | | 88 | |
| 0022 | A8 00 72 D3 | 89 | MZZ DUN1+1(,XR2),DATASW-1(,XR2) |
| 0026 | A8 00 C0 D3 | 90 | MZZ DUN2+1(,XR2),DATASW-1(,XR2) |
| | | 91 | |
| 002A | B9 FF D4 | 92 | TBF DATASW(,XR2),X'FF' |
| 002D | F2 10 14 | 93 | JT KONT2 |
| | | 94 | |
| 0030 | F0 7C 3E | 95 | EPHALT HPL X'3E',X'7C' |
| 0033 | 70 00 FD | 96 | SNS WCPTRN-2(,XR1),X'00' |
| 0036 | 5C 00 FC FD | 97 | MVC WCPTRN-3(,XR1),WCPTRN-2(,XR1) |
| 003A | D2 01 01 | 98 | LA 1(,XR1),XR1 |
| 003D | 6D 09 14 18 | 99 | CLC 20(10,XR1),24(,XR2) |
| 0041 | E0 01 30 | 100 | BNE EPHALT(,XR2) |
| | | 101 | |
| 0044 | C2 01 01FC | 102 | KONT2 LA 508,XR1 |
| 0048 | 4C 03 07 00FF | 103 | MVC 7(4,XR1),255 |
| | | 104 | |
| 004D | B8 04 D3 | 105 | TBN DATASW-1(,XR2),X'04' |
| 0050 | F2 90 08 | 106 | JF FILL |
| | | 107 | |
| 0053 | 6C 03 07 DB | 108 | KONT3 MVC 7(4,XR1),XFFFF(,XR2) |
| 0057 | 5F 03 07 03 | 109 | SLC 7(4,XR1),3(,XR1) |
| | | 110 | |
| 0058 | D2 01 04 | 111 | FILL LA 4(,XR1),XR1 |
| 005E | 5C 03 07 03 | 112 | MVC 7(4,XR1),3(,XR1) |
| 0062 | 84 01 D6 | 113 | ST PAD(,XR2),XR1 |
| 0065 | 88 F8 D6 | 114 | TBN PAD(,XR2),X'F8' |
| 0068 | 88 0F D5 | 115 | TBN PAD-1(,XR2),X'0F' |
| 006B | E0 90 5B | 116 | BF FILL(,XR2) |
| | | 117 | |
| 006E | D2 01 04 | 118 | LA 4(,XR1),XR1 |
| 0071 | 88 0F D5 | 119 | TBN PAD-1(,XR2),X'0F' |
| 0074 | E0 90 53 | 120 | BF KONT3(,XR2) |
| | | 121 | |
| 0077 | C2 01 01FE | 122 | LA 510,XR1 |
| 007B | 8C 00 DC | 123 | MVI COUNT2(,XR2),X'00' |
| 007E | D2 01 02 | 124 | KONT9 LA 2(,XR1),XR1 |
| 0081 | 9C 01 DE 01 | 125 | MVC SAVE1(2,XR2),1(,XR1) |
| 0085 | 7C FF 00 | 126 | MVI 0(,XR1),X'FF' |
| 0088 | 6F 00 00 DD | 127 | SLC 0(1,XR1),SAVE0(,XR2) |
| | | 128 | |
| 008C | 5C 00 01 01 | 129 | BEAT2 MVC 1(1,XR1),1(,XR1) |
| 0090 | AE 00 DC D7 | 130 | ALC COUNT2(1,XR2),X10(,XR2) |
| 0094 | E0 20 8C | 131 | BNOL BEAT2(,XR2) |
| | | 132 | |
| 0097 | 5C 00 00 00 | 133 | CHK2 MVC 0(1,XR1),0(,XR1) |
| | | 134 | |
| 009B | 6C 00 00 DD | 135 | MVC 0(1,XR1),SAVE0(,XR2) |
| 009F | 7C FF 01 | 136 | MVI 1(,XR1),X'FF' |
| 00A2 | 6C 00 01 DE | 137 | MVC 1(1,XR1),SAVE1(,XR2) |
| | | 138 | |

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| OEED | CPU AND MEMORY DIAGNOSTICS: | PROGRAM EE | MOD 12 |
|---------|-----------------------------|------------|-----------------------------|
| ERR LOC | OBJECT CODE | ADDR STMT | SOURCE STATEMENT |
| 00A6 | 5C 00 00 00 | 139 | BEAT1 MVC 0(1,XR1),0(,XR1) |
| 00AA | AE 00 DC D7 | 140 | ALC COUNT2(1,XR2),X10(,XR2) |
| 00AE | E0 20 A6 | 141 | BNOL BEAT1(,XR2) |
| | | 142 | |
| 00B1 | 5C 00 01 01 | 143 | CHK1 MVC 1(1,XR1),1(,XR1) |
| | | 144 | |
| 00B5 | 6C 00 01 DE | 145 | MVC 1(1,XR1),SAVE1(,XR2) |
| 00B9 | B4 01 D6 | 146 | ST PAD(,XR2),XR1 |
| 00BC | 88 FE D6 | 147 | TBN PAD(,XR2),X'FE' |
| 00BF | B8 0F D5 | 148 | TBN PAD-1(,XR2),X'0F' |
| 00C2 | E0 90 7E | 149 | BF KONT9(,XR2) |
| | | 150 | |
| 00C5 | B8 02 D3 | 151 | TBN DATASW-1(,XR2),X'02' |
| 00C8 | E0 10 44 | 152 | BT KONT2(,XR2) |
| | | 153 | |
| 00CB | 3C 1B 016A | 154 | LOADER MVI BOOT+1,X'1B' |
| 00CF | CO 87 0169 | 155 | B BOOT |
| | | 156 | |
| | | 157 | |
| | | 158 | ***** CONSTANTS ***** |
| 00D3 | 0000 | 00D4 | 159 DATASW DC XL2'0000' |
| 00D5 | 0000 | 00D6 | 160 PAD DC XL2'0000' |
| 00D7 | 10 | 00D7 | 161 X10 DC XL1'10' |
| 00D8 | FFFFFFFF | 00D8 | 162 XFFFF DC XL4'FFFFFFFF' |
| 00DC | 00 | 00DC | 163 COUNT2 DC XL1'00' |
| 00DD | 00 | 00DD | 164 SAVE0 DC XL1'00' |
| 00DE | 00 | 00DE | 165 SAVE1 DC XL1'00' |
| 00DF | 0000 | 00E0 | 166 X0000 DC XL2'00' |
| 00E1 | 0000000000000000 | 00FB | 167 |
| 00E9 | 0000000000000000 | | 167 |
| 00F1 | 0000000000000000 | | 167 |
| 00F9 | 000000 | | 167 |
| | | 168 | ***** EQUATES ***** |
| | | 169 | * |
| | | 0001 | 170 XR1 EQU 1 |
| | | 0002 | 171 XR2 EQU 2 |
| | | 0169 | 172 BOOT EQU X'169' |
| 00FC | FFFF0000 | 00FF | 173 WCPTRN DC XL4'FFFF0000' |
| | | FFFF | 175 END |

00FC FFFF0000

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OEE0 CPU AND MEMORY DIAGNOSTICS: PROGRAM EE MOD 12
CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|---|
| BEAT1 | A | 004 | 00A6 | 0139 | 0141 |
| BEAT2 | A | 004 | 008C | 0129 | 0131 |
| BEGIN | A | 003 | 0004 | 0075 | |
| BOOT | C | 001 | 0169 | 0172 | 0154* 0155 |
| CHK1 | A | 004 | 0081 | 0143 | |
| CHK2 | A | 004 | 0097 | 0133 | |
| COUNT2 | A | 001 | 00DC | 0163 | 0123* 0130* 0140* |
| DATASH | A | 002 | 00D4 | 0159 | 0080* 0083* 0084* 0084* 0086 0089 0090 0092 0105 0151 |
| DUN1 | A | 003 | 0071 | 0119 | 0089* |
| DUN2 | A | 003 | 008F | 0148 | 0090* |
| EPHALT | A | 003 | 0030 | 0095 | 0100 |
| FILL | A | 003 | 0058 | 0111 | 0106 0116 |
| INIT | A | 004 | 0007 | 0077 | |
| IPLFLG | A | 003 | 0012 | 0082 | 0073* |
| KONT2 | A | 004 | 0044 | 0102 | 0093 0152 |
| KONT3 | A | 004 | 0053 | 0108 | 0120 |
| KONT6 | A | 003 | 001C | 0086 | 0082 |
| KONT9 | A | 003 | 007E | 0124 | 0149 |
| LOADER | A | 004 | 00C8 | 0154 | 0087 |
| PAD | A | 002 | 00D6 | 0160 | 0113* 0114 0115 0119 0146* 0147 0148 |
| SAVE0 | A | 001 | 00DD | 0164 | 0127 0135 |
| SAVE1 | A | 001 | 00DE | 0165 | 0125* 0137 0145 |
| START | A | 004 | 0000 | 0073 | 0071 0072 |
| UVWXYZ | A | 001 | 0000 | 0004 | |
| WCPTRN | A | 004 | 00FF | 0174 | 0096* 0097 0097* |
| XFFFF | A | 004 | 00DB | 0162 | 0108 |
| XR1 | C | 001 | 0001 | 0170 | 0096 0097 0097 0098 0098* 0099 0102* 0103 0108 0109 0109 0111 |
| | | | | | 0111* 0112 0112 0113 0118 0118* 0122* 0124 0124* 0125 0126 0127 |
| | | | | | 0129 0129 0133 0133 0135 0136 0137 0139 0139 0143 0143 0145 |
| | | | | | 0146 |
| XR2 | C | 001 | 0002 | 0171 | 0080 0083 0084 0084 0086 0089 0089 0090 0090 0092 0099 0100 |
| | | | | | 0105 0108 0113 0114 0115 0116 0119 0120 0123 0125 0127 0130 |
| | | | | | 0130 0131 0135 0137 0140 0140 0141 0145 0146 0147 0148 0149 |
| | | | | | 0151 0152 |
| X0000 | A | 002 | 00E0 | 0166 | |
| X10 | A | 001 | 00D7 | 0161 | 0130 0140 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OEE0 CPU AND MEMORY DIAGNOSTICS: PROGRAM EE MOD 12
OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU* & *MEMORY*TES TS*****MOD*12 84228422*****OEE00000
T+ :|H*D*AA~<KH A*CB*~*Z*CM2Y* G?CKD*|L5.-A4*H &DE-*_*+Y* <CL>~* M2/M2GO=*C*P*C 2*IH*:Y4OEE00001
T+-A5*EE_BJ&Q8*D 00-DA*DOCAOC* >L L2Z*H* <G652CA0| K*EJ*0*C_*GO>IT O>*N8IAS4-DD>* N8I* &R<OEE00002
T+-BOM2HA*~:2*(3 K*EH* )8A-|2*50* *7NO**&F>*(3P88B <P****FO** (52*0E 2**G:P****R8*7(- -HRQ*39M0EE00003
T+-C,P**A*00**): 4*)EB*_EB*P-UG: 8*_I-DD&2FOED0H* AE&*****&*****O* *****P&M0EE00004
TDOC* ***** |** ***** ***** ***** ***** *****E&-OEE00005
E****E7*=-DC*PHS =*7M&F|***|***C* **F&***ASC***R*A SO***Q***** *****12010630750 828752H30EE00006
    
