```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                            2 *                                          LAST CHG :09:12 75
                            3         DECK  4
                            4         SEQ   0
  0A00                      5 UVWXYZ  START X'A00'
                            6         TREP
                            7
                            8 ************************************************************************
                            9 *                                                                      *
                           10 *                5471 PRINTER KEYBOARD DIAGNOSTIC TESTS                *
                           11 *                                                                      *
                           12 *                  SECTION 1--INITIAL PRINTER TESTS                    *
                           13 *                                                                      *
                           14 ************************************************************************
                           15 ****                                                                  ****
                           16 ****                        SECTION PREFACE                           ****
                           17 ****                                                                  ****
                           18 ************************************************************************
                           19
                           19
  0A00 1011          0A01  20         DC    XL2'1011'          PROGRAM ID AND REVISION LEVEL
  0A02 00            0A02  21         DC    XL1'00'            SECTION FLAGS
  0A03 00            0A03  22         DC    XL1'00'            CURRENT ROUTINE NUMBER
  0A04 0000          0A05  23         DC    XL2'00'            RESERVED
  0A06 0A10          0A07  24         DC    AL2(RTN01)         ADDRESS OF FIRST ROUTINE
  0A08 0000          0A09  25         DC    XL2'00'            RESERVED
  0A0A F00000        0A0C  26 MFCU    DC    XL3'F00000'        MFCU SPUT ENTRY
  0A0D 105000        0A0F  27         DC    XL3'105000'        CONSOLE SPUT ENTRY
                           28 *
                           29 *********                                                  *********
                           30 * RTN01 *          SENSE TEST                            * RTN01 *
                           31 *********                                                  *********
                           32 *
                           33 *                              ROUTINE PREFIX
  0A10 01            0A10  34 RTN01   DC    XL1'01'            ROUTINE PREFIX
  0A11 00            0A11  35         DC    XL1'00'            NO INTERVENTION REQUIRED
  0A12 0D14          0A13  36         DC    AL2(RTN02)         ADDRESS OF NEXT ROUTINE
                           37 *
  0A14 C0 87 021A          38         B     PRINT              PRINT
  0A18 42            0A18  39         DC    XL1'42'             ROUTINE
  0A19 0E            0A19  40         DC    IL1'14'              TITLE
  0A1A 18EA          0A1B  41         DC    AL2(MSG01)
  0A1C 10E1          0A1D  42         DC    XL2'10E1'
  0A1E 0C 02 1A0A 187D     43         MVC   MSG26(3),BLON
  0A24 0C 02 19EA 1A0A     44         MVC   MSG25(3),MSG26
  0A2A C0 87 021A          45         B     PRINT              PRINT
  0A2E 02            0A2E  46         DC    XL1'02'             INITIAL
  0A2F 4E            0A2F  47         DC    IL1'78'              INSTRUCTIONS
  0A30 1938          0A31  48         DC    AL2(MSG03)
  0A32 C0 87 021A          49         B     PRINT              PRINT
  0A36 C6            0A36  50         DC    XL1'06'             RESET
  0A37 0E            0A37  51         DC    IL1'14'              THE
  0A38 1CC9          0A39  52         DC    AL2(MSGRES)           HALT
  0A3A C0 87 0222          53         B     HALT
  0A3E 10E1          0A3F  54         DC    XL2'10E1'
  0A40 0C 03 1CFE 1CF6     55         MVC   STSHDB(4),ZERO     CLEAR EXPECTED STATUS
  0A46 C2 01 1CF7          56         LA    STATUS-3,XR1
  0A4A 70 19 03            57         SNS   3(,XR1),X'19'      SAVE
  0A4D 70 18 01            58         SNS   1(,XR1),X'18'       STATUS
  0A50 4D 02 02 1CF6       59         CLC   2(,XR1),ZERO(3)    IF STATUS
  0A55 F2 01 07            60         JNE   A111                ALL ZERO,
  0A58 C0 87 1527          61         B     REPLCE               REPLACE
  0A5C A00000        0A5E  62         DC    XL3'A00000'           B2L2 AND B2N2
  0A5F 79 20 02            63 A111    TBF   2(,XR1),X'20'      CHECK 1.34 SECOND BIT OFF
  0A62 F2 10 1E            64         JT    A1
  0A65 0C 06 1A0A 19CC     65         MVC   MSG26(7),GOOF
  0A6B 3A 02 1CB1          66         SBN   MARK,MARK6
  0A6F 78 10 03            67         TBN   3(,XR1),X'10'      CHECK BUSY ON
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
  0A72 F2 10 07              68         JT    *+10
  0A75 C0 87 1527            69         B     REPLCE              REPLACE
  0A79 240040        0A7B    70         DC    XL3'240040'          B2N2, B2S2, CABLE (GC553)        GK
  0A7C C0 87 1527            71         B     REPLCE              REPLACE
  0A80 280000        0A82    72         DC    XL3'280000'          B2N2, B2R2
  0A83 78 01 03              73 A1      TBN   3(,XR1),X'01'      CHECK FOR PR MALFUNCTION
  0A86 78 02 02              74         TBN   2(,XR1),X'02'      XTRA CYCLE
  0A89 78 08 01              75         TBN   1(,XR1),X'08'      FEEDBACK SW SAMPLED
  0A8C F2 90 4C              76         JF    A4
  0A8F 3C 5C 1E18            77         MVI   MMAL,C'*'
  0A93 3C 5C 1DDF            78         MVI   MXTRA,C'*'
  0A97 3C 5C 1D77            79         MVI   MFDS,C'*'
  0A9B 78 10 01              80         TBN   1(,XR1),X'10'      CHECK FOR FEEDBACK SW ON
  0A9E F2 10 07              81         JT    NS2                                            04
  0AA1 C0 87 1527            82         B     REPLCE              REPLACE
  0AA5 880000        0AA7    83         DC    XL3'880000'          B2R2, B2L2
  0AA8 3A FF 1CB3            84 NS2     SBN   FUSTAT,BDFUSE       SET BAD FUSE FLAG ON             04
  0AAC 0C 0A 1BC9 1EE6       85         MVC   MSGCAB-9(11),ALLIN   ADD MSG. TO CABLE PRINT
  0AB2 C0 87 1527            86         B     REPLCE              REPLACE
  0AB6 242040        0AB8    87         DC    XL3'242040'          B2N2, B2S2, SLT, CABLE (GC553)   GK
  0AB9 78 01 03              88 A2      TBN   3(,XR1),X'01'      CHECK FOR PR MALFUNCTION
  0ABC F2 90 0B              89         JF    A3
  0ABF 3C 5C 1E18            90         MVI   MMAL,C'*'
  0AC3 C0 87 1527            91         B     REPLCE              REPLACE