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OEFO CPU AND MEMORY DIAGNOSTICS: PROGRAM EF MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000

```

2 DECK 4
3 SEQ 0
4 UVMXYZ START 0
5 TREP
6 *
7 ***** SECTOR 27 *****
8 *
9 * PROG EF RIPPLE BITS ON AND OFF TEST - LOWER CORE *
10 *
11 * THIS PROGRAM CHECKS THE ABILITY TO READ AND WRITE UNDER WORST *
12 * CASE CONDITIONS. *
13 *
14 * THE TEST WILL BE PERFORMED IN THE FOLLOWING MANNER: *
15 * 1) THE CORE IS FILLED WITH THE WORST CASE PATTERN, FFFF0000 *
16 * 2) THE PATTERN IS VERIFIED (READ) AT EACH CORE LOCATION *
17 * 3) A NUMBER IS RIPPLED THROUGH CORE *
18 * 4) THE NUMBER IS VERIFIED (READ) AT EACH CORE LOCATION *
19 * 5) STEPS 1-4 ARE REPEATED FOR ALL HEX NUMBERS 00-FF *
20 * 6) ONLY THE AMOUNT OF CORE SET ON THE LEFTMOST ADDRESS *
21 * SWITCH WILL BE TESTED. *
22 * 7) SET UP CONSOLE ADDRESS SWITCHES PRIOR TO RESETTING *
23 * THE HALT. *
24 * 8) FUNCTIONS OF THE CONSOLE ADDRESS SWITCHES (DATASW) ARE: *
25 *
26 * (LEFTMOST) SWITCH 1 SWITCH 2 SWITCH 3+4
27 *
28 * 0 TESTS CORE TO 4K 0 PROGRAM EXECUTED 00 NORMAL POSITION,
29 * 1 TESTS CORE TO 8K ONCE ONLY WC PATTERN FILL.
30 * 2 TESTS CORE TO 12K 1 BYPASS PROGRAM XY ANY OTHER ENTRY
31 * 3 TESTS CORE TO 16K 2 LOOP PROGRAM SETS -EP- HALT AND
32 * 4 TESTS CORE TO 20K 4 COMPLEMENT FILL ALLOWS CE TO SE-
33 * 5 TESTS CORE TO 24K PATTERN USED LECT FILL PATTERN
34 * 6 TESTS CORE TO 28K 6 LOOP & COMPLEMENT ON THESE TO SW.
35 * 7 TESTS CORE TO 32K FILL PATTERN USED A BYTE AT A TIME,
36 * 8 TESTS CORE TO 36K FOR A TOTAL OF 4
37 * 9 TESTS CORE TO 40K BYTES. 00 CAN BE
38 * A TESTS CORE TO 44K USED AS A BYTE OF
39 * B TESTS CORE TO 48K PATTERN AFTER -EP-
40 * C TESTS CORE TO 52K HALT SET (SEE 9)
41 * D TESTS CORE TO 56K
42 * E TESTS CORE TO 60K
43 * F TESTS CORE TO 64K
44 *
45 *
46 * 9) NOTE: TURNING ADDRESS SWITCHES 3+4 (RIGHTMOST) TO A
47 * SETTING OTHER THAN 00 WILL SET AN -EP- (ENTER PATTERN)
48 * HALT WHICH WILL ALLOW THE CE TO ENTER HIS OWN 'WORST
49 * CASE' PATTERN. THE PATTERN IS ENTERED A BYTE AT A TIME
50 * ON SWITCHES 3+4. THE INITIAL SETTING OF SWITCHES TO A
51 * SETTING OTHER THAN 00 SELECTS THIS OPTION. THE INITIAL
52 * SWITCH SETTING IS NOT THE FIRST BYTE OF PATTERN. AFTER
53 * THE -EP- HALT, THE SWITCHES CAN BE SET TO ANY DESIRED
54 * COMBINATION, EVEN TO 00. THE BYTE OF PATTERN THAT IS
55 * ENTERED IS THE SETTING ON SWITCHES 3+4 WHEN THE HALT
56 * IS RESET. THE -EP- HALT IS DISPLAYED FOUR TIMES, THUS
57 *
58 * MEMORY FAILURES WILL BE INDICATED BY:
59 * 1) PROCESSOR CHECK
60 * 2) '8' REGISTER PARITY CHECK
61 *
62 * ALLOWING THE CE TO CHOOSE THE FILL PATTERN.
63 * THE SAR WILL CONTAIN THE FAILING LOCATION
64 *
65 * THE PROGRAM WILL RUN FOR 43 SECONDS PER 8K OF CORE
66 *
67 *
68 *****

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OEFO CPU AND MEMORY DIAGNOSTICS: PROGRAM EF MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000

```

0000 3C 87 0013 USING START,1
0004 F0 7C 3C USING START,2
0007 C2 01 0000 START MVI IPLFLG+1,X'87'
000B C2 02 0000 BEGIN HPL X'3C',X'7C'
000F B0 00 88 LA 0,X'01'
0012 F2 80 07 LA 0,X'02'
0015 BC 00 88 SNS DATASW(,XR2),X'00'
0018 A8 03 87 B8 IPLFLG JC KONT6,X'80'
001C B8 01 87 MVI DATASW(,XR2),X'00'
001F F2 10 8D MNN DATASW-1(,XR2),DATASW(,XR2)
0022 BC FF 89 KONT6 TBN DATASW-1(,XR2),X'01'
0025 A8 00 89 B7 JT LOADER
0029 B9 FF 88 MVI CORISZ-1(,XR2),X'FF'
002C F2 10 14 MZZ CORISZ-1(,XR2),DATASW-1(,X:2)
002F F0 7C 3E EPHALT HPL X'3E',X'7C'
0032 70 00 C5 SNS WCPTRN-2(,XR1),X'00'
0035 5C 00 C4 C5 MVC WCPTRN-3(,XR1),WCPTRN-2(1,XR1)
0039 D2 01 01 LA 1(,XR1),XR1
003C 6D 09 C5 C9 CLC WCPTRN-2(10,XR1),WCPTRN+2(,XR2)
0040 E0 01 2F BNE EPHALT(,XR2)
0043 B8 04 87 TBN DATASW-1(,XR2),X'04'
0046 AC 03 8E CC MVC PATERN(,XR2),CHNGER(4,XR2)
004A F2 90 8E JF KONT5
004D AF 03 8E C7 SLC PATERN(,XR2),WCPTRN(4,XR2)
0051 AC 03 C7 BE MVC WCPTRN(4,XR2),PATERN(,XR2)
0055 AC 03 D5 D6 KONT5 MVC RIPPAT(,XR2),RIPPAT+1(4,XR2)
0059 C2 01 0200 KONT3 LA 512,XR1
005D A8 00 D1 B9 MZZ COUNT2(,XR2),CORISZ-1(,XR2)
0061 AC 01 D0 DC MVC COUNT1(,XR2),X1040(2,XR2)
0065 B8 11 DD TBN RFLAG(,XR2),X'11'
0068 F2 90 2D JF KONT8
006B BC 00 DD MVI RFLAG(,XR2),X'00'
006E 6C 03 D5 D5 MVC 3(,XR1),RIPPAT(4,XR2)
0072 5C 03 07 D3 FILL MVC 7(,XR1),3(4,XR1)
0076 B6 01 CE A FOUR(,XR2),XR1
0079 AE 01 CE C3 ALC COUNT1(,XR2),X0040(2,XR2)
007D E0 01 72 BNE FILL(,XR2)
0080 AF 00 D1 C0 SLC COUNT2(,XR2),X10(1,XR2)
0084 E0 82 59 BL KONT3(,XR2)
0087 B9 11 DD TBF RFLAG(,XR2),X'11'
008A E0 10 72 BT FILL(,XR2)
008D 6C 03 07 CC MVC 7(,XR1),CHNGER(4,XR2)
0091 5F 03 07 D3 SLC 7(,XR1),3(4,XR1)
0095 E0 87 76 B FILMOR(,XR2)
0098 BC 11 DD KONT8 MVI RFLAG(,XR2),X'11'
009B 6C 03 03 C7 MVC 3(,XR1),WCPTRN(4,XR2)
009F B8 FF D5 TBN RIPPAT(,XR2),X'FF'
00A2 AE 03 D5 DA ALC RIPPAT(,XR2),RCOUNT(4,XR2)
00A6 E0 90 72 BF FILL(,XR2)
00A9 B8 02 87 TBN DATASW-1(,XR2),X'02'
00AC E0 10 55 BT KONT5(,XR2)
00AF 3C 1C 016A LOADER MVI BOOT+1,X'1C'
00B3 C0 87 0169 B BOOT
0169 137 BOOT EQU X'169'

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OEFO CPU AND MEMORY DIAGNOSTICS: PROGRAM EF MOD 12

| ERR LOC OBJECT CODE | ADDR STMT | SOURCE STATEMENT |
|-----------------------|-----------|--|
| | 0001 138 | XR1 EQU X'01' |
| | 139 | |
| | 140 | ***** DATA DEFINITIONS |
| | 141 | |
| 00B7 1000 | 00B8 142 | DATASW DC XL2'1000' |
| | 0002 143 | XR2 EQU X'02' |
| 00B9 0000 | 00BA 145 | CORSIZ DC XL2'0' |
| 00BE 00000000 | 00BF 146 | PATERN DC XL4'0' |
| 00BF 00 | 00C0 147 | DC XL1'0' |
| 00C0 10 | 00C2 148 | X10 DC XL1'10' |
| 00C1 0000 | 00C3 149 | X0000 DC XL2'0' |
| 00C3 40 | 00C7 150 | X0040 DC XL1'40' |
| 00C4 FFFF0000 | 00C8 151 | WCPTRN DC XL4'FFFF0000' |
| 00C8 00 | 00C9 152 | DC XL1'0' |
| 00C9 FFFFFFFF | 00CE 153 | CHNGER DC XL4'FFFFFFF' |
| 00CD 0004 | 00D0 154 | FOUR DC XL2'0004' |
| 00CF 0000 | 00D1 155 | COUNT1 DC XL2'0' |
| 00D1 00 | 00D5 156 | COUNT2 DC XL1'0' |
| 00D2 00000000 | 00D6 157 | RIPPAT DC XL4'0' |
| 00D6 00 | 00DA 158 | DC XL1'0' |
| 00D7 01010101 | 00DC 159 | RCOUNT DC XL4'01010101' |
| 00DB 2040 | 00DD 160 | X1040 DC XL2'2040' |
| 00DD 00 | 00DD 161 | RFLAG DC XL1'0' |
| | 00FF 162 | ***** DO NOT ALTER THE ORDER OF ABOVE DATA DEFINITIONS |
| 00DE 0000000000000000 | 00FF 163 | EXTRA DC XL34'0' |
| 00E6 0000000000000000 | 163 | |
| 00EE 0000000000000000 | 163 | |
| 00F6 0000000000000000 | 163 | |
| 00FE 0000 | 163 | |
| | FFFF 164 | END |

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OEFO CPU AND MEMORY DIAGNOSTICS: PROGRAM EF MOD 12

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| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| BEGIN | A | 003 | 0004 | 0073 | |
| BOOT | C | 001 | 0169 | 0137 | 0134* 0135 |
| CHNGER | A | 004 | 00C2 | 0153 | 0096 0121 |
| CORSIZ | A | 002 | 008A | 0145 | 0083* 0084* 0103 |
| COUNT1 | A | 002 | 00D0 | 0156 | 0104* 0112* |
| COUNT2 | A | 001 | 00D1 | 0156 | 0103* 0115* |
| DATASW | A | 002 | 00B8 | 0143 | 0076* 0078* 0079 0079* 0080 0084 0085 0095 0131 |
| EPHALT | A | 003 | 002F | 0088 | 0093 |
| EXTRA | A | 034 | 00FF | 0163 | |
| FILL | A | 004 | 0072 | 0110 | 0113 0119 0129 |
| FILMOR | A | 003 | 0076 | 0111 | 0123 |
| FOUR | A | 002 | 00CE | 0154 | 0111 |
| IPLFLG | A | 003 | 0012 | 0077 | 0072* |
| KONT2 | A | 003 | 0043 | 0095 | 0086 |
| KONT3 | A | 004 | 0059 | 0102 | 0116 |
| KONT5 | A | 004 | 0055 | 0101 | 0097 0132 |
| KONT6 | A | 003 | 001C | 0080 | 0077 |
| KONT8 | A | 003 | 0098 | 0125 | 0106 |
| LOADER | A | 004 | 00AF | 0134 | 0081 |
| PATERN | A | 004 | 00BE | 0146 | 0096* 0099* 0100 |
| RCOUNT | A | 004 | 00DA | 0159 | 0128 |
| RFLAG | A | 001 | 00DD | 0161 | 0105 0108* 0118 0125* |
| RIPPAT | A | 004 | 00D5 | 0157 | 0101 0101* 0109 0127 0128* |
| START | A | 004 | 00D0 | 0072 | 0070 0071 |
| JVWXYZ | A | 001 | 00D0 | 0004 | |
| WCPTRN | A | 004 | 00C7 | 0151 | 0089* 0090 0090* 0092 0092 0099 0100* 0126 |
| XR1 | C | 001 | 0001 | 0138 | 0089 0090 0090 0091 0091* 0092 0102* 0109 0110 0110 0111* 0121 |
| XR2 | C | 001 | 0002 | 0144 | 0122 0122 0126 0076 0078 0079 0079 0080 0083 0084 0084 0085 0092 0093 0095 |
| | | | | | 0105 0108 0109 0111 0112 0112 0113 0115 0115 0116 0118 0119 |
| | | | | | 0121 0123 0125 0126 0127 0128 0128 0129 0131 0132 |
| X0000 | A | 002 | 00C2 | 0149 | |
| X0040 | A | 001 | 00C3 | 0150 | 0112 |
| X10 | A | 001 | 00C0 | 0148 | 0115 |
| X1040 | A | 002 | 00DC | 0160 | 0104 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD***PN*42 48200*EC*827804* CPU*E*MEMORY*TES TS*****MOD*12 84228422***** OEF00000
T+-:|H*D*|A|<H A*CB-***%B82Y G?B8D*+7>-A*H &T$3">E->$;9"HT 2DALO-C90<N* <L E4-D*=A*OEF00001
T+-A5*0411*X-K= 8A.:%##<2Z H,0+ =1:OC1#:Z*POO-D B*R-4$W% )C#>AG )2Z_*?C)S<C5NO CAOK*LE*OEF00002
T+-BO_-G+,-G&O= A*D2*4*C--VW9D)7 -DGIZ*O-<PQ<G=B G),OJ700C @;8"ID >*PE8IA2>*R78AA N|AO* ,.6OEF00003
T+-C, O, /OEZD* .....D**&|* "*****"O'D* ..... A &DAHD* ..... OK2OEF00004
TDOC* ..... ..... ..... ..... ..... ..... ..... OT*OEF00005
E***E7*=-DC*PH$ =*7H&F|***|***C* **F%***ASC***R*A SO***Q ***** 12010630750 82875282OEF00006

```

----- LAST PAGE -----

```

0000 2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP
6 *
7 * SECTOR 28
8 * *****
9 *
10 * PROG FO WORST CASE CORE TEST - LOWER CORE
11 *
12 * THIS PROGRAM DETECTS THE ABILITY TO READ AND WRITE UNDER WORST
13 * CASE CONDITIONS
14 *
15 * THE TEST WILL BE PERFORMED IN THE FOLLOWING MANNER:
16 * 1) THE CORE IS FILLED WITH THE WORST CASE PATTERN; FFFF0000*
17 * 2) THE PATTERN IS VERIFIED (READ) AT EACH CORE LOCATION
18 * 3) INDEX REGISTER 1 (XRI) IS USED TO POINT TO TEST BYTE
19 * 4) READ/REGENERATE EVERY CORE LOCATION
20 * 5) READ/COMPLEMENT/READ/COMPLEMENT EVERY CORE LOCATION
21 * 6) STEPS 4 AND 5 ARE REPEATED
22 * 7) ONLY THE AMOUNT OF CORE SET ON THE LEFTMOST ADDRESS
23 * SWITCH WILL BE TESTED.
24 * 8) SET UP CONSOLE ADDRESS SWITCHES PRIOR TO RESETTING
25 * THE HALT.
26 * 9) FUNCTIONS OF THE CONSOLE ADDRESS SWITCHES (DATASW) ARE:
27 *
28 * (LEFTMOST) SWITCH 1 SWITCH 2 SWITCH 3+4
29 *
30 * 0 TESTS CORE TO 4K 0 PROGRAM EXECUTED 00 NORMAL POSITION,
31 * 1 TESTS CORE TO 8K ONCE ONLY WC PATERN FILL,
32 * 2 TESTS CORE TO 12K BYPASS PROGRAM XY ANY OTHER ENTRY
33 * 3 TESTS CORE TO 16K 2 LOOP PROGRAM SETS -EP- HALT AND
34 * 4 TESTS CORE TO 20K 4 COMPLEMENT FILL ALLOWS CE TO SE-
35 * 5 TESTS CORE TO 24K PATTERN USED LECT FILL PATTERN
36 * 6 TESTS CORE TO 28K 6 LOOP & COMPLEMENT ON THESE TO SW-
37 * 7 TESTS CORE TO 32K FILL PATTERN USED A BYTE AT A TIME,
38 * 8 TESTS CORE TO 36K FOR A TOTAL OF 4
39 * 9 TESTS CORE TO 40K BYTES. 00 CAN BE
40 * A TESTS CORE TO 44K USED AS A BYTE OF
41 * B TESTS CORE TO 48K PATTERN AFTER -EP-
42 * C TESTS CORE TO 52K HALT SET (SEE 10)
43 * D TESTS CORE TO 56K
44 * E TESTS CORE TO 60K
45 * F TESTS CORE TO 64K
46 *
47 *
48 * 10) NOTE: TURNING ADDRESS SWITCHES 3+4 (RIGHTMOST) TO A
49 * SETTING OTHER THAN 00 WILL SET AN -EP- (ENTER PATTERN)
50 * HALT WHICH WILL ALLOW THE CE TO ENTER HIS OWN 'WORST
51 * CASE' PATTERN. THE PATTERN IS ENTERED A BYTE AT A TIME
52 * ON SWITCHES 3+4. THE INITIAL SETTING OF SWITCHES TO A
53 * SETTING OTHER THAN 00 SELECTS THIS OPTION. THE INITIAL
54 * SWITCH SETTING IS NOT THE FIRST BYTE OF PATTERN. AFTER
55 * THE -EP- HALT, THE SWITCHES CAN BE SET TO ANY DESIRED
56 * COMBINATION, EVEN TO 00. THE BYTE OF PATTERN THAT IS
57 * ENTERED IS THE SETTING ON SWITCHES 3+4 WHEN THE HALT
58 * IS RESET. THE -EP- HALT IS DISPLAYED FOUR TIMES, THUS
59 * ALLOWING THE CE TO CHOOSE THE FILL PATTERN.
60 *
61 * MEMORY FAILURES WILL BE INDICATED BY:
62 * 1) PROCESSOR CHECK
63 * 2) 'B' REGISTER PARITY CHECK
64 *
65 * THE SAR WILL CONTAIN THE FAILING LOCATION
66 *
67 * THE PROGRAM WILL RUN FOR SECONDS PER 8K OF CORE
68 *
69 * *****

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OF00 CPU AND MEMORY DIAGNOSTICS: PROGRAM FO MOD 12

OF00 CPU AND MEMORY DIAGNOSTICS: PROGRAM FO MOD 12

ERR LOC OBJECT CODE

ERR LOC OBJECT CODE

ADDR STMT SOURCE STATEMENT

ADDR STMT SOURCE STATEMENT

```

0000 70 USING START,1
0000 71 USING START,2
0004 3C 87 0013 START MVI IPLFLG+1,X'87'
0004 F0 3C 6F BEGIN HPL X'6F',X'3C' PRE-EXECUTION HALT
0007 C2 01 0000 LA 0,X'01' .INIT XR1
000B C2 02 0000 LA 0,X'02' & XR2
0012 F0 00 D5 SNS DATASW(XR2),X'00' .READ ADDRESS SWITCHES
0015 F0 00 D5 SNS KONT6,X'80' .ENABLE SNS WHEN SYS RESET
0018 A8 03 D4 D5 IPLFLG JC DATASW(XR2),X'00' .IN NORMAL RUNNING READ THE
001C B8 01 D4 MNN DATASW-1(XR2),DATASW(XR2) SWITCH TO SET CORSIZ ONLY
001F F2 10 A6 KONT6 TBN DATASW-1(XR2),X'01' .TEST IF BYPASS SWITCH ON
0022 BC FE D6 MVI CORSIZ-1(XR2),X'FE' .DETERMINE AMOUNT OF CORE
0025 A8 00 D6 D4 MZZ CORSIZ-1(XR2),DATASW-1(XR2) TO TEST ABOVE 512 BYTES
0029 B9 FF D5 TBF DATASW(XR2),X'FF' .TEST IF CE WANTS TO INSERT
002C F2 10 14 JT KONT2 WC PATTERN. IF NOT, CONTINUE
002F F0 7C 3E EPHALT HPL X'3E',X'7C' .ENTER PATTERN (EP) HALT. IF
0032 70 00 E2 SNS WCPTRN-2(XR1),X'00' CE WANTS HIS OWN PATTERN,
0035 5C 00 E1 E2 MVC WCPTRN-3(XR1),WCPTRN-2(XR1) THE -EP- HALT WILL COME ON
0039 D2 01 01 LA 1(XR1),XR1 4 TIMES. THE CE SELECTS ONE
003C 6D 09 E2 E6 CLC WCPTRN-2(XR1),WCPTRN-2(XR2) BYTE OF PATTERN AT A TIME.
0040 E0 01 2F BNE EPHALT(XR2) WHEN -EP- HALT RESET, BYTE
0043 B8 04 D4 KONT2 TBN DATASW-1(XR2),X'04' .CHECK IF WANT WC COMP PTRN
0046 AC 03 D8 E9 MVC PATERN(XR2),CHNGER(4,XR2) .INIT WC COMPLEMENT PATTERN
004A F2 90 08 JF KONT3 .SKIP WC IF WC COMP WANTED
004D AF 03 D8 E4 SLC PATERN(XR2),WCPTRN(4,XR2) .INIT WC PATERN
0051 AC 03 E4 D8 MVC WCPTRN(4,XR2),PATERN(XR2)
0055 B5 01 F6 KONT3 L X0100(XR2),XR1 .INIT XR1
0058 A8 00 EE D6 MZZ COUNT2(XR2),CORSIZ-1(XR2) .INIT CORSIZE COUNTER
005C AC 01 ED F0 MVC COUNT1(XR2),X1040(2,XR2) .INIT 4K COUNTER
0060 6C 03 03 E4 MVC 3(XR1),WCPTRN(4,XR2) .MOVE PATTERN INTO POSITION
0064 5C 03 07 03 MVC 7(XR1),3(4,XR1) .MOVE PATTERN FOUR BYTES
0068 B6 01 EB FILMOR A FOUR(XR2),XR1 HIGHER & INCREMENT XR1
006B AE 01 ED E0 ALC COUNT1(XR2),X0040(2,XR2) .CHECK IF 4K OF CORE FILLED
006F E0 01 64 BNE FILL(XR2) IF NOT, FILL SOME MORE
0072 AF 00 EE DD SLC COUNT2(XR2),X10(1,XR2) .DECREMENT CORSIZE COUNTER
0076 E0 82 84 BL KONT1(XR2) BRNCH WHEN ALL CORE FILLED
0079 6C 03 07 E9 MVC 7(XR1),CHNGER(4,XR2) .COMPLEMENT THE FILL PATERN
007D 5F 03 07 03 SLC 7(XR1),3(4,XR1) AND PLACE IN NEXT LOCATION
0081 E0 87 68 B FILMOR(XR2) .FILL NEXT 4K OF CORE
0084 AC 01 ED D7 KONT1 MVC COUNT1(XR2),CORSIZ(2,XR2) .INIT CORSIZE COUNTER
0088 B5 01 F6 L X0100(XR2),XR1 .SET XR1 TO POINT TEST EYTE
008B 5C 00 00 00 SELECT MVC 0(1,XR1),0(XR1) .EACH CORE LOCATION IS
008F B6 01 F3 A ONE(XR2),XR1 SELECTED TWO TIMES
0092 AF 01 ED F3 SLC COUNT1(2,XR2),ONE(XR2)
0096 E0 01 88 BNE SELECT(XR2)
0099 AC 01 ED D7 MVC COUNT1(XR2),CORSIZ(2,XR2) .INIT CORESIZE COUNTER
009D B5 01 F6 L X0100(XR2),XR1 .SET XR1 TO POINT TEST BYTE
00A0 BC 00 EE MVI COUNT2(XR2),X'00' .SET UP TWO COUNTER
00A3 BC FF AB KONT9 MVI CHNGR+1(XR2),X'FF' .COMPLEMENT THE DATA IN THE
00A6 9F 00 AB 00 SLC CHNGR+1(1,XR2),0(XR1) LOCATION XR1 POINTS TO
00AA 7C 00 00 00 CHNGR MVI 0(1,XR1),X' .RE-SELECT LOC XR1 POINTS
00AD 5C 00 00 00 MVC 0(1,XR1),0(XR1) .RESTORE (COMPLEMENT AGAIN)
00B1 AE 00 EE F1 ALC COUNT2(1,XR2),X80(XR2) THE BYTE XR1 POINTS TO
00B5 E0 01 A3 BNE KONT9(XR2)
00B8 B6 01 F3 A ONE(XR2),XR1 .INCREMENT XR1 AND GO
00BB AF 01 ED F3 SLC COUNT1(XR2),ONE(2,XR2) COMPLEMENT & RECOMPLEMENT
00BF E0 01 A3 BNE KONT9(XR2) TILL ALL CORE TESTED

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00C2 B8 02 D4 138 TBN DATASW-1(XR2),X'02' .TEST IF 'LOOP' OPTION ON
00C5 E0 10 55 139 BT KONT3(XR2) .LOOP PROGRAM IF LOOP ON
00C8 3C 00 016E 141 LOADER MVI BOOT+5,X'00'
00CC 3C 1D 016A 142 MVI BOOT+1,X'1D'
00D0 C0 87 0169 143 B BOOT
00D4 1000 00D5 144 EQU X'169'
00D6 0000 00D6 145 ***** DATA DEFINITIONS
00D8 00000000 00D7 146 DATASW DC XL2'1000'
00DC 00 00D8 147 XR2 EQU X'02'
00DD 10 00D9 148 CORSIZ DC XL2'0'
00DE 0000 00DA 149 PATERN DC XL4'0'
00E0 40 00DB 150 DC XL1'0'
00E1 FFFF0000 00DC 151 X10 DC XL1'10'
00E5 00 00DD 152 X0000 DC XL2'0'
00E6 FFFFFFFF 00DE 153 X0040 DC XL1'40'
00EA 0004 00DF 154 WCPTRN DC XL4'FFFFFF0000'
00EC 0000 00E0 155 CHNGER DC XL1'0'
00EE 00 00E1 156 FOUR DC XL4'FFFFFFF'
00EF 2040 00E2 157 COUNT1 DC XL2'0004'
00F1 80 00E3 158 COUNT2 DC XL1'0'
00F2 0001 00E4 159 X1040 DC XL2'2040'
00F4 00 00E5 160 X80 DC XL1'80'
00F5 020J 00E6 161 ONE DC XL2'0001'
00F7 0000000000000000 00E7 162 X0100 DC XL1'0'
00FF 00 00E8 163 ***** DO NOT ALTER THE ORDER OF ABOVE DATA DEFINITIONS
0001 170 XR1 EQU X'01'
00FF 171 FFFF END

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CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|---------|---|-----|-------|------|---|
| BEGIN | A | 003 | 0004 | 0073 | |
| BOOT | C | 001 | 0169 | 0145 | 0141* 0142* 0143 |
| CHNGER | A | 004 | 00E9 | 0159 | 0096 0113 |
| CHNGR | A | 003 | 00AA | 0129 | 0127* 0128* |
| CORSIZ | A | 002 | 00D7 | 0151 | 0083* 0084* 0102 0117 0124 |
| COUNT1 | A | 002 | 00ED | 0161 | 0103* 0107* 0117* 0121* 0124* 0135* |
| COUNT2 | A | 001 | 00EE | 0162 | 0102* 0110* 0126* 0131* |
| DATASH | A | 002 | 00D5 | 0149 | 0076* 0078* 0079 0079* 0080 0084 0085 0095 0138 |
| EPHALT | A | 003 | 002F | 0088 | 0093 |
| EXTRA | A | 009 | 00FF | 0169 | |
| FILL | A | 004 | 0064 | 0105 | 0108 |
| FILMOR | A | 003 | 0068 | 0106 | 0115 |
| FOUR | A | 002 | 00EB | 0160 | 0106 |
| IPLFLG | A | 003 | 0012 | 0077 | 0072* |
| KONT1 | A | 004 | 0084 | 0117 | 0111 |
| KONT2 | A | 003 | 0043 | 0095 | 0086 |
| KONT3 | A | 003 | 0055 | 0101 | 0097 0139 |
| KONT6 | A | 003 | 001C | 0080 | 0077 |
| KONT9 | A | 003 | 00A3 | 0127 | 0132 0136 |
| LOADER | A | 004 | 00C8 | 0141 | 0081 |
| ONE | A | 002 | 00F3 | 0165 | 0120 0121 0134 0135 |
| PATTERN | A | 004 | 00D8 | 0152 | 0096* 0099* 0100 |
| SELECT | A | 004 | 008B | 0119 | 0122 |
| START | A | 004 | 0000 | 0072 | 0070 0071 |
| UVWXYZ | A | 001 | 0000 | 0004 | 0089* 0090 0090* 0092 0092 0099 0100* 0104 |
| WCPTRN | A | 004 | 00E4 | 0157 | 0089 0090 0090 0091 0091* 0092 0101* 0104 0105 0105 0106* 0113 |
| XR1 | C | 001 | 0001 | 0170 | 0114 0114 0118* 0119 0119 0120* 0125* 0128 0129 0130 0130 0134* |
| XR2 | C | 001 | 0002 | 0150 | 0076 0078 0079 0079 0080 0083 0084 0084 0085 0092 0093 0095 |
| | | | | | 0096 0096 0099 0099 0100 0100 0101 0102 0102 0103 0103 0104 |
| | | | | | 0106 0107 0107 0108 0110 0110 0111 0113 0115 0117 0117 0118 |
| | | | | | 0120 0121 0121 0122 0124 0124 0125 0125 0127 0128 0131 0131 |
| | | | | | 0132 0134 0135 0135 0136 0138 0139 |
| X0000 | A | 002 | 00DF | 0155 | 0107 |
| X0040 | A | 001 | 00E0 | 0156 | |
| X0100 | A | 002 | 00F6 | 0167 | 0101 0118 0125 |
| X10 | A | 001 | 00D0 | 0154 | 0110 |
| X1040 | A | 002 | 00F0 | 0163 | 0103 |
| X80 | A | 001 | 00F1 | 0164 | 0131 |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

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*GBK*GBD***PN*42 48200*EC*827804* CPU* &*MEMORY*TES TS*****MOD*12 84228422*****OF000000
T+--:|H*DM*2$2H A**CB**%*CN2Y* G?CND*|M5$-A5|H &Z,3=5D-5_K9**P 2DAL0-C90*+I*+G S4-D*MLUOF000001
T+-A5*0418>$-K= 8A(K%*?Z2Z*H,0| $9HOC9(>5*-EY*+# 0,*G_2FUC*=J*0* C_-G,,-G_8+*ARR2 #_4=3*OF000002
T+-B08HHD$<G:NA CA0|-/6S%:7P_&G 6P****.QA2:2A#-| -Q>%:7P_&G6?C >?|=,X0B,*GO**EO *****3RYOF000003
T+-C,,-C>2;AY#Q A2:2A#-|-E.8_L -DEMA**E>|A4AE2B G*DU&***** &**A**2**C**** *%&*,DOF000004
TDOC*****HDB**D *-***** ***** ***** ***** ***** *****2.YOF000005
E****E7*=-DC*PH$ =*7M&F|***|***C* **F%***ASC***R*A SO***Q***** *****12010630750 828751Q-OF000006
    
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OF10 CPU AND MEMORY DIAGNOSTICS: PROGRAM F1 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000