  0AC7 280000        0AC9    92         DC    XL3'280000'          B2N2, B2R2
  0ACA 78 01 02              93 A3      TBN   2(,XR1),X'01'      CHECK CYCLE TOO LONG
  0ACD F2 90 30              94         JF    A5
  0AD0 3C 5C 1DCF            95         MVI   MCTL,C'*'
  0AD4 C0 87 1527            96         B     REPLCE              REPLACE
  0AD8 280000        0ADA    97         DC    XL3'280000'          B2N2, B2R2
  0ADB 78 01 03              98 A4      TBN   3(,XR1),X'01'      PRINTER . ALFUNCTION
  0ADE 78 04 02              99         TBN   2(,XR1),X'04'      FEEDBACK TOO LATE
  0AE1 F2 90 4F             100         JF    A8
  0AE4 3C 5C 1E18           101         MVI   MMAL,C'*'
  0AE8 3C 5C 1DEC           102         MVI   MF2L,C'*'
  0AEC 78 10 02             103         TBN   2(,XR1),X'10'      CHECK CYCLE FL ON
  0AEF F2 10 07             104         JT    *+10
  0AF2 C0 87 1527           105         B     REPLCE              REPLACE
  0AF6 0C0000        0AF8   106         DC    XL3'0C0000'          B2S2, B2R2
  0AF9 C0 87 1527           107         B     REPLCE              REPLACE
  0AFD 600000        0AFF   108         DC    XL3'600000'          B2M2, B2N2
  0B00 78 04 02             109 A5      TBN   2(,XR1),X'04'      CHECK FEEDBACK TOO LATE
  0B03 F2 90 6F             110         JF    A11
  0B06 3C 5C 1DEC           111         MVI   MF2L,C'*'
  0B0A C0 87 1527           112         B     REPLCE              REPLACE
  0B0E 280000        0B10   113         DC    XL3'280000'          B2N2, B2R2
  0B11 78 08 01             114 A6      TBN   1(,XR1),X'08'      CHECK FEEDBACK SAMPLED
  0B14 F2 90 0B             115         JF    A7
  0B17 3C 5C 1D77           116         MVI   MFDS,C'*'
  0B1B C0 87 1527           117         B     REPLCE              REPLACE
  0B1F 280000        0B21   118         DC    XL3'280000'          B2N2, B2R2
  0B22 78 02 01             119 A7      TBN   1(,XR1),X'02'      CHECK LONG FN SAMPLED
  0B25 F2 90 3C             120         JF    A10
  0B28 3C 5C 1D43           121         MVI   MLFNS,C'*'
  0B2C C0 87 1527           122         B     REPLCE              REPLACE
  0B30 A80000        0B32   123         DC    XL3'A80000'          B2N2, B2R2, B2L2
  0B33 78 01 03             124 A8      TBN   3(,XR1),X'01'      CHECK PR MALF
  0B36 78 02 02             125         TBN   2(,XR1),X'02'      CHECK XTRA CYCLE
  0B39 F2 90 0F             126         JF    A9
  0B3C 3C 5C 1E18           127         MVI   MMAL,C'*'
  0B40 3C 5C 1DDF           128         MVI   MXTRA,C'*'
  0B44 C0 87 1527           129         B     REPLCE              REPLACE
  0B48 080000        0B4A   130         DC    XL3'080000'          B2R2
  0B4B 78 01 03             131 A9      TBN   3(,XR1),X'01'      CHECK PR MALF
  0B4E 78 01 02             132         TBN   2(,XR1),X'01'      CHECK CYCLE TOO LONG
  0B51 C0 90 0AB9           133         BF    A2
  0B55 3C 5C 1E18           134         MVI   MMAL,C'*'
  0B59 3C 5C 1DCF           135         MVI   MCTL,C'*'
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    0B5D C0 87 1527          136          B     REPLCE
    0B61 0C0040              137          DC    XL3'0C0040'
    0B64 78 10 03      0B63  138 A10       TBN   3(,XR1),X'10'
    0B67 F2 90 6A            139          JF    A14
    0B6A 3C 5C 1E61          140          MVI   MBUSY,C'*'
    0B6E C0 87 1527          141          B     REPLCE
    0B72 200000        0B74  142          DC    XL3'200000'
    0B75 78 11 03            143 A11      TBN   3(,XR1),X'11'
    0B78 78 01 02            144          TBN   2(,XR1),X'01'
    0B7B F2 90 17            145          JF    A12
    0B7E 3C 5C 1E18          146          MVI   MMAL,C'*'
    0B82 3C 5C 1E61          147          MVI   MBUSY,C'*'
    0B86 3C 5C 1E8A          148          MVI   MPEND,C'*'
    0B8A 3C 5C 1DCF          149          MVI   MCTL,C'*'
    0B8E C0 87 1527          150          B     REPLCE
    0B92 080006        0B94  151          DC    XL3'080000'
    0B95 78 06 01            152 A12      TBN   1(,XR1),X'06'
    0B98 F2 90 1D            153          JF    A13
    0B9B 3C 5C 1D43          154          MVI   MLFNS,C'*'
    0B9F 3C 5C 1D61          155          MVI   MLFN,C'*'
    0BA3 0C 0A 18CA 1B8F     156          MVC   MSGCAB-8(11),LONG
    0BA9 3A 01 1CB2          157          SBN   PRTMSG,X'01'
    0BAD 3C F7 1EDB          158          MVI   FDB,X'F7'
    0BB1 C0 87 1527          159          B     REPLCE
    0BB5 240040        0BB7  160          DC    XL3'240040'
    0BB8 78 18 01            161 A13      TBN   1(,XR1),X'18'
    0BBB C0 90 0B11          162          BF    A6
    0BBF 3C 5C 1D90          163          MVI   MFD,C'*'
    0BC3 3C 5C 1D77          164          MVI   MFDS,C'*'
    0BC7 0C 0F 18CF 1B9F     165          MVC   MSGCAB-3(16),FDSW
    0BCD C0 87 1527          166          B     REPLCE
    0BD1 040040        0BD3  167          DC    XL3'040040'
    0BD4 78 08 03            168 A14      TBN   3(,XR1),X'08'
    0BD7 F2 90 11            169          JF    A15
    0BDA 3C 5C 1E54          170          MVI   MEOL,C'*'
    0BDE 0C 06 18C6 1BAD     171          MVC   MSGCAB-12(7),EOL
    0BE4 C0 87 1527          172          B     REPLCE
    0BE8 280040        0BEA  173          DC    XL3'280040'
    0BEB 78 04 03            174 A15      TBN   3(,XR1),X'04'
    0BEE F2 90 19            175          JF    A16
    0BF1 3C 5C 1E47          176          MVI   MEOF,C'*'
    0BF5 0C 06 18C6 1BA6     177          MVC   MSGCAB-12(7),EOF
    0BFB 3A 01 1CB2          178          SBN   PRTMSG,X'01'
    0BFF 3C F6 1EDB          179          MVI   FDB,X'F6'
    0C03 C0 87 1527          180          B     REPLCE
    0C07 240040        0C09  181          DC    XL3'240040'
    0C0A 78 80 03            182 A16      TBN   3(,XR1),X'80'
    0C0D F2 90 0B            183          JF    A17
    0C10 3C 5C 1E8A          184          MVI   MPEND,C'*'
    0C14 C0 87 1527          185          B     REPLCE
    0C18 200000        0C1A  186          DC    XL3'200000'
    0C1B 78 02 02            187 A17      TBN   2(,XR1),X'02'
    0C1E F2 90 0B            188          JF    A18
    0C21 3C 5C 1DDF          189          MVI   MXTRA,C'*'
    0C25 C0 87 1527          190          B     REPLCE
    0C29 280000        0C2B  191          DC    XL3'280000'
    0C2C 78 80 02            192 A18      TBN   2(,XR1),X'80'
    0C2F F2 90 0B            193          JF    A19
    0C32 3C 5C 1E07          194          MVI   MPEN,C'*'
    0C36 C0 87 1527          195          B     REPLCE
    0C3A A00000        0C3C  196          DC    XL3'A00000'
    0C3D 78 04 01            197 A19      TBN   1(,XR1),X'04'
    0C40 F2 90 0B            198          JF    A201
    0C43 3C 5C 1D61          199          MVI   MLFN,C'*'
    0C47 C0 87 1527          200          B     REPLCE