```

3  DECK 4
4  SEQ 0
5  START 0
6  TREP
7  SECTORS 29 & 30
8  *****
9  PROG F1 WORST CASE CORE TEST - UPPER CORE
10 THIS PROGRAM DETECTS THE ABILITY TO READ & WRITE
11 UNDER WORST CASE CONDITIONS.
12 *****
13 ** WARNING **
14 *****
15 **
16 ** ALTHOUGH THIS PROGRAM HAS PROVISIONS TO RE-
17 ** START AFTER THE CPU HAS BEEN POWERED DOWN, NO
18 ** GUARANTEES ARE MADE AS TO THE CONTENTS OF CORE
19 ** OR TO THE ABILITY TO RE-START THE PROGRAM ONCE
20 ** THE CPU HAS BEEN POWERED DOWN.
21 **
22 ** IF ERROR INDICATIONS ARE PRESENT AFTER
23 ** POWERING UP--DO NOT TRY TO DETERMINE THE
24 ** CAUSE OF FAILURE--RELOAD THE PROGRAM.
25 **
26 *****
27 AFTER THE WORST CASE PATTERN HAS BEEN PLACED IN CORE
28 THE PROGRAM WILL
29 1) READ/REGEN FROM EVERY LOCATION
30 2) READ/COMPLEMENT/READ/COMPLEMENT EVERY LOCATION
31 3) FILL CORE WITH WORST CASE COMPLEMENT PATTERN
32 4) REPEAT STEPS (1) & (2)
33 5) ONLY THE AMOUNT OF CORE SET ON THE LEFTMOST ADDRESS
34 SWITCH WILL BE TESTED, THE OTHER ADDRESS SWITCHES WILL
35 NOT BE READ
36 6) TO GAIN CONTROL OF THE CONSOLE ADDRESS SWITCHES, THE
37 CE MUST SET SWITCH 3 OR 4 TO OTHER THAN ZERO PRIOR TO
38 COMPLETION OF FIRST PASS WITH STANDARD WORST CASE PATTERN
39 7) SET UP CONSOLE ADDRESS SWITCHES PRIOR TO RESETTING THE
40 HALT
41 8) FUNCTIONS OF CONSOLE ADDRESS SWITCHES (DATASW) ARE:
42
43 (LEFTMOST) SWITCH 1 SWITCH 2 SWITCH 3+4
44
45 0 TESTS CORE TO 4K 0 PROGRAM EXECUTED 00 NORMAL POSITION,
46 1 TESTS CORE TO 8K ONCE ONLY WC PATERN FILL.
47 2 TESTS CORE TO 12K 1 BYPASS PROGRAM XY ANY OTHER ENTRY
48 3 TESTS CORE TO 16K 2 LOOP PROGRAM SETS-EP-HALT AND
49 4 TESTS CORE TO 20K 4 COMPLEMENT FILL ALLOWS CE TO SE-
50 5 TESTS CORE TO 24K 6 PATTERN USED LECT FILL PATTERN
51 6 TESTS CORE TO 28K 8 LOOP & COMPLEMENT ON THESE TWO SW.
52 7 TESTS CORE TO 32K FILL PATTERN USED A BYTE AT A TIME
53 8 TESTS CORE TO 36K 8 LOOP ON HIGHEST BSM FOR A TOTAL OF 4
54 9 TESTS CORE TO 40K (SEE 10) BYTES. 00 CAN BE
55 A TESTS CORE TO 44K USED AS A BYTE OF
56 B TESTS CORE TO 48K PATTERN AFTER-EP
57 C TESTS CORE TO 52K HALT SET (SEE 9)
58 D TESTS CORE TO 56K
59 E TESTS CORE TO 60K
60 F TESTS CORE TO 64K

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70 * 9) NOTE: TURNING DATA SWITCHES 3+4 (RIGHTMOST) TO A
71 * SETTING OTHER THAN 00 WILL SET AN -EP- (ENTER PATTERN)
72 * HALT WHICH WILL ALLOW THE CE TO ENTER HIS OWN 'WORST
73 * CASE' PATTERN. THE PATTERN IS ENTERED A BYTE AT A TIME
74 * ON SWITCHES 3+4. THE INITIAL SETTING OF SWITCHES TO A
75 * SETTING OTHER THAN 00 SELECTS THIS OPTION. THE INITIAL
76 * SWITCH SETTING IS NOT THE FIRST BYTE OF PATTERN. AFTER
77 * THE -EP- HALT, THE SWITCHES CAN BE SET TO ANY DESIRED
78 * COMBINATION, EVEN TO 00. THE BYTE OF PATTERN THAT IS
79 * ENTERED IS THE SETTING ON SWITCHES 3+4 WHEN THE HALT
80 * IS RESET. THE -EP- HALT IS DISPLAYED FOUR TIMES, THUS
81 * ALLOWING THE CE TO CHOOSE THE FILL PATTERN.
82 *
83 *
84 * 10) NOTE:
85 * FOR SWITCH SETTINGS 4 AND ABOVE, SWITCH 2 SETTING 8
86 * WILL LOOP THE PROGRAM IN THE HIGHEST BSM OR SELECTED
87 * PORTION THEREOF (MEMORY BSM = 16K OF CORE). WHEN
88 * SCHMOODING, THE NEXT BSM IS CHOSEN BY INCREASING THE
89 * AMOUNT OF CORE TO BE TESTED BY 16K. THE PROGRAM WILL
90 * THEN LOOP ON THE HIGHEST BSM.
91 *
92 * EXAMPLES:
93 * SWITCH 1 SET TO 3, PROGRAM LOOPS 0 TO 16K
94 * SWITCH 1 SET TO 4, PROGRAM LOOPS 16 TO 20K
95 * SWITCH 1 SET TO 5, PROGRAM LOOPS 16 TO 24K
96 * SWITCH 1 SET TO 6, PROGRAM LOOPS 16 TO 28K
97 * SWITCH 1 SET TO 7, PROGRAM LOOPS 16 TO 32K
98 * SWITCH 1 SET TO 8, PROGRAM LOOPS 32 TO 36K
99 * SWITCH 1 SET TO A, PROGRAM LOOPS 32 TO 44K
100 * SWITCH 1 SET TO B, PROGRAM LOOPS 32 TO 48K
101 * SWITCH 1 SET TO C, PROGRAM LOOPS 48 TO 52K
102 * SWITCH 1 SET TO F, PROGRAM LOOPS 48 TO 64K
103 *
104 *
105 * MEMORY FAILURES WILL BE INDICATED BY
106 * 1) PROCESSOR CHECK &
107 * 2) 'B' REG PARITY CHECK
108 * & SAR WILL CONTAIN THE FAILING LOCATION.
109 *
110 * THE PROGRAM WILL RUN FOR 30 SECONDS ON A 64K
111 * MEMORY & PROPORTIONATELY LESS TIME ON SMALLER
112 * MEMORIES.
113 *
114 * *****
115 *
116 * 0000 F0 3C 03 PRE-EXECUTION HALT
117 HALT1 HPL X'03',X'3C'
118 *****
119 *
120 * THIS LOADER WILL LOAD THE SECOND SECTOR OF THIS
121 * PROGRAM AND THEN BRANCH TO GIVE IT CONTROL.
122 *
123 * *****
124 *
125 *
126 *
127 * J SECOLD
128 * HPL X'03',X'3C' F1 HALT
129 * TIO HALTLD,ERR TEST FOR ERROR BEFORE DOING READ
130 * LIO DDFADR,DFDR
131 * SIO LOAD7,DFCR
132 * TIO *BUSY READ SECOND SECTOR OF PROGRAM
133 * TIO HALTLD,ERR LOOP UNTIL DISK BUSY DROPS
134 * J FRSTRY TEST FOR ERROR AFTER DISK SIO
135 *

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|-------------|------|------|--------|-----------------------------------|
| 0023 | 0025 | 0024 | 136 | LOAD7 | DC AL2(*+2) |
| 0025 | 0000010000 | 0029 | 137 | DC | XL5'0000010000' |
| 002A | 1E00010000 | 002E | 138 | DC | XL5'1E00010000' |
| 002F | 0100 | 0030 | 139 | DDFADR | DC AL2(256) |
| | | 004A | 140 | USING | WCPTRN-3,1 |
| | | 004A | 141 | USING | WCPTRN-3,2 |
| | | 004A | 142 | FRSTRY | SNS DATASW,X'00' |
| | | 004A | 143 | MVI | DATASW,X'00' |
| | | 004A | 144 | MNN | DATASW-1,DATASW |
| | | 004A | 145 | LA | WCPTRN-3,X'01' |
| | | 004A | 146 | LA | WCPTRN-3,X'02' |
| | | 004A | 147 | J | KONT6 |
| | | 004D | 148 | WCPTRN | DC XL4'FFFF0000' |
| | | 004E | 149 | RESTRT | HPL X'03',X'3C' |
| | | 0051 | 150 | SNS | DATASW(,XR2),X'00' |
| | | 0054 | 151 | TBN | DATASW-1(,XR2),X'01' |
| | | 0057 | 152 | BF | KONT6(,XR2) |
| | | 005A | 153 | HERE | A X0100(,XR2),XR2 |
| | | 005D | 154 | J | LOADER |
| | | 0060 | 155 | KONT6 | MZZ CORSIZ-1(,XR2),DATASW-1(,XR2) |
| | | 0064 | 156 | L | CORSIZ(,XR2),X'01' |
| | | 0067 | 157 | L | CORSIZ(,XR2),X'02' |
| | | 006A | 158 | SHIFT | MVC 255(256,XR2),WCPTRN+252 |
| | | 006F | 159 | ST | SHIFT+4(,XR2),XR2 |
| | | 0072 | 160 | MVI | SHIFT+4(,XR2),X'FF' |
| | | 0075 | 161 | ST | SETUP+3(,XR2),XR2 |
| | | 0078 | 162 | A | X0100(,XR2),XR2 |
| | | 007B | 163 | SHIFT1 | MVC 255(256,XR2),COMHLT+251 |
| | | 0080 | 164 | ST | SHIFT1+4(,XR1),XR2 |
| | | 0083 | 165 | MVI | SHIFT1+4(,XR1),X'FF' |
| | | 0086 | 166 | A | FF00(,XR1),XR2 |
| | | 0089 | 167 | B | KONT7(,XR2) |
| | | 008C | 168 | KONT7 | TBF DATASW(,XR2),X'FF' |
| | | 008F | 169 | JT | KONT2 |
| | | 0092 | 170 | A | X0100(,XR2),XR2 |
| | | 0095 | 171 | J | LDWRST |
| | | 0098 | 172 | KONT2 | L CORSIZ(,XR2),XR1 |
| | | 009B | 173 | MVC | 6,PRLOAD+2(7,XR2) |
| | | 00A0 | 174 | A | NEG4(,XR2),XR1 |
| | | 00A3 | 175 | MVC | 3(4,XR1),7(,XR1) |
| | | 00A7 | 176 | TBN | DATASW-1(,XR2),X'04' |
| | | 00AA | 177 | JF | FILL |
| | | 00AD | 178 | KONTX | MVC 3(4,XR1),XFFFF(,XR2) |
| | | 00B1 | 179 | SLC | 3(4,XR1),7(,XR1) |
| | | 00B5 | 180 | FILL | A NEG4(,XR2),XR1 |
| | | 00B8 | 181 | MVC | 3(4,XR1),7(,XR1) |
| | | 00BC | 182 | BE | KONTY(,XR2) |
| | | 00BF | 183 | ST | PAD(,XR2),XR1 |
| | | 00C2 | 184 | TBF | PAD(,XR2),X'FF' |
| | | 00C5 | 185 | TBF | PAD-1(,XR2),X'0F' |
| | | 00C8 | 186 | BF | FILL(,XR2) |
| | | 00CB | 187 | KONTE | A NEG4(,XR2),XR1 |
| | | 00CE | 188 | TBN | DATASW-1(,XR2),X'08' |
| | | 00D1 | 189 | TBF | PAD-1(,XR2),X'30' |

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE | STATEMENT |
|---------|---------------|------|--------|--------|------------------------------|
| 00D4 | E0 90 63 | 204 | BF | | KONTX(,XR2) |
| 00D7 | 2C 06 0006 EE | 205 | KONTY | MVC | 6,PRLOAD+2(7,XR2) |
| 00DC | B5 01 F4 | 206 | L | | CORSIZ(,XR2),XR1 |
| 00DF | B6 01 F9 | 207 | KONTZ | A | NEG4(,XR2),XR1 |
| 00E2 | 5C 03 03 03 | 208 | SELCTA | MVC | 3(4,XR1),3(,XR1) |
| 00E6 | F2 81 1D | 209 | JE | | KONTB |
| 00E9 | B4 01 FD | 210 | ST | | PAD(,XR2),XR1 |
| 00EC | B8 08 F1 | 211 | TBN | | DATASW-1(,XR2),X'08' |
| 00EF | B9 FF FD | 212 | TBF | | PAD(,XR2),X'FF' |
| 00F2 | B9 3F FC | 213 | TBF | | PAD-1(,XR2),X'3F' |
| 00F5 | E0 90 95 | 214 | BF | | KONTZ(,XR2) |
| 00F8 | B5 01 F4 | 215 | KONTA | L | CORSIZ(,XR2),XR1 |
| 00FB | 2C 06 0006 EE | 216 | MVC | | 6,PRLOAD+2(7,XR2) |
| 0100 | | 217 | ORG | * | |
| | | 218 | TREP | | |
| 0100 | B6 01 F8 | 219 | KONTD | A | XFFFF(,XR2),XR1 |
| 0103 | E0 20 DF | 220 | BNOL | | KONTU(,XR2) |
| 0106 | BC FF C8 | 221 | MVI | | CHNG1+1(,XR2),X'FF' |
| 0109 | 9C 00 C8 00 | 222 | MVC | | CHNG2+1(1,XR2),0(,XR1) |
| 010D | AF 00 C8 C8 | 223 | SLC | | CHNG1+1(1,XR2),CHNG2+1(,XR2) |
| 0111 | 7C 00 00 | 224 | MVI | | 0(,XR1),*--* |
| 0114 | 7C 00 00 | 225 | CHNG2 | MVI | 0(,XR1),*--* |
| 0117 | B4 01 FD | 226 | ST | | PAD(,XR2),XR1 |
| 011A | B8 08 F1 | 227 | TBN | | DATASW-1(,XR2),X'08' |
| 011D | B9 FF FD | 228 | TBF | | PAD(,XR2),X'FF' |
| 0120 | B9 3F FC | 229 | TBF | | PAD-1(,XR2),X'3F' |
| 0123 | E0 90 B6 | 230 | BF | | KONTD(,XR2) |
| 0126 | E0 87 4E | 231 | B | | KONT2(,XR2) |
| 0129 | B8 02 F1 | 232 | KONTU | TBN | DATASW-1(,XR2),X'02' |
| 012C | E0 10 4E | 233 | BT | | KONT2(,XR2) |
| 012F | E0 87 10 | 234 | B | | HERE(,XR2) |
| 0132 | C2 02 0000 | 235 | SETUP | LA | *--*XR2 |
| 0136 | E0 87 04 | 236 | PRLOAD | B | RESTRT(,XR2) |
| 0139 | FF00 | 237 | | | |
| 013B | 0000 | 238 | | | |
| 013D | 0E00 | 239 | | | |
| 013F | FFFFFFF | 240 | | | |
| 0143 | FC | 241 | | | |
| 0145 | 0100 | 242 | | | |
| 0146 | 0000 | 243 | | | |
| 0149 | | 244 | | | |
| 0149 | | 245 | | | |
| 0149 | | 246 | | | |
| 0149 | | 247 | | | |
| 0149 | | 248 | | | |
| 0149 | | 249 | | | |
| 0149 | | 250 | | | |
| 0149 | | 251 | | | |
| 0149 | | 252 | | | |
| 0149 | | 253 | | | |
| 0149 | | 254 | | | |
| 0149 | | 255 | | | |
| 0149 | | 256 | | | |
| 0149 | | 257 | | | |
| 0149 | | 258 | | | |
| 0149 | | 259 | | | |
| 0149 | | 260 | | | |

0148 0000

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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262 *****
263 *
264 * THIS LOADER WILL LOAD THE LOADER SECTOR WHICH WILL LOAD
265 * PROGRAM E8 WHICH WILL GIVE AN 8P HALT. YOU MAY THEN
266 * SELECT TO RE-RUN MEMORY TESTS, SELECT SPECIAL FEATURE
267 * TESTS OR LOAD DCP.
268 *
269 *****
270
014A 271 USING SECOND,2
272 SECOND LA SECOND,X'02'
014E 273 COMHLT HPL X'03',X'3C' F1 HALT
0151 274 LOADER SNS DSW(XR2),X'00' READ THE DATA SWITCHES
0154 275 TBF DSW(XR2),X'FF' AND BRANCH TO 0000 IF
0157 276 BF *-* A WORST CASE PATTERN IS WANTED
277
0158 277 TIO COMHLT(XR2),ERR TEST FOR ERROR BEFORE DOING SEEK
015E 278 ST ACOM(XR2),XR2
0161 279 ALC ACOM(XR2),SET1+2(1,XR2)
0165 280 ALC ACOM(XR2),ONE(XR2)
0169 281 ST ALOAD(XR2),XR2
016C 282 ALC ALOAD(XR2),SET2+2(1,XR2)
0170 283 ALC ALOAD(XR2),ONE(XR2)
0174 284 SET1 LIO ACOM(XR2),DFCR
0177 285 SIO X'00',X'CO' SEEK HEAD 0
017A 286 LIO DAFADR(XR2),DFCR
017D 287 ALOAD(XR2),DFCR
0180 288 SET2 LIO DIAG,READ
0183 289 WAIT TIO WAIT(XR2),BUSY READ 1 SECTOR
0186 290 TIO COMHLT(XR2),ERR LOOP UNTIL DISK BUSY DROPS
0189 291 MVI BOOT+5,X'00' TEST FOR ERROR AFTER DISK SIO
018D 292 MVI BOOT+1,X'15' SETUP TO READ SECTOR 21,
0191 293 B PGM E8 FOR 8P HALT
294 BOOT
295
0169 296 BOOT EQU X'169'
00C6 297 DFDR EQU X'C6'
00C4 298 DFDR EQU X'C4'
00C2 299 BUSY EQU X'C2'
0002 300 DIAG EQU X'02'
00C1 301 READ EQU X'C1'
00C0 302 ERR EQU X'CO'
303
0195 304 LDWRST MVI COUNT(XR2),X'04' INITIALIZE COUNT TO 04
0198 305 EPHALT HPL X'3E',X'7C' *EP' HALT
019B 306 SNS WCPTRN-2(1,XR1),X'00' THE CE MAY NOW ALTER THE
019E 307 MVC WCPTRN-3(1,XR1),WCPTRN-2(1,XR1) WORST CASE PATTERN
01A2 308 LA 1(XR1),XR1 GO TO KONT2 AFTER FOUR
01A5 309 SLC COUNT(XR2),ONE(XR2)
01A9 310 BNZ EPHALT(XR2)
311
01AC 312 ST OUT+3(1,XR2),XR2
01AF 313 MVI OUT+3(1,XR2),X'4E'
01B2 314 SLC OUT+3(1,XR2),ONEC(2,XR2)
01B6 315 A XFF00(XR2),XR2 SUBTRACT 256 FROM XR2
01B9 316 MVI 0(1,XR1),X'FD' REPAIR RESTRT A'FTER LOAD OF WC. PATRN.
01BC 317 OUT B *-*
318
01C0 318 ONE DC XL1'01'
01C1 319 XFF00 DC XL2'FF00'
01C3 320 COUNT DC XL1'04'
01C4 321 DSW DC XL2'0'
01C6 322 ONEC DC XL2'0100'
323
01C8 324 ACOM DC AL2(0)
01CA 325 DC XL5'0000010000'
01CF 326 DC XL5'0000010000'
01D4 327 DC XL5'0000010000'
01D6 328 ALOAD DC AL2(0)
01DA 329 DC XL5'0000010000'
    