    0C4B 200000        0C4D  201          DC    XL3'200000'
    0C4E 78 10 01            202 A201     TBN   1(,XR1),X'10'
    0C51 F2 90 0B            203          JF    A20
```

```
REPLACE
 B2R2, B2S2, CABLE(GC553)                    GK
CHECK FOR PRINTER BUSY


REPLACE
 A-B2N2
CHECK INT PEND, PR BUSY, PR MALF
CHECK CYCLE TOO LONG


REPLACE
 A-B2R2
CHECK LONG FN SW AND SAMPLED


SET PRINT MSG FLAG                           GNK
  MOVE IN PROPER NO.                         GNK
REPLACE
 A-B2N2, A-B2S2, CABLE(GC553)                GK
CHECK FEEDBACK SW AND SAMPLED


REPLACE
 A-B2S2, CABLE(GC553)
CHECK END OF LINE


REPLACE
 B2N2, B2R2, CABLE(GC553)
CHECK END OF FORM


SET PRINT MSG FLAG                           GNK
  MOVE IN PROPER NO.                         GNK
REPLACE
 B2N2, B2S2, CABLE(GC553)
CHECK INT PENDING


REPLACE
 A-B2N2
CHECK XTRA CYCLE


REPLACE
 A-B2N2, B2R2
CHECK PRINTER ENABLE


REPLACE
 B2L2, B2N2
CHECK LONG FN SW


REPLACE
 A-B2N2
CHECK FEEDBACK SWITCH ON
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    0C54 3C 5C 1D90          204          MVI   MFD,C'*'
    0C58 C0 87 1527          205          B     REPLCE
    0C5C 200000              206          DC    XL3'200000'
    0C5F 78 02 03      0C5E  207 A20       TBN   3(,XR1),X'02'
    0C62 F2 90 0B            208          JF    A211
    0C65 3C 5C 1E2D          209          MVI   MXLAT,C'*'
    0C69 C0 87 1527          210          B     REPLCE
    0C6D E00000        0C6F  211          DC    XL3'E00000'
    0C70 79 10 02            212 A211     TBF   2(,XR1),X'10'
    0C73 F2 10 07            213          JT    A21
    0C76 C0 87 1527          214          B     REPLCE
    0C7A 200000        0C7C  215          DC    XL3'200000'
                             216 *
                             217 *        5.24 MILLISECOND CHECKOUT
                             218 *
    0C7D 0C 03 1CFE 1CF6 0219 A21         MVC   STSHDB(4),ZERO
    0C83 0C 01 1CF8 1CF6     220          MVC   STATUS-2(2),ZERO
    0C89 C2 01 00A5          221          LA    165,XR1
    0C8D 30 19 1CFA          222 S22      SNS   STATUS,X'19'
    0C91 39 40 1CF9          223          TBF   STATUS-1,X'40'
    0C95 F2 10 19            224          JT    S2-4
    0C98 36 01 1D0A          225          A     HEXFF,XR1
    0C9C C0 01 0C8D          226          BNZ   S22
    0CA0 0C 06 19EA 19CC     227          MVC   MSG25(7),GOOF
    0CA6 3A 04 1CB1          228          SBN   MARK,MARK5
    0CAA C0 87 1527          229          B     REPLCE
    0CAE A00000        0CB0  230          DC    XL3'A00000'
    0CB1 C2 01 00A5          231          LA    165,XR1
    0CB5 30 19 1CFA          232 S2       SNS   STATUS,X'19'
    0CB9 38 40 1CF9          233          TBN   STATUS-1,X'40'
    0CBD F2 10 1F            234          JT    S1
    0CC0 36 01 1D0A          235          A     HEXFF,XR1
    0CC4 C0 01 0CB5          236          BNZ   S2
    0CC8 0C 03 19E7 1C0D     237          MVC   MSG25-3(4),GO
    0CCE 3A 04 1CB1          238          SBN   MARK,MARK5
    0CD2 0C 01 1CFA 1CF6     239          MVC   STATUS(2),ZERO
    0CD8 C0 87 1527          240          B     REPLCE
    0CDC A00000        0CDE  241          DC    XL3'A00000'
    0CDF C2 01 0046          242 S1       LA    70,XR1
    0CE3 30 19 1CFA          243 S3       SNS   STATUS,X'19'
    0CE7 39 40 1CF9          244          TBF   STATUS-1,X'40'
    0CEB F2 10 0B            245          JT    S5
    0CEE 36 01 1D0A          246          A     HEXFF,XR1
    0CF2 C0 01 0CE3          247          BNZ   S3
    0CF6 F2 87 17            248          J     S4
    0CF9 0C 03 19E7 1C11     249 S5       MVC   MSG25-3(4),STAY
    0CFF 3A 04 1CB1          250          SBN   MARK,MARK5
    0D03 0C 01 1CF8 1CF6     251          MVC   STATUS-2(2),ZERO
    0D09 C0 87 1527          252          B     REPLCE
    0D0D 800000        0D0F  253          DC    XL3'800000'
    0D10 C0 87 0216          254 S4       B     LINK
                             255 *
                             256 *********
                             257 * RTN02 *
                             258 *********
                             259 *
                             260 *
    0D14 02                  261 RTN02    DC    XL1'02'
    0D15 00                  262          DC    XL1'00'
    0D16 0EA1                263          DC    AL2(RTN03)
                             264
                             264
    0D18 C0 87 021A          265          B     PRINT
    0D1C 41                  266          DC    XL1'41'
    0D1D 28                  267          DC    IL1'40'
    0D1E 1960                268          DC    AL2(MSG04)
    0D20 10A2                269          DC    XL2'10A2'
    0D22 3A 10 1CB1          270          SBN   MARK,MARK3
```

```
REPLACE
 B2N2
CHECK XLATOR CHECK ON


REPLACE
 B2L2, B2M2, B2N2
 CHECK CYCLE FL OFF

 REPLACE
  A-B2N2


CLEAR
 STATUS


REPLACE
 B2L2,B2N2
WAIT
 SIX
  MSEC
   FOR
    2.62 BIT

SETUP
 ERROR
  MESSAGE
REPLACE
 B2L2, B2N2

WAIT
 2.5 MSEC
  FOR 2.62
   BIT TO GO DOWN


SETUP
 ERROR
  MESSAGE
REPLCE
 A-B2L2
GO TO NEXT ROUTINE

                                          *********
LOAD I/O TESTS                            * RTN02 *
                                          *********

ROUTINE PREFIX
     ROUTINE NUMBER
     NO INTERVENTION REQUIRED
     ADDRESS OF NEXT ROUTINE


PRINT
 ROUTINE
  TITLE
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   0D26 C0 87 1527            271        B     REPLCE              IF LOOPING OCCURS,
   0D2A 880000                272        DC    XL3'880000'          REPLACE A-B2L2,B2R2
   0D2D C0 87 021A            273        B     PRINT               SPACE
   0D31 14                    274        DC    XL1'14'              4 LINES
   0D32 C0 87 0222            275        B     HALT
   0D36 10A2                  276        DC    XL2'10A2'
   0D38 3C 80 0D90            277        MVI   B11+1,X'80'         INITIALIZE
   0D3C 3C 80 0D85            278        MVI   B3+1,X'80'           FOR LOWER
   0D40 3C 40 0D89            279        MVI   B12+1,X'40'            SHIFT REQUIRED
   0D44 C2 01 1C12            280        LA    TABLE1,XR1          SET ADDRESS
   0D48 C2 02 1C38            281        LA    TABLE3,XR2           COUNTERS
   0D4C 0C 02 1CFE 1D01       282        MVC   STSHDB(3),STATL     SET XPTD STATUS
   0D52 D2 01 01              283 REP02  LA    1(,XR1),XR1         INCREMENT COUNTER
   0D55 2C 00 1CFB 00         284        MVC   STSHDb-3(1),0(,XR2) PUT T/R CODE IN STATUS
   0D5A 71 18 00              285        LIO   0(,XR1),X'18'
   0D5D 30 19 1CFA            286        SNS   STATUS,X'19'        SAVE
   0D61 30 18 1CF8            287        SNS   STATUS-2,X'18'       STATUS
   0D65 C0 87 1837            288        B     MOD1                SET RESERVED OFF
   0D69 3B 06 1CF8            289        SBF   STATUS-2,X'06'      SET LONG FUNCTION OFF
   0D6D 3B 80 1CF7            290        SBF   STATUS-3,X'80'      SET UPPR CASE MODE SW OFF
   0D71 3B 04 1CFA            291        SBF   STATUS,X'04'        SET EOF SWITCH OFF
   0D75 39 02 1CFA            292        TBF   STATUS,X'02'        CHECK XLATOR
   0D79 F2 10 0B              293        JT    B1                   CHECK OFF
   0D7C 3C 5C 1E2D            294        MVI   MXLAT,C'*'
   0D80 C0 87 1527            295        B     REPLCE              REPLACE
   0D84 C00000                296        DC    XL3'C00000'          L2,M2
   0D87 2D 00 1CF7 00         297 B1     CLC   STATUS-3(1),0(,XR2) CHECK T/R CODE
   0D8C F2 81 12              298        JE    B2
   0D8F 38 80 1CF8            299 B11    TBN   STATUS-2,X'80'      CHECK FOR LOWER
   0D93 F2 10 0B              300        JT    B2                   SHIFT REQUIRED
   0D96 3C 5C 1DB9            301        MVI   MLWR,C'*'
   0D9A C0 87 1527            302        B     REPLCE              REPLACE
   0D9E C00000                303        DC    XL3'C00000'          L2, M2
   0DA1 2D 00 1CF7 00         304 B2     CLC   STATUS-3(1),0(,XR2) CHECK
   0DA6 F2 81 0B              305        JE    B3                   T/R CODE
   0DA9 3C 38 171C            306        MVI   LEN1,X'38'
   0DAD C0 87 1527            307        B     REPLCE              REPLACE
   0DB1 600000                308        DC    XL3'600000'          B2M2, B2N2
   0DB4 38 80 1CF8            309 B3     TBN   STATUS-2,X'80'      CHECK LW SHIFT ON
   0DB8 39 40 1CF8            310 B12    TBF   STATUS-2,X'40'      CHECK UP SHIFT OFF
   0DBC F2 10 0B              311        JT    B4
   0DBF 3C 5C 1DB9            312        MVI   MLWR,C'*'
   0DC3 C0 87 1527            313        B     REPLCE              REPLACE
   0DC7 600000                314        DC    XL3'600000'          B2M2, B2N2
   0DCA 0D 02 1CFE 1CFA       315 B4     CLC   STSHDB(3),STATUS    CHECK
   0DD0 F2 10 07              316        JT    B5                   REMAINING STATUS
   0DD3 C0 87 1527            317        B     REPLCE              REPLACE
   0DD7 600000                318        DC    XL3'600000'          B2M2, B2N2
   0DDA E2 02 01              319 B5     LA    1(,XR2),XR2         CHECK FOR
   0DDD BD FF 00              320        CLI   0(,XR2),X'FF'        END OF LOWER CASE
   0DE0 C0 01 0D52            321        BNE   REP02
   0DE4 3D 40 0D90            322        CLI   B11+1,X'40'         CHECK FOR
   0DE8 F2 81 1C              323        JE    B6                   END OF UPPER CASE
   0DEB 3C 40 0D90            324        MVI   B11+1,X'40'         INITIALIZE
   0DEF 3C 40 0D85            325        MVI   B3+1,X'40'           FOR
   0DF3 3C 80 0DB9            326        MVI   B12+1,X'80'           UPPER
   0DF7 C2 01 1C25            327        LA    TABLE2,XR1             CASE
   0DFB C2 02 1C38            328        LA    TABLE3,XR2
   0DFF 3C 40 1CFC            329        MVI   STSHDB-2,X'40'
   0E03 C0 87 0D52            330        B     REP02
   0E07 C2 01 1C4B            331 B6     LA    TABLE4,XR1          EBCDIC TABLE
   0E0B C2 02 1C65            332        LA    TABLE5,XR2          T/R TABLE
   0E0F 0C 02 1CFE 1CF6       333        MVC   STSHDB(3),ZERO      SETUP FOR
   0E15 D2 01 01              334 B61    LA    1(,XR1),XR1          LOWER SHIFT
   0E18 71 18 00              335        LIO   0(,XR1),X'18'
   0E18 30 19 1CFA            336        SNS   STATUS,X'19'
   0E1F 30 18 1CF8            337        SNS   STATUS-2,X'18'
   0E23 C0 87 1837            338        B     MOD1
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   0E27 2C 00 1CFB 00         339        MVC   STSHDB-3(1),0(,XR2)
   0E2C 3B 06 1CF8            340        SBF   STATUS-2,X'06'      SET LONG FN OFF
   0E30 3B 80 1CF7            341        SBF   STATUS-3,X'80'      SET UPPR SH REQ OFF
   0E34 3B 04 1CFA            342        SBF   STATUS,X'04'        SET EOF SWITCH OFF
   0E38 0D 03 1CFA 1CFE       343        CLC   STATUS(4),STSHDB    CHECK FOR
   0E3E F2 81 0B              344        JE    B7                   GOOD STATUS
   0E41 3C 5C 1E2D            345        MVI   MXLAT,C'*'
   0E45 C0 87 1527            346        B     REPLCE              REPLACE
   0E49 E00000                347        DC    XL3'E00000'          L2,M2, AND N2
   0E4C E2 02 01              348 B7     LA    1(,XR2),XR2         CHECK FOR
   0E4F BD FF 00              349        CLI   0(,XR2),X'FF'        END
   0E52 C0 01 0E15            350        BNE   B61
   0E56 0C 03 1CFE 1D0E       351        MVC   STSHDB(4),STATNP    INITIALIZE
   0E5C C2 01 1C80            352 B71    LA    TABLE6,XR1           FOR NO PRINT
   0E60 D2 01 01              353        LA    1(,XR1),XR1
   0E63 71 18 00              354        LIO   0(,XR1),X'18'       LOAD BUFFER
   0E66 30 19 1CFA            355        SNS   STATUS,X'19'        SAVE
   0E6A 30 18 1CF8            356        SNS   STATUS-2,X'18'       STATUS
   0E6E C0 87 1837            357        B     MOD1
   0E72 3B 06 1CF8            358        SBF   STATUS-2,X'06'      SET LONG FN OFF
   0E76 3B 80 1CF7            359        SBF   STATUS-3,X'80'      SET UP CASE REQ OFF
   0E7A 3B 04 1CFA            360        SBF   STATUS,X'04'        SET EOF SWITCH OFF
   0E7E 0D 03 1CFA 1CFE       361        CLC   STATUS(4),STSHDB    CHECK FOR
   0E84 F2 81 16              362        JE    B8                   CORRECT STATUS
   0E87 3C 5C 1E2D            363        MVI   MXLAT,C'*'
   0E8B 3C 5C 1D1C            364        MVI   MNOP,C'*'
   0E8F C0 87 1527            365        B     REPLCE              REPLACE
   0E93 E00000                366        DC    XL3'E00000'          L2,M2,AND N2
   0E96 7D 66 00              367        CLI   0(,XR1),X'66'       CHECK
   0E99 C0 01 0E60            368        BNE   B71+4                  FOR END OF LIST
   0E9D C0 87 0216            369 B8     B     LINK
                              370 *
                              371 *********                                  *********
                              372 * RTN03 *          START I/O TESTS         * RTN03 *
                              373 *********                                  *********
                              374 *
                              375 *              ROUTINE PREFIX
   0EA1 03                    376 RTN03  DC    XL1'03'              ROUTINE PREFIX
   0EA2 00                    377        DC    XL1'00'              NO INTERVENTION REQUIRED
   0EA3 0F1A                  378        DC    AL2(RTN04)           ADDRESS OF NEXT ROUTINE
                              379
                              379
   0EA5 C0 87 021A            380        B     PRINT               PRINT
   0EA9 41                    381        DC    XL1'41'              ROUTINE