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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

01DB 0100010000 01DF 330 DC XL5'0100010000'
01E0 00FD 01E1 331 DAFADR DC AL2(253)
      332
      FFFF 333 END
    
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CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|--|
| ACOM | A | 002 | 01C9 | 0325 | 0279* 0280* 0281* 0285 |
| ALDAD | A | 002 | 01D5 | 0328 | 0282* 0283* 0284* 0288 |
| BOOT | C | 001 | 0169 | 0296 | 0292* 0293* 0294* |
| BUSY | C | 001 | 00C2 | 0299 | 0132 0290 |
| CHNG1 | A | 003 | 0111 | 0230 | 0227* 0229* |
| CHNG2 | A | 003 | 0114 | 0231 | 0228* 0229 |
| COMHLT | A | 003 | 014E | 0273 | 0168 0278 0291 |
| CORSIZ | A | 002 | 013E | 0252 | 0160* 0161 0162 0180 0207 0219 |
| COUNT | A | 001 | 01C3 | 0321 | 0304* 0309* |
| DAFADR | A | 002 | 01E1 | 0331 | 0287 |
| DATASW | A | 002 | 013C | 0251 | 0142* 0143* 0144 0144* 0152* 0154 0160 0175 0186 0202 0214 0234 |
| DDFADR | A | 002 | 0030 | 0139 | 0241 |
| DFCR | C | 001 | 00CC | 0297 | 0129 |
| DFDR | C | 001 | 00C4 | 0298 | 0130* 0285* 0288* |
| DIAG | C | 001 | 0002 | 0300 | 0129* 0287* |
| DSW | A | 002 | 01C5 | 0322 | 0131 0289 |
| EPHALT | A | 003 | 0198 | 0305 | 0274* 0275 |
| ERR | C | 001 | 00C0 | 0302 | 0310 |
| FILL | A | 002 | 013A | 0250 | 0128 0133 0278 0291 |
| FRSTRY | A | 004 | 00B5 | 0192 | 0171 |
| HALTLD | A | 003 | 0031 | 0142 | 0187 0199 |
| HALT1 | A | 003 | 0000 | 0117 | 0134 |
| HERE | A | 003 | 005A | 0157 | 0128 0133 |
| KONTA | A | 003 | 00F8 | 0219 | 0244 |
| KONTB | A | 003 | 0106 | 0227 | 0211 |
| KONTD | A | 003 | 0100 | 0225 | 0237 |
| KONTE | A | 003 | 00C8 | 0201 | 0226 |
| KONTU | A | 003 | 0129 | 0241 | 0204 |
| KONTX | A | 004 | 00AD | 0189 | 0194 |
| KONTY | A | 005 | 00D7 | 0206 | 0217 |
| KONTZ | A | 003 | 00DF | 0209 | 0176 0239 0242 |
| KONT2 | A | 003 | 0098 | 0180 | 0147 0155 |
| KONT6 | A | 004 | 0060 | 0160 | 0172 |
| KONT7 | A | 003 | 008C | 0175 | 0178 |
| LDWRST | A | 003 | 0195 | 0304 | 0158 |
| LOADER | A | 003 | 0151 | 0274 | 0130 |
| LOAD7 | A | 002 | 0024 | 0136 | 0183 0192 0201 0209 |
| NEG4 | A | 001 | 0143 | 0254 | 0281 0284 0309 |
| ONE | A | 001 | 01C0 | 0319 | 0314 |
| ONEC | A | 002 | 01C7 | 0323 | 0312* 0313* 0314* |
| OUT | A | 004 | 018C | 0317 | 0196* 0197 0198 0203 0213* 0215 0216 0233* 0235 0236 |
| PAD | A | 002 | 0147 | 0256 | 0181 0206 0220 |
| PRLOAD | A | 003 | 0136 | 0247 | 0131 0289 |
| READ | C | 001 | 00C1 | 0301 | 0247 |
| RESTR | A | 003 | 004E | 0150 | 0126 |
| SECOLD | A | 004 | 0009 | 0128 | 0271 0272 |
| SECOND | A | 004 | 014A | 0272 | 0166* |
| SELCTA | A | 004 | 00E2 | 0210 | 0280 |
| SETUP | A | 004 | 0132 | 0246 | 0283 |
| SET1 | A | 003 | 0174 | 0285 | 0164* 0165* |
| SET2 | A | 003 | 017D | 0288 | 0169* 0170* |
| SHIFT | A | 005 | 006A | 0163 | 0290 |
| SHIFT1 | A | 005 | 0078 | 0168 | 0140 0141 0145 0146 0163 0306* 0307 0307* |
| UVWXYZ | A | 001 | 0000 | 0004 | 0189 0225 |
| WAIT | A | 003 | 0183 | 0290 | 0315 |
| WCPTRN | A | 004 | 004D | 0148 | 0169 0170 0171 0180* 0183* 0184 0184 0189 0190 0190 0192* 0193 |
| XXXXF | A | 004 | 0142 | 0253 | 0193 0196 0201* 0207* 0209* 0210 0210 0213 0219* 0225* 0228 0230 |
| XFFOO | A | 002 | 01C2 | 0320 | 0231 0233 0306 0307 0307 0308 0308* 0316 |
| XR1 | C | 001 | 0001 | 0258 | 0152 0154 0155 0157 0157* 0160 0160 0161 0162 0163 0164 0164 |
| XR2 | C | 001 | 0002 | 0259 | 0165 0166 0166 0167 0167* 0168 0169 0171* 0172 0175 0177 0177* |
| | | | | | 0180 0181 0183 0186 0189 0192 0194 0196 0197 0198 0199 0201 |

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CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|---|---|-----|-------|------|--|
| | | | | | 0202 0203 0204 0206 0207 0209 0213 0214 0215 0216 0217 0219 |
| | | | | | 0220 0225 0226 0227 0228 0229 0229 0233 0234 0235 0236 0237 |
| | | | | | 0239 0241 0242 0244 0246* 0247 0274 0275 0278 0279 0279 0280 |
| | | | | | 0280 0281 0281 0282 0282 0283 0283 0284 0284 0285 0287 0288 |
| | | | | | 0290 0291 0304 0309 0309 0310 0312 0312 0313 0314 0314 0315 |
| | | | | | 0315* |
| X0100 | A | 002 | 0145 | 0255 | 0157 0167 0177 |
| TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0 | | | | | |

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT | PROGRAM LEVEL |
|---------|-------------|------|------|----------------------|---|
| 67 | * | | | | |
| 68 | * | | | | |
| 69 | * | | | | |
| 70 | | | | | |
| 002C | 35 40 00E5 | | | START2 L ADERR,X'40' | 1 LOAD P2-IAR WITH ERROR ADDRESS. |
| 0030 | F1000D | 0032 | | APL1A DC XL3'F1000D' | 1 PROG. LEVEL 1 APL WITH DUAL PROG. MODE DISABLED. APL1A SHOULD BE NO-OPED, AN ADVANCE WILL BE TO (ERROR). **NOTE** IF SKIP IS ACTIVE, APL1A WILL JUMP TO HALT2. |
| 71 | * | | | | |
| 72 | * | | | | |
| 73 | * | | | | |
| 74 | * | | | | |
| 75 | * | | | | |
| 76 | * | | | | |
| 77 | * | | | | |
| 78 | * | | | | |
| 79 | * | | | | |
| 0033 | F3 00 04 | | | SIO 4,0 | 1 ENABLE THE DUAL PROGRAM MODE |
| 0036 | 35 40 00E7 | | | L ADPL2,X'40' | 1 LOAD P2-IAR WITH (PL2) ADDRESS |
| 81 | * | | | | |
| 82 | * | | | | |
| 83 | * | | | | |
| 003A | F1 00 00 | | | APL1B APL 0 | 1 PROG. LEVEL 1 APL WITH DUAL PROG. MODE ENABLED. APL1B SHOULD CAUSE AN ADVANCE TO PROG. LEVEL 2. (PL2) |
| 84 | * | | | | |
| 85 | * | | | | |
| 86 | * | | | | |
| 87 | * | | | | |
| 003D | F3 00 00 | | | ERROR SIO 0,0 | * DISABLE DUAL PROG. MODE. |
| 88 | * | | | | |
| 0040 | F0 3C 76 | | | HALT4 HPL UNITS,TENS | * PROG F2, HALT 4. ERROR HALT. * APL1A OR APLB OR APL2A OR APL2B * MALFUNCTION. * FAILING CARD# A-B3S2,A-B3J2,A-B3Q2 * FAILING FUNCT (1,2),(2,4),(3,4,5), (6,7,8) |
| 89 | * | | | | |
| 90 | * | | | | |
| 91 | * | | | | |
| 92 | * | | | | |
| 93 | * | | | | |
| 94 | * | | | | |
| 95 | * | | | | |
| 96 | * | | | | |
| 97 | * | | | | |
| 0043 | F3 00 00 | | | PL2 SIO 0,0 | 2 DISABLE THE DUAL PROG. MODE. |
| 98 | * | | | | |
| 99 | * | | | | |
| 0046 | F1 00 00 | | | APL2A APL 0 | 2 PROG. LEVEL 2 APL WITH DUAL PROG. MODE DISABLED. APL2A SHOULD BE NO-OPED, AN ADVANCE WILL BE TO (ERROR). |
| 100 | * | | | | |
| 101 | * | | | | |
| 102 | * | | | | |
| 103 | * | | | | |
| 104 | * | | | | |
| 0049 | F3 00 04 | | | SIO 4,0 | 2 ENABLE DUAL PROG. MODE. |
| 105 | * | | | | |
| 004C | 35 20 00E9 | | | L ADEND,X'20' | 2 LOAD P1-IAR WITH (END) ADDRESS. |
| 106 | * | | | | |
| 107 | * | | | | |
| 0050 | F1 00 00 | | | APL2B APL 0 | 2 PROG. LEVEL 2 APL WITH DUAL PROG. MODE ENABLED. APL2B SHOULD CAUSE AN ADVANCE TO PROG. LEVEL 1. |
| 108 | * | | | | |
| 109 | * | | | | |
| 110 | * | | | | |
| 111 | * | | | | |
| 0053 | C0 87 003D | | | B ERROR | 2 * GO TO (ERROR) IF APL2B DID NOT CAUSE AN ADVANCE. |
| 112 | * | | | | |
| 113 | * | | | | |
| 0057 | F3 00 00 | | | END SIO 0,0 | 1 DISABLE DUAL PROG. MODE. |
| 114 | * | | | | |
| 115 | * | | | | |
| 005A | C0 87 005E | | | B TIO1 | 1 GO TO NEXT TEST |
| 116 | * | | | | |
| 117 | * | | | | |
| 118 | * | | | | |
| 119 | * | | | | |
| 120 | * | | | | |
| 121 | * | | | | |
| 122 | * | | | | |
| 123 | * | | | | |
| 124 | * | | | | |
| 125 | * | | | | |
| 126 | * | | | | |
| 127 | * | | | | |
| 128 | * | | | | |
| 129 | * | | | | |
| 130 | * | | | | |
| 131 | * | | | | |
| 132 | * | | | | |
| 133 | * | | | | |
| 134 | * | | | | |