   0EAA 29                    382        DC    IL1'41'               TITLE
   0EAB 1989                  383        DC    AL2(MSG05)
   0EAD 10A3                  384        DC    XL2'10A3'
   0EAF 3A 10 1CB1            385        SBN   MARK,MARK3
   0EB3 C0 87 1527            386        B     REPLCE              IF LOOPING,
   0EB7 800000                387        DC    XL3'800000'          REPLACE B2L2
   0EBA C0 87 021A            388        B     PRINT               SPACE
   0EBE 14                    389        DC    XL1'14'              4 LINES
   0EBF C0 87 0222            390        B     HALT
   0EC3 10A3                  391        DC    XL2'10A3'
   0EC5 0C 03 1CFE 1CF6       392        MVC   STSHDB(4),ZERO
   0ECB F3 18 00              393        SIO   X'00',PRNT           DISABLE PRINTER
   0ECE C0 87 184B            394        B     SENSOR              SAVE STATUS
   0ED2 39 80 1CF9            395        TBF   STATUS-1,X'80'      CHECK ENABLE OFF
   0ED6 F2 10 0B              396        JT    C1
   0ED9 3C 5C 1E07            397        MVI   MPEN,C'*'
   0EDD C0 87 1527            398        B     REPLCE              REPLACE
   0EE1 A00000                399        DC    XL3'A00000'          B2L2, B2N2
   0EE4 F3 18 04              400 C1     SIO   X'04',PRNT          ENABLE PRINTER
   0EE7 C0 87 184B            401        B     SENSOR              SAVE STATUS
   0EEB 38 80 1CF9            402        TBN   STATUS-1,X'80'      CHECK ENABLE ON
   0EEF F2 10 0B              403        JT    C2
   0EF2 3C 5C 1E07            404        MVI   MPEN,C'*'
   0EF6 C0 87 1527            405        B     REPLCE              REPLACE
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1011 SECTION 1--INITIAL PRINTER DIAGNOSTIC TESTS MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   OEFA A00000           OEFC  406        DC    XL3'A00000'          B2L2, B2N2
   OEFD F3 18 00                407 C2     SIO   X'00',PRNT          DISABLE PRINTER
   OF00 C0 87 184B              408        B     SENSOR               SAVE STATUS
   OF04 39 80 1CF9              409        TBF   STATUS-1,X'80'       CHECK ENABLE OFF
   OF08 F2 10 08                410        JT    C3
   OF0B 3C 5C 1E07              411        MVI   MPEN,C'*'
   OF0F C0 87 1527              412        B     REPLCE               REPLACE
   OF13 800000           OF15   413        DC    XL3'800000'           B2L2
   OF16 C0 87 0216              414 C3     B     LINK                 GO TO NEXT ROUTINE
                                415 *
                                416 *********                                    *********
                                417 * RTN04 *          PRINTER MALFUNCTION TESTS. * RTN04 *
                                418 *********                                    *********
                                419 *
                                420 *                      ROUTINE PREFIX
   OF1A 04               OF1A   421 RTN04  DC    XL1'04'              ROUTINE PREFIX
   OF1B 00               OF1B   422        DC    XL1'00'              NO INTERVENTION REQUIRED
   OF1C FFFF             OF1D   423        DC    XL2'FFFF'            LAST ROUTINE
                                424
                                424
   OF1E C0 87 021A              425        B     PRINT                PRINT
   OF22 41               OF22   426        DC    XL1'41'               ROUTINE
   OF23 19               OF23   427        DC    IL1'25'                TITLE
   OF24 19A2             OF25   428        DC    AL2(MSG06)
   OF26 10EC             OF27   429        DC    XL2'10EC'
   OF28 C0 87 021A              430        B     PRINT                PRINT
   OF2C 01               OF2C   431        DC    XL1'01'              WATCH
   OF2D 28               OF2D   432        DC    IL1'40'                TYPEBALL
   OF2E 1AA9             OF2F   433        DC    AL2(MSGPMF)
   OF30 3A 10 1CB1              434        SBN   MARK,MARK3
   OF34 C0 87 1527              435        B     REPLCE
   OF38 800000           OF3A   436        DC    XL3'800000'          REPLACE B2L2
   OF3B C0 87 021A              437        B     PRINT
   OF3F 06               OF3F   438        DC    XL1'06'
   OF40 0E               OF40   439        DC    IL1'14'
   OF41 1C09             OF42   440        DC    AL2(MSGRES)
   OF43 C0 87 0222              441        B     HALT
   OF47 10EC             OF48   442        DC    XL2'10EC'
   OF49 3C 10 1CFE              443        MVI   STSHDB,X'10'         SET PRINTER
   OF4D 0C 02 1CFD 1CF6         444        MVC   STSHDB-1(3),ZERO      BUSY ON
                                445 *
                                446 *      PRINTER BUSY TEST
                                447 *
   OF53 C0 87 021A              448        B     PRINT                PRINT
   OF57 06               OF57   449        DC    XL1'06'               'PRINTER
   OF58 0C               OF58   450        DC    IL1'12'                 BUSY'
   OF59 1E6D             OF5A   451        DC    AL2(PRBUSY)
   OF5B F3 18 01                452        SIO   X'01',PRNT           RESET PRINTER
   OF5E F3 18 82                453        SIO   X'82',PRNT           START PRINT
   OF61 C0 87 14EC              454        B     DEL05                WAIT
   OF65 C0 87 184B              455        B     SENSOR               SAVE STATUS
   OF69 38 10 1CFA              456        TBN   STATUS,X'10'         CHECK FOR BUSY ON
   OF6D F2 10 29                457        JT    D1
   OF70 C0 87 1504              458        B     SAV3                 RESET MALFUNCTION
   OF74 3C 80 1CFE              459        MVI   STSHDB,X'80'         SET INTRPT PEND ON
   OF78 C0 87 184B              460        B     SENSOR               SAVE STATUS
   OF7C 39 80 1CFA              461        TBF   STATUS,X'80'         CHECK FOR
   OF80 F2 10 0B                462        JT    D2                    INTRPT PEND OFF
   OF83 3C 5C 1E8A              463        MVI   MPEND,C'*'
   OF87 C0 87 1527              464        B     REPLCE               REPLACE
   OF8B 200000           OF8D   465        DC    XL3'200000'           A-B2N2
   OF8E 3C 5C 1E8A              466 D2     MVI   MPEND,C'*'
   OF92 C0 87 1527              467        B     REPLCE               REPLACE
   OF96 C80000           OF98   468        DC    XL3'C80000'           B2L2,B2M2,B2R2
   OF99 C0 87 1504              469 D1     B     SAV3                 RESET STATUS
   OF9D C0 87 184B              470        B     SENSOR
   OFA1 39 05 1CF9              471        TBF   STATUS-1,X'05'       CHECK BITS OFF
   OFA5 F2 10 1D                472        JT    S6
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1011 SECTION 1--INITIAL PRINTER DIAGNOSTIC TESTS MOD 12

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   OFA8 3C 5C 1DEC              473        MVI   MF2L,C'*'
   OFAC 3C 5C 1DCF              474        MVI   MCTL,C'*'
   OFB0 38 05 1CF9              475        TBN   STATUS-1,X'05'       IF MALF BITS STILL ON
   OFB4 F2 10 07                476        JT    D92
   OFB7 C0 87 1527              477        B     REPLCE               REPLACE
   OFBB 080000           OFBD   478        DC    XL3'080000'          B2R2
   OFBE C0 87 1527              479 D92    B     REPLCE               REPLACE
   OFC2 880000           OFC4   480        DC    XL3'880000'          B2L2, B2R2
   OFC5 C0 87 021A              481 S6     B     PRINT                PRINT
   OFC9 06               OFC9   482        DC    XL1'06'               'FEEDBACK
   OFCA 0F               OFCA   483        DC    IL1'15'                 SWITCH'
   OFCB 1D9F             OFCC   484        DC    AL2(FEED)
                                485 *
                                486 *      FEEDBACK SWITCH TEST
                                487 *
   OFCD 3C 10 1CFE              488        MVI   STSHDB,X'10'         SET PRINTER BUSY ON
   OFD1 3C 08 1CFC              489        MVI   STSHDB-2,X'08'       SET FABK SW SAMPLED ON
   OFD5 F3 18 82                490        SIO   X'82',PRNT           ISSUE START PRINT
   OFD8 C0 87 14C5              491        B     DEL49                WAIT 34.6 MILLISECONDS
   OFDC F3 18 22                492        SIO   X'22',PRNT           SET FEEDBACK SWITCH
   OFDF C0 87 14EC              493        B     DEL05                WAIT 8 MILLISECONDS
   OFE3 30 19 1CFA              494        SNS   STATUS,X'19'          SAVE
   OFE7 30 18 1CF8              495        SNS   STATUS-2,X'18'          STATUS
   OFEB 39 02 1CF8              496        TBF   STATUS-2,X'02'       CHECK LONG
   OFEF F2 10 08                497        JT    *+14                    FUNCTION SAMPLED OFF
   OFF2 3C 5C 1D43              498        MVI   MLFNS,C'*'
   OFF6 C0 87 1527              499        B     REPLCE               REPLACE
   OFFA 880000           OFFC   500        DC    XL3'880000'          B2L2, B2R2
   OFFD 38 08 1CF8              501        TBN   STATUS-2,X'08'       CHECK FOR FD SAMP ON
   1001 F2 10 36                502        JT    D80
   1004 3C 5C 1D77              503        MVI   MFDS,C'*'
   1008 C0 87 1504              504        B     SAV3
   100C F3 18 82                505        SIO   X'82',PRNT           ISSUE PRINT COMMAND
   100F C0 87 14C5              506        B     DEL49                WAIT 34.6 MILLISECONDS
   1013 F3 18 22                507        SIO   X'22',PRNT           SET FEEDBACK SWITCH
   1016 C0 87 14EC              508        B     DEL05                WAIT 8 MILLISECONDS
   101A F3 18 02                509        SIO   X'02',PRNT           RESET FEEDBACK SWITCH
   101D C0 87 14EC              510        B     DEL05
   1021 C0 87 184B              511        B     SENSOR
   1025 38 10 1CFA              512        TBN   STATUS,X'10'         CHECK FOR BUSY ON
   1029 F2 10 07                513        JT    D81
   102C C0 87 1527              514        B     REPLCE               REPLACE
   1030 200000           1032   515        DC    XL3'200000'           B2N2
   1033 C0 87 1527              516 D81    B     REPLCE
   1037 980000           1039   517        DC    XL3'980000'          B2L2, B2P2, B2R2
   103A 39 80 1CFA              518 D80    TBF   STATUS,X'80'         CHECK INTERRUPT PEND OFF
   103E 38 10 1CFA              519        TBN   STATUS,X'10'         CHECK FOR BUSY
   1042 38 08 1CF8              520        TBN   STATUS-2,X'08'       CHECK FOR FDBK SAMPLED
   1046 39 01 1CFA              521        TBF   STATUS,X'01'         CHECK MALFUNCTION OFF
   104A F2 10 79                522        JT    D3
   104D 3C 5C 1E61              523        MVI   MBUSY,C'*'
   1051 3C 5C 1E8A              524        MVI   MPEND,C'*'
   1055 3C 5C 1D77              525        MVI   MFDS,C'*'
   1059 3C 5C 1E18              526        MVI   MMAL,C'*'
   105D 3C 5C 1DDF              527        MVI   MXTRA,C'*'
   1061 3C 5C 1DEC              528        MVI   MF2L,C'*'
   1065 38 01 1CFA              529        TBN   STATUS,X'01'         CHECK FOR MALFUNCTION
   1069 38 02 1CF9              530        TBN   STATUS-1,X'02'       CHECK FOR XTRA CYCLE
   106D F2 90 07                531        JF    D4
   1070 C0 87 1527              532        B     REPLCE               REPLACE
   1074 4C0000           1076   533        DC    XL3'4C0000'           B2M2, B2R2, B2S2
   1077 38 01 1CFA              534 D4     TBN   STATUS,X'01'         MALFUNCTION ON
   107B 38 02 1CF9              535        TBN   STATUS-1,X'02'       XTRA CYCLE ON
   107F 39 15 1CF9              536        TBF   STATUS-1,X'15'       CYCLE FL AND OTHER MALF OFF
   1083 F2 90 07                537        JF    D5
   1086 C0 87 1527              538        B     REPLCE               REPLACE
   108A 600000           108C   539        DC    XL3'600000'           B2M2, B2N2
   108D 38 01 1CFA              540 D5     TBN   STATUS,X'01'         MALFUNCTION ON
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   1091 38 06 1CF9            541         TBN   STATUS-1,X'06'      XTRA CYCLE AND FDBACK 2 LATE ON
   1095 F2 90 07              542         JF    D6
   1098 C0 87 1527            543         B     REPLCE              REPLACE
   109C 8C0000          109E  544         DC    XL3'8C0000'          B2L2, B2R2, B2S2
   109F 39 80 1CFA            545 D6      TBF   STATUS,X'80'        CHECK INT PEND
   10A3 F2 10 07              546         JT    D7
   10A6 C0 87 1527            547         B     REPLCE              REPLACE
   10AA A80000          10AC  548         DC    XL3'A80000'          B2L2, B2N2, B2R2
   10AD C0 87 1504            549 D7      B     SAV3
   10B1 38 10 1CFA            550         TBN   STATUS,X'10'        CHECK
   10B5 F2 10 07              551         JT    D8                   BUSY RESET
   10B8 C0 87 1527            552         B     REPLCE              REPLACE
   10BC 200000          10BE  553         DC    XL3'200000'          A-B2N2
   10BF C0 87 1527            554 D8      B     REPLCE              REPLACE
   10C3 980000          10C5  555         DC    XL3'980000'          B2L2, B2P2, B2R2
   10C6 3C 80 1CFE            556 D3      MVI   STSHDB,X'80'        SET INTRPT PEND ON
   10CA 3B 18 1CFC            557         SBF   STSHDB-2,X'18'      SET FDBACK OFF
   10CE F3 18 02              558         SIO   X'02',PRNT          RESET FEEDBACK SW OFF
   10D1 C0 87 14EC            559         B     DEL05               WAIT 8 MILLISECONDS
   10D5 C0 87 184B            560         B     SENSOR              SAVE STATUS
   10D9 39 10 1CFA            561         TBF   STATUS,X'10'        CHECK BUSY OFF
   10DD F2 10 0B              562         JT    D91