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| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT | PROGRAM LEVEL |
|---------|-------------|------|------|----------------------|---------------|
| 005E | C1 00 0065 | | | TIO1 TIO TIO2,X'00' | 135 |
| 136 | * | | | | |
| 137 | * | | | | |
| 0062 | F0 3C 76 | | | HALT5 HPL UNITS,TENS | 138 |
| 139 | * | | | | |
| 140 | * | | | | |
| 141 | * | | | | |
| 142 | * | | | | |
| 143 | * | | | | |
| 0065 | C1 04 0079 | | | TIO2 TIO HALT6,X'04' | 144 |
| 144 | * | | | | |
| 145 | * | | | | |
| 146 | * | | | | |
| 0069 | C1 01 0079 | | | TIO HALT6,X'01' | 147 |
| 147 | * | | | | |
| 006D | C1 02 0079 | | | TIO HALT6,X'02' | 148 |
| 148 | * | | | | |
| 0071 | C1 03 0079 | | | TIO HALT6,X'03' | 149 |
| 149 | * | | | | |
| 150 | * | | | | |
| 0075 | C0 87 007C | | | B START4 | 150 |
| 150 | * | | | | |
| 151 | * | | | | |
| 0079 | F0 3C 76 | | | HALT6 HPL UNITS,TENS | 151 |
| 151 | * | | | | |
| 152 | * | | | | |
| 153 | * | | | | |
| 154 | * | | | | |
| 155 | * | | | | |
| 156 | * | | | | |
| 157 | * | | | | |
| 158 | * | | | | |
| 159 | * | | | | |
| 160 | * | | | | |
| 161 | * | | | | |
| 162 | * | | | | |
| 163 | * | | | | |
| 164 | * | | | | |
| 165 | * | | | | |
| 166 | * | | | | |
| 167 | * | | | | |
| 168 | * | | | | |
| 169 | * | | | | |
| 170 | * | | | | |
| 007C | 35 40 00E3 | | | START4 L ADDP2,X'40' | 171 |
| 171 | * | | | | |
| 0080 | F3 00 04 | | | SIO 4,0 | 172 |
| 172 | * | | | | |
| 0083 | F1 00 00 | | | APL 0 | 173 |
| 173 | * | | | | |
| 174 | * | | | | |
| 175 | * | | | | |
| 176 | * | | | | |
| 0086 | F3 00 00 | | | P1 SIO 0,0 | 177 |
| 177 | * | | | | |
| 178 | * | | | | |
| 0089 | 3D E7 00FD | | | CLI PAD,X'E7' | 179 |
| 179 | * | | | | |
| 008D | C0 81 00A3 | | | BE START5 | 180 |
| 180 | * | | | | |
| 181 | * | | | | |
| 0091 | F0 3C 76 | | | HALT7 HPL UNITS,TENS | 181 |
| 181 | * | | | | |
| 182 | * | | | | |
| 183 | * | | | | |
| 184 | * | | | | |
| 185 | * | | | | |
| 186 | * | | | | |
| 187 | * | | | | |
| 0094 | C2 01 FFC3 | | | P2 LA X'FFC3',XR1 | 188 |
| 188 | * | | | | |
| 189 | * | | | | |
| 0098 | C2 02 FF66 | | | LA X'FF66',XR2 | 189 |
| 189 | * | | | | |
| 190 | * | | | | |
| 009C | 34 03 00FD | | | ST PAD,X'03' | 190 |
| 190 | * | | | | |
| 191 | * | | | | |
| 192 | * | | | | |
| 193 | * | | | | |
| 00AD | F1 00 00 | | | APL 0 | 193 |
| 193 | * | | | | |
| 194 | * | | | | |
| 195 | * | | | | |

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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197 *****
198 *****
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262 *****

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THE ABILITY TO SELECT THE LSR'S ASSIGNED TO A SPECIFIC PROGRAM LEVEL IS TESTED.

PROG LEVEL 1 XR1,XR2,PSR & ARR ARE LOADED WHILE IN PROG LEVEL 1. PROG LEVEL 2 XR1,XR2,PSR & ARR ARE LOADED WHILE IN PROG LEVEL 2.

PROG LEVEL 1 XR1,XR2,PSR & ARR ARE THEN STORED WHILE IN PROG LEVEL 1.

PROG LEVEL 2 XR1,XR2,PSR & ARR ARE THEN STORED WHILE IN PROG LEVEL 2.

IF THE DATA STORED IS NOT EQUAL TO THE DATA LOADED, AN ERROR HALT WILL BE ISSUED BY PROGRAM OR AN 'A' REG CHECK WILL OCCUR DURING EB CYCLES OF (STOR1) OR (STOR2) INSTRUCTIONS.

| ERR LOC | OBJECT CODE | ADDR | STMT | SOURCE STATEMENT | PROGRAM LEVEL | DESCRIPTION |
|---------|-----------------|------|------|------------------|---------------|---|
| 00A3 | 35 0F 00DF | | | | 1 | LOAD P1-ARR,PSR,XR1 & XR2 WITH -551A- (CR IS SET TO FALSE,DEC OVFL & LO) |
| 00A7 | 35 40 00EE | | | | 1 | LOAD P2-IAR WITH ADDRESS OF (PL22) |
| 00AB | F3 00 04 | | | | 1 | ENABLE DUAL PROGRAM MODE |
| 00AE | F1 00 00 | | | | 1 | ADVANCE TO PROGRAM LEVEL 2- JUMP TO (PL22) |
| 00B1 | 34 0F 00FD | | | | 1 | STORE P1-ARR,PSR,XR1 & XR2 IN LOC -00FC & 00FD- |
| 00B5 | F1 00 00 | | | | 1 | ADVANCE TO PROGRAM LEVEL 2- JUMP TO (STOR2). |
| 00B8 | F3 00 00 | | | | 1 | DISABLE DUAL PROGRAM MODE. |
| 00BB | 0D 03 00FF 00E1 | | | | 1 | COMPARE DATA LOADED INTO BOTH PROG. LEVEL LSR'S WITH THE DATA READ OUT OF THOSE LSR'S AFTER ADVANCING. |
| 00C1 | 3C 03 018E | | | | 1 | SETUP TO BYPASS INITIAL HALT ON LAST HALF OF DUAL PROGRAM TEST. |
| 00C5 | 3C 20 016A | | | | 1 | GO TO BOOT IF DATA STORED SAME AS DATA READ OUT. |
| 00C9 | C0 81 0169 | | | | 1 | GO TO BOOT IF DATA STORED SAME AS DATA READ OUT. |
| 00CD | F0 3C 76 | | | | 1 | PROG F2: HALT B. ERROR HALT. FAILURE: DATA READ OUT OF THE PROG LEVEL LSR'S DID NOT EQUAL THE DATA ORIGINALLY LOADED. |

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OF20 CPU AND MEMORY DIAGNOSTICS: PROGRAM F2 MOD 12

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

00D0 35 0F 00E1 263 PL22 L XAA21,X'0F'
264 *
265 *
266 *
267 *
268 *
269 *
00D7 34 0F 00FF 270 STOR2 ST PAD+2,X'0F'
271 *
272 *
273 *
274 *
275 *
276 *
00DE 551A 00DF 277 X551A DC XL2'551A'
00E0 AA21 00E1 278 XAA21 DC XL2'AA21'
00E2 0094 00E3 279 ADDP2 DC AL2(P2)
00E4 0030 00E5 280 ADERR DC AL2(ERROR)
00E6 0043 00E7 281 ADPL2 DC AL2(PL2)
00E8 0057 00E9 282 ADEND DC AL2(END)
00EA 03FE 00EB 283 X03FE DC XL2'03FE'
00EC 03 00EC 284 XFE03 DC XL1'03'
00ED 00DC 00EE 285 ADPL22 DC AL2(PL22)
286
00FF 287 DAP EQU 255
0004 288 PSR EQU X'04'
0001 289 XR1 EQU X'01'
0002 290 XR2 EQU X'02'
00FD 291 PAD EQU 253
0169 292 BOOT EQU X'169'
003C 293 TENS EQU X'3C'
0076 294 UNITS EQU X'76'
295
FFFF 296 END

```

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

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OF30 CPU AND MEMORY DIAGNOSTICS: PROGRAM F3 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

0000          2 DECK 4
              3 SEQ 0
              4 UVWXYZ START 0
              5 TREP
              6 *****
              7 SECTOR 32
              8 *****
              9 *
             10 *          PROG F3
             11 *          DUAL PROGRAM FEATURE TEST
             12 *          TEST (1) THE ABILITY TO BRANCH IN PROGRAM
             13 *          LEVEL TWO AND TO TURN ON ALL THE
             14 *          HALT ID LIGHTS IN BOTH PROGRAM
             15 *          LEVELS IS TESTED.
             16 *
             17 *          THE PROGRAM WILL CAUSE HALTS '88'
             18 *          TO OCCUR IN BOTH PROGRAM LEVELS.
             19 *
             20 *          PROGRAM LEVEL 2 HALT SHOULD BE
             21 *          RESET FIRST, THEN PROGRAM LEVEL
             22 *          ONE HALT SHOULD BE RESET.
             23 *
             24 *          *****
             25 *          PROGRAM
             26 *          LEVEL
             27 HALT1 HPL UNITS,TENS 1 PROG F3, HALT 1.
             28 *
             29 *
             30 P1 L ADP2,X'40' 1 LOAD P2-IAR WITH ADDRESS OF P2
             31 *
             32 *          SIO X'04',X'00' 1 ENABLE DUAL PROGRAM MODE
             33 *
             34 HALT2 HPL X'7F',X'7F' -88- HALT--EXPECTED
             35 *
             36 *          ERR1 SIO 0,0 1 * DISABLE DUAL PROGRAM MODE
             37 *
             38 HALT3 HPL UNITS,TENS 1 * PROG F3, HALT 3. ERROR HALT
             39 *          * FAILING CARD# A-B3Q2
             40 *          * FAILING FUNCT 1
             41 *
             42 *
             43 END SIO 0,0 1 DISABLE DUAL PROGRAM MODE
             44 *
             45 *          B START2 1 GO TO NEXT TEST
             46 *
             47 *
             48 P2 BC ERR2,NOOP 2 NO-OP BR TO ERR
             49 *
             50 *          B HALT5 2 UNCD BR TO EXIT
             51 *
             52 *          ERR2 SIO 0,0 2 * DISABLE DUAL PROGRAM MODE
             53 *
             54 HALT4 HPL UNITS,TENS 2 * PROG F3, HALT 4. ERROR HALT
             55 *          * FAILING CARD# A-B3Q2
             56 *          * FAILING FUNCT 1
             57 *
             58 *
             59 HALT5 HPL X'7F',X'7F' -88- HALT--EXPECTED
             60 *
             61 *          L ADEND,X'20' 2 LOAD P1-IAR WITH ADDRESS OF END
             62 *
             63 *          WAIT APL 0 2 ADVANCE TO PROGRAM LEVEL ONE.
             64 *          * JUMP TO END WITH P1 HALT LATCH
             65 *          * STILL SET.
             66 *
             67 *          B WAIT 2 LOOP ON APL UNTIL HALT IS RESET

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OF30 CPU AND MEMORY DIAGNOSTICS: PROGRAM F3 MOD 12
ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

69 *****
70 *****
71 *****          INTERRUPT LEVEL 0, DUAL PROGRAM
72 *****
73 *****
74 *****
75 *****
76 START2 L ADRSET,X'80' LOAD INTERRUPT LEVEL 0 IAR WITH
77 *          ADDRESS OF RESET.
78 *
79 *          SIO X'06',X'00' ENABLE INTERRUPT LEVEL 0
80 *
81 STOR1 ST PAD+4,X'80' STORE INTERRUPT LEVEL 0 IAR IN
82 *          LOC -FE & FF-.
83 *
84 STOR2 ST PAD+2,X'80' STORE INTERRUPT LEVEL 0 IAR IN
85 *          LOC -FC & FD-.
86 *
87 RESET SIO X'01',X'00' RESET INTERRUPT LEVEL 0 (IF ACTIVE)
88 *
89 STOR3 ST PAD,X'80' STORE INTERRUPT LEVEL 0 IAR IN
90 *          LOC -FA & FB-.
91 *
92 *          CLC PAD+4(6),ADRSET BRANCH TO NEXT IF INTERRUPT LEVEL 0
93 *          BE START3 IAR WAS OK FOR STOR1, STOR2 & STOR3
94 *
95 HALT6 HPL UNITS,TENS * PROG F3, HALT 6. ERROR HALT.
96 *          * FAILING CARD# A-B3Q2
97 *
98 *
99 *
100 *
101 *****
102 *****          INTERRUPT LEVEL 0, DUAL PROGRAM
103 *
104 *          TEST (1) INT 0 IAR/ARR SELECT
105 *          (2) ALU BIT 7
106 *
107 *
108 *****
109 *****
110 *****
111 START3 L ADINT,X'80' LOAD INT LEV 0 IAR
112 *
113 *          SIO X'06',X'00' ENABLE INTERRUPT LEVEL 0
114 *
115 LOOP B LOOP WAIT HERE FOR INTERRUPT
116 *
117 INT L ADHLT7,X'20' LOAD PROG LEVEL 1 IAR TO HLT7 ADDR.
118 *
119 NOOPB BC RESET,X'80' NO-OP BRANCH
120 *
121 UNCD B NEWLD UNCONDITIONAL BRANCH TO NEWLD
122 *          RESET2 GO TO RESET IF UNCD FAILED.
123 *
124 NEWLD SIO 0,0 DISABLE DUAL INT
125 *          L ADBOOT,X'20' LOAD PROG LEVEL 1 IAR TO NEXT ADDR.
126 *
127 RESET2 SIO X'01',X'00' RESET THE INTERRUPT
128 *
129 HALT7 HPL UNITS,TENS * PROG F3, HALT 7. ERROR HALT
130 *          * FAILING CARD# A-B3Q2
131 *          * FAILING FUNCT 1,2
132 *

```

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

```

134 *****
135 *
136 *
137 *
138 *****
139
140
0080 35 40 00AC 141 START4 L ADP22,X*40' LOAD P2 IAR
0084 35 80 00AE 142 L ADINT2,X*80' LOAD INT LEVEL 0 IAR
0088 F3 00 06 143 SIO X*06',X*00' ENABLE INTERRUPTS & DUAL PROGRAM
144
008B F0 7F 6C 145 HALT8 HPL X*6C',X*7F' -8C- HALT--EXPECTED
146 * P1 & P2 LOOP ON THIS HALT
147 * UNTIL INTERRUPT IS TAKEN.
148 *
149
008E 35 20 00C0 150 LV12 L ADP1,X*20' PUT P1 ADDRESS IN P1-IAR
151 * IF IN PROG LEV 1 THIS WILL CAUSE
152 * A BRANCH TO LOC P12.
153
0092 F1 00 00 154 APL 0 ADVANCE TO PROG LEV 1 (LV12)
155
0095 F3 00 00 156 P12 SIO 0,0 DISABLE DUAL PROG MODE & INTERRUPTS
157
0098 3C 00 016E 158 MVI BOOT+5,X*00' SETUP TO LOAD E8
009C 3C 15 016A 159 MVI BOOT+1,X*15' GO TO LOAD E8
00A0 C0 87 01E1 160 B BOOT25
161
00A4 35 60 00C2 163 INT2 L ADLV12,X*60' LOAD P1 & P2 IARS WITH LV12 ADDRESS
164
00A8 F3 00 07 165 SIO X*07',X*00' RESET THE INTERRUPT
166 * BOTH P1 & P2 HALTS SHOULD RESET
167 * BY THIS INSTRUCTION.
168
00AB 008B 00AC 170 ADP22 DC AL2(HALT8)
00AD 00A4 00AE 171 ADINT2 DC AL2(INT2)
00AF 007D 00B0 172 ADHLT7 DC AL2(HALT7)
00B1 0080 00B2 173 ADBDOT DC AL2(START4)
00B3 0064 00B4 174 ADINT DC AL2(INT)
00B5 0045 00B6 175 DC AL2(RESET)
00B7 0045 00B8 176 DC AL2(RESET)
00B9 0045 00BA 177 ADRSET DC AL2(RESET)
00BB 001A 00BC 178 ADP2 DC AL2(P2)
00BD 0013 00BE 179 ADEND DC AL2(END)
00BF 0095 00C0 180 ADP1 DC AL2(P12)
00C1 008E 00C2 181 ADLV12 DC AL2(LV12)
182
01E1 183 BOOT25 EQU X*1E1'
0169 184 BOOT EQU X*169'
003C 185 TENS EQU X*3C'
0057 186 UNITS EQU X*57'
00FA 187 PAD EQU 250
0080 188 NOOP EQU X*80'
189
FFFF 190 END

```

-F-
3

CROSS-REFERENCE

```

SYMBOL T LEN VALUE DEFN REFERENCES
ADBOOT A 002 00B2 0173 0125
ADEND A 002 008E 0179 0061
ADHLT7 A 002 00B0 0172 0117
ADINT A 002 00B4 0174 0111
ADINT2 A 002 00AE 0171 0142
ADLV12 A 002 00C2 0181 0163
ADP1 A 002 00C0 0180 0150
ADP2 A 002 00BC 0178 0030
ADP22 A 002 00AC 0170 0141
ADRSET A 002 00BA 0177 0076
BOOT C 001 0169 0184 0158* 0092
BOOT25 C 001 01E1 0183 0160* 0159*
END A 003 0013 0043 0179
ERR1 A 003 000D 0036
ERR2 A 003 0022 0052 0048
HALT1 A 003 0000 0027
HALT2 A 003 000A 0034
HALT3 A 003 0010 0038
HALT4 A 003 0025 0054
HALT5 A 003 0028 0059 0050
HALT6 A 003 0056 0095
HALT7 A 003 007D 0129 0172
HALT8 A 003 0088 0145 0170
INT A 004 0064 0117 0174
INT2 A 004 00A4 0163 0171
LOOP A 004 0060 0115 0115
LV12 A 004 008E 0150 0181
NEWLD A 003 0073 0124 0121
NOOP C 001 0080 0188 0048
NOOPB A 004 0068 0119
PAD C 001 00FA 0187 0081* 0084* 0089* 0092
P1 A 004 0003 0030 0180
P12 A 003 0095 0156 0178
P2 A 004 001A 0048 0119
RESET A 003 0045 0087 0175 0176 0177
RESET2 A 003 007A 0127 0122
START2 A 004 0036 0076 0045
START3 A 004 0059 0111 0093
START4 A 004 0080 0141 0173
STOR1 A 004 003D 0081
STOR2 A 004 0041 0084
STOR3 A 004 0048 0089
TENS ? 001 003C 0185 0027 0038 0054 0095 0129
UNCD ? 004 006C 0121
UNITS C 001 0057 0186 0027 0038 0054 0095 0129
UVWXYZ A 001 0000 0004
WAIT A 003 002F 0063 0067

```

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

IBM MAINTENANCE DIAGNOSTIC PROGRAM

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OF30 CPU AND MEMORY DIAGNOSTICS: PROGRAM F3 MOD 12
OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E P INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

*GBK*GBD***PN*42 48200*EC*827804* CPU*6*MEMORY*TES TS*****MOD*12 84228422***** OF300000
T+--:2C1P(M*?)|< *A|A*~*~<*|*~N*~< **<BG*CS*-**SOH* *H|<~*|*~N*A*~*~3H -*.#1**C*/0*?|Q* *>?<*EKYOF300001
T+-A5**Q4-*C=(H* *~|<~*LK**|Y(A&C =*.~*-&AR2C1P|Q* *_|<~*A&BG*F*5H*B 00H**J*BG*G|2/0~ 3****23QOF300002
T+-B0IK**?<~*~* ~N3N**H05-*B>20* F2G*Z|K**O|D**|< **CO**082E&E0H* A8LN-*<~*3**~*S0B U*G4**H&OF300003
YD&CB*H**R*AE*DM *J&*E*A<V&B+*** ***** \$-<OF300004
E****E7*=-DC*PH\$ =*7M&F|***|***C* **F%***ASC***R*A SO***Q***** 12010630750 828751Y&OF300005

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

0000 2 DECK 4
3 SEQ 0
4 UVWXYZ START 0
5 TREP
6 * SECTOR 33
7 *****
8 *****
9 ***** INVALID OP CODE TEST *****
10 *****
11 *****
12 *****
13 *****
14 *****
15 HLT1 HPL UNITS,TENS PRE-EXECUTION HALT
16 *****
17 *****
18 *****
19 *****
20 *****
21 *****
22 *****
23 *****
24 *****
25 *****
26 *****
27 ***** PARITY CHECK CIRCUIT TEST *****
28 *****
29 *****
30 *****
31 *****
32 MVC X'0418',BRBACK(4) SET UP TO BR BACK WHEN IAR ALTERED
33 L SARDAT,X'01' PUT HEX -0404- IN XR1
34 *****
35 ST OPQ,X'11' OR IAR & XR1. RESULT HAS BAD PARITY.
36 ***** RESULT (HEX -0415-) FORMS THE
37 ***** OP & Q BYTES OF NSI.
38 *****
39 *****
40 *****
41 ***** *NOTE- IAR IS ALTERED TO HEX -0415-
42 ***** * WITH BAD PARITY.
43 *****
44 *****
45 *****
46 *****
47 *****
48 MVC CNTFLD(5),DCP SET UP FOR LOAD OF DCP
49 MVI BOOT+37,X'00' SETUP TO GIVE CONTROL AT 0000
50 MVI BOOT+1,X'01' BRANCH TO BOOTSTRAP.
51 BOOT
52 *****
53 *****
54 BRBACK DC XL4'C0870039' BRANCH INSTRUCTION.
55 SARDAT DC XL2'0404' DATA LOADED INTO XR1.
56 DCP DC XL5'0000030011'
57 *****
58 BOOT EQU X'169'
59 TENS EQU X'3C'
60 UNITS EQU X'1B'
61 CNTFLD EQU X'01DA'
62 *****
63 FFFF END

0003 F80000 0005 DC XL3'F80000' INVALID COMMAND
0006 F40000 0008 DC XL3'F40000' INVALID COMMAND
0009 C3000000 000C DC XL4'C3000000' INVALID BRANCH
000D 32000100 0010 DC XL4'32000100' INVALID 1 ADDRESS INSTR.
0011 3E000100 0014 DC XL4'3E000100' INVALID 1 ADDRESS INSTR.
0015 37000100 0018 DC XL4'37000100' INVALID 1 ADDRESS INSTR.
0019 030001000100 001E DC XL6'030001000100' INVALID 2 ADDRESS INSTR.
001F 050001000100 0024 DC XL6'050001000100' INVALID 2 ADDRESS INSTR.
0025 090001000100 002A DC XL6'090001000100' INVALID 2 ADDRESS INSTR.

0028 0C 03 0418 0054
0031 35 01 0056
0035 34 11 003A
0039 0000 003A OPQ DC XL2'0000'
003B FFFFFFFF 003E DC XL4'FFFFFFF'

003F 0C 04 01DA 005B
0045 3C 00 018E
0049 3C 01 016A
004D C0 87 0169

0051 C0870039 0054 BRBACK DC XL4'C0870039'
0055 0404 0056 SARDAT DC XL2'0404'
0057 0000030011 005B DCP DC XL5'0000030011'

0169 58 BOOT EQU X'169'
003C 59 TENS EQU X'3C'
0018 60 UNITS EQU X'1B'
01DA 61 CNTFLD EQU X'01DA'
62 *****
63 FFFF END

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IBM MAINTENANCE DIAGNOSTIC PROGRAM

OF40 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM F4 MOD 12
CROSS-REFERENCE

| SYMBOL | T | LEN | VALUE | DEFN | REFERENCES |
|--------|---|-----|-------|------|------------------|
| BOOT | C | 001 | 0169 | 0058 | 0049* 0050* 0051 |
| BRBACK | A | 004 | 0054 | 0054 | 0032 |
| CNTFLD | C | 001 | 01DA | 0061 | 0048* |
| DCP | A | 005 | 005B | 0056 | 0048 |
| HLL1 | A | 003 | 0000 | 0013 | |
| OPQ | A | 002 | 003A | 0043 | 0036* |
| SARDAT | A | 002 | 0056 | 0055 | 0034 |
| TENS | C | 001 | 003C | 0059 | 0013 |
| UNITS | C | 001 | 001B | 0060 | 0013 |
| UVWXYZ | A | 001 | 0000 | 0004 | |

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

IBM MAINTENANCE DIAGNOSTIC PROGRAM

OF40 3340 CPU AND MEMORY DIAGNOSTICS: PROGRAM F4 MOD 12
OBJECT CARD LISTING

THE CHARACTER * INDICATES A BLANK COLUMN AND THE CHARACTERS D E R INDICATE NUMERIC SHIFT.
CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

```

*GBK*GBD**PN*42 48200*EC*827804* CPU & MEMORY YES TS*****MOD*12 84228422 ..... OF400000
T+ :@C0$=***i** *00**CLH**&*=**D *(O A < & A M **& A U & A O CAA-NCMA EQ4DE * :****4#&OF400001
TH*AS*****OOD*Y *030**Q82*&EDOH* AE*BG*CUDA*****O J ..... OF400002
E****E7*=-DC*PHS =*7M&FI***I***C **F*ASC**R*A SO**Q ..... 12010630750 828750Q40F400003
  
```