   10E0 3C 5C 1E61            563         MVI   MBUSY,C'*'
   10E4 C0 87 1527            564         B     REPLCE              REPLCE
   10E8 480000          10EA  565         DC    XL3'480000'          B2M2, B2R2
   10EB C0 87 1504            566 D91     B     SAV3                RESET MALF BITS
                              567 *
                              568 *       LONG FUNCTION SWITCH TEST
                              569 *
   10EF C0 87 021A            570         B     PRINT               PRINT
   10F3 06              10F3  571         DC    XL1'06'              'LONG
   10F4 14              10F4  572         DC    IL1'20'                FUNCTION
   10F5 1D75            10F6  573         DC    AL2(LONGG)             SWITCH'
   10F7 3C 00 1CFE            574         MVI   STSHDB,X'00'        SET
   10FB 3C 02 1CFC            575         MVI   STSHDB-2,X'02'       XPTD STATUS
   10FF F3 18 12              576         SIO   X'12',PRNT          ISSUE LONG FN COMMAND
   1102 C0 87 14EC            577         B     DEL05               WAIT 8 MILLISECONDS
   1106 C0 87 184B            578         B     SENSOR              SAVE STATUS
   110A 39 08 1CF8            579         TBF   STATUS-2,X'08'      CHECK FEEDBACK
   110E F2 10 0B              580         JT    *+14                 SWITCH SAMPLED OFF
   1111 3C 5C 1D77            581         MVI   MFDS,C'*'
   1115 C0 87 1527            582         B     REPLCE              REPLACE
   1119 880000          111B  583         DC    XL3'880000'          B2L2, B2R2
   111C 38 02 1CF8            584         TBN   STATUS-2,X'02'      CHECK LONG FN
   1120 F2 10 4F              585         JT    D10
   1123 C0 87 1504            586         B     SAV3                RESET SNS BITS
   1127 0C 03 1CFE 1CF6       587         MVC   STSHDB(4),ZERO      SET
   112D 3A 80 1CFE            588         SBN   STSHDB,X'80'         XPTD STATUS
   1131 3A 02 1CFC            589         SBN   STSHDB-2,X'02'      SET LONG FUNCTION SAMPLED ON
   1135 3C 5C 1D43            590         MVI   MLFNS,C'*'
   1139 F3 18 42              591         SIO   X'42',PRNT          CARRIER RETURN COMMAND
   113C C0 87 14C5            592         B     DEL49
   1140 C0 87 14EC            593         B     DEL05
   1144 F3 18 32              594         SIO   X'32',PRNT          SET FDBACK AND LONG FN
   1147 C0 87 14EC            595         B     DEL05
   114B F3 18 12              596         SIO   X'12',PRNT          OPEN FEEDBACK
   114E C0 87 14EC            597         B     DEL05
   1152 F3 18 02              598         SIO   X'02',PRNT          OPEN LONG FUNCTION
   1155 C0 87 14EC            599         B     DEL05
   1159 C0 87 184B            600         B     SENSOR              SAVE STATUS
   115D 39 10 1CFA            601         TBF   STATUS,X'10'        CHECK BUSY OFF
   1161 F2 10 07              602         JT    D69
   1164 C0 87 1527            603         B     REPLCE              REPLACE
   1168 980000          116A  604         DC    XL3'980000'          L2, R2, P2
   116B C0 87 1527            605 D69     B     REPLCE              REPLACE
   116F 380000          1171  606         DC    XL3'380000'          B2N2, B2R2, B2P2
                              607 *
                              608 *       RESET BUSY TEST
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                              609 *
   1172 C0 87 1504            610 D10     B     SAV3                RESET SNS BITS
   1176 C0 87 021A            611         B     PRINT               PRINT
   117A 06              117A  612         DC    XL1'06'              'RESET
   117B 0A              117B  613         DC    IL1'10'                BUSY'
   117C 1AD1            117D  614         DC    AL2(RSBSY)
   117E 3C 10 1CFE            615         MVI   STSHDB,X'10'        SET BUSY ON
   1182 3C 0A 1CFC            616         MVI   STSHDB-2,X'0A'      SET FDBACK SAMP AND LONG FN SAMP
   1186 F3 18 42              617         SIO   X'42',PRNT          ISSUE CARRIER RETURN COMMAND
   1189 C0 87 14C5            618         B     DEL49               WAIT
   118D C0 87 14EC            619         B     DEL05                42 MILLISECONDS
   1191 F3 18 32              620         SIO   X'32',PRNT          SET FEEDBACK AND LONG FN
   1194 C0 87 14EC            621         B     DEL05               WAIT 8 MILLISECONDS
   1198 C0 87 184B            622         B     SENSOR              SAVE STATUS
   119C 3B 24 1CFA            623         SBF   STATUS,X'24'        SET NON-PRINT CHAR AND EOF SWITCH OFF
   11A0 3B 80 1CF7            624         SBF   STATUS-3,X'80'      SET UPPR CASE MODE SW OFF
   11A4 0D 02 1CFA 1CFE       625         CLC   STATUS(3),STSHDB    CHECK FOR
   11AA F2 81 67              626         JE    D12                  GOOD STATUS
   11AD 38 90 1CFA            627         TBN   STATUS,X'90'        CHECK INTRPT PEND AND BUSY ON
   11B1 38 0A 1CF8            628         TBN   STATUS-2,X'0A'      CHECK LONG FN AND FEEDBACK ON
   11B5 F2 90 17              629         JF    D70
   11B8 3C 5C 1E8A            630         MVI   MPEND,C'*'
   11BC 3C 5C 1E61            631         MVI   MBUSY,C'*'
   11C0 3C 5C 1D43            632         MVI   MLFNS,C'*'
   11C4 3C 5C 1D77            633         MVI   MFDS,C'*'
   11C8 C0 87 1527            634         B     REPLCE              REPLACE
   11CC 280000          11CE  635         DC    XL3'280000'          B2N2, B2R2
   11CF 39 08 1CFA            636 D70     TBF   STATUS,X'08'        CHECK END OF LINE ON
   11D3 F2 10 13              637         JT    D13
   11D6 3C 5C 1E54            638         MVI   MEOL,C'*'
   11DA 3A 01 1CB2            639         SBN   PRTMSG,X'01'        SET PRINT MSG FLAG                    GNK
   11DE 3C F1 1EDB            640         MVI   FDB,X'F1'            MOVE IN PROPER NO.                   GNK
   11E2 C0 87 1527            641         B     REPLCE              REPLACE
   11E6 0C0040          11E8  642         DC    XL3'0C0040'          B2R2, B2S2, CABLE(GC553)              GK
   11E9 38 04 1CF9            643 D13     TBN   STATUS-1,X'04'      CHECK FEED 2 LATE
   11ED F2 90 0B              644         JF    D15
   11F0 3C 5C 1DEC            645         MVI   MF2L,C'*'
   11F4 C0 87 1527            646         B     REPLCE              REPLACE
   11F8 480000          11FA  647         DC    XL3'480000'          B2M2, B2R2
   11FB 39 10 1CFA            648 D15     TBF   STATUS,X'10'        CHECK BUSY ON
   11FF 3C 5C 1E61            649         MVI   MBUSY,C'*'
   1203 F2 10 07              650         JT    D16
   1206 C0 87 1527            651         B     REPLCE              REPLACE
   120A 440000          120C  652         DC    XL3'440000'          A-B2M2, B2S2
   120D C0 87 1527            653 D16     B     REPLCE              REPLACE
   1211 C80000          1213  654         DC    XL3'C80000'          B2L2, B2M2, B2R2
   1214 F3 18 12              655 D12     SIO   X'12',PRNT          RESET FEEDBACK SW
   1217 C0 87 14EC            656         B     DEL05
   121B 3B 18 1CFC            657         SBF   STSHDB-2,X'18'      SET FEEDBACK SW OFF
   121F C0 87 184B            658         B     SENSOR
   1223 3B 24 1CFA            659         SBF   STATUS,X'24'        SET NON-PRINT CHAR AND EOF SW OFF
   1227 3B 80 1CF7            660         SBF   STATUS-3,X'80'      SET UPPR CASE MODE SW OFF
   122B 0D 02 1CFA 1CFE       661         CLC   STATUS(3),STSHDB    CHECK STATUS
   1231 F2 81 0F              662         JE    D17
   1234 3C 5C 1D43            663         MVI   MLFNS,C'*'
   1238 3C 5C 1E61            664         MVI   MBUSY,C'*'
   123C C0 87 1527            665         B     REPLCE              REPLACE
   1240 080000          1242  666         DC    XL3'080000'          A-B2R2
   1243 3C 80 1CFE            667 D17     MVI   STSHDB,X'80'        SET INTRPT PEND ON
   1247 3C 00 1CFC            668         MVI   STSHDB-2,X'00'      SET LONG FN OFF
   124B F3 18 02              669         SIO   X'02',PRNT          RESET LONG FN
   124E C0 87 14EC            670         B     DEL05               WAIT 8 MILLISECONDS
   1252 C0 87 184B            671         B     SENSOR
   1256 39 10 1CFA            672         TBF   STATUS,X'10'        BUSY OFF
   125A F2 10 0B              673         JT    D18
   125D 3C 5C 1E61            674         MVI   MBUSY,C'*'
   1261 C0 87 1527            675         B     REPLCE              REPLACE
   1265 480000          1267  676         DC    XL3'480000'          B2M2, B2R2
```

1011 SECTION 1--INITIAL PRINTER DIAGNOSTIC TESTS MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   1268 C0 87 1504             677 D18   B     SAV3              RESET SNS BITS
                               678 *
                               679 *       FEEDBACK TOO LATE TEST
                               680 *
   126C C0 87 021A             681         B     PRINT             PRINT
   1270 06              1270   682         DC    XL1'06'            'FEEDBACK
   1271 11              1271   683         DC    IL1'17'              TOO
   1272 1DFD            1273   684         DC    AL2(FD2)             LATE'
   1274 3C 82 1282             685         MVI   SIO2+2,X'82'
   1278 3C 11 1CFE             686         MVI   STSHDB,X'11'      SET BUSY AND MALF ON
   127C 3C 04 1CFD             687         MVI   STSHDB-1,X'04'    SET FEEDBACK 2 LATE ON
   1280 F3 18 00               688 SIO2    SIO   *-*,PRNT          ISSUE COMMAND
   1283 3D 82 1282             689         CLI   SIO2+2,X'82'      WAIT 100
   1287 F2 81 08               690         JE    D19                MSEC IF PRINT
   128A C0 87 14EC             691         B     DEL05               OTHERWISE WAIT
   128E C0 87 14D2             692         B     DEL100               209 MSEC
   1292 C0 87 14D2             693 D19     B     DEL100
   1296 C0 87 14EC             694         B     DEL05
   129A 3D 42 1282             695         CLI   SIO2+2,X'42'
   129E F2 81 5A               696         JE    D20
   12A1 C0 87 184B             697         B     SENSOR            SAVE STATUS
   12A5 3B 24 1CFA             698         SBF   STATUS,X'24'      SET NON-PRINT CHAR AND EOF SW OFF
   12A9 3B 80 1CF7             699         SBF   STATUS-3,X'80'    SET UPPR CASE MODE SW OFF
   12AD 0D 02 1CFA 1CFE        700         CLC   STATUS(3),STSHDB
   12B3 F2 81 39               701         JE    D21
   12B6 3C 5C 1E18             702         MVI   MMAL,C'*'
   12BA 3C 5C 1DEC             703         MVI   MF2L,C'*'
   12BE 39 01 1CFA             704         TBF   STATUS,X'01'      CHECK FOR MALF
   12C2 F2 90 15               705         JF    D22
   12C5 38 04 1CF9             706         TBN   STATUS-1,X'04'    CHECK FOR FEEDBACK 2 LATE
   12C9 F2 10 07               707         JT    D23
   12CC C0 87 1527             708         B     REPLCE            REPLACE
   12D0 8C0000          12D2   709         DC    XL3'8C0000'        B2L2, B2R2, B2S2
   12D3 C0 87 1527             710 D23     B     REPLCE            REPLACE
   12D7 280000          12D9   711         DC    XL3'280000'        B2N2, B2R2
   12DA 39 04 1CF9             712 D22     TBF   STATUS-1,X'04'
   12DE F2 10 07               713         JT    D24
   12E1 C0 87 1527             714         B     REPLCE            REPLACE
   12E5 080000          12E7   715         DC    XL3'080000'        A-B2R2
   12E8 C0 87 1527             716 D24     B     REPLCE            REPLACE
   12EC 200000          12EE   717         DC    XL3'200000'        A-B2N2
   12EF 3C 42 1282             718 D21     MVI   SIO2+2,X'42'      SETUP FOR
   12F3 C0 87 1504             719         B     SAV3
   12F7 C0 87 1280             720         B     SIO2                CARRIER RETURN
   12FB C0 87 184B             721 D20     B     SENSOR
   12FF 38 04 1CF9             722         TBN   STATUS-1,X'04'    CHECK FEEDBACK 2 LATE
   1303 F2 10 08               723         JT    D25
   1306 3C 5C 1DEC             724         MVI   MF2L,C'*'
   130A C0 87 1527             725         B     REPLCE            REPLACE
   130E 040000          1310   726         DC    XL3'040000'        A-B2S2
   1311 C0 87 1504             727 D25     B     SAV3              RESET SNS BITS
                               728 *
                               729 *       2.68 SECOND CHECKOUT
                               730 *
   1315 C0 87 021A             731         B     PRINT             PRINT
   1319 06              1319   732         DC    XL1'06'           '2.68
   131A 0F              131A   733         DC    IL1'15'             SECOND
   131B 19FA            131C   734         DC    AL2(MSG26-16)        BIT'
   131D 0C 02 1CC5 1D04        735         MVC   WORK4(3),C268     WAIT
   1323 F3 18 82               736         SIO   X'82',PRNT       BRING UP PRINTER BUSY
   1326 30 19 1CFA             737 S7      SNS   STATUS,X'19'       2.7 SEC
   132A 38 20 1CF9             738         TBN   STATUS-1,X'20'      FOR STATUS
   132E F2 10 25               739         JT    S9                   BIT TO COME UP
   1331 0F 02 1CC5 1CB6        740         SLC   WORK4(3),ONE
   1337 C0 01 1326             741         BNZ   S7
   133B 0C 03 1A07 1C0D        742         MVC   MSG26-3(4),GO     SETUP
   1341 3A 02 1CB1             743         SBN   MARK,MARK6         ERROR
   1345 0C 31 1CF8 1CF6        744         MVC   STATUS-2(2),ZERO    MESSAGE
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1011 SECTION 1--INITIAL PRINTER DIAGNOSTIC TESTS MOD 12

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   1348 3B 20 1CFA             745         SBF   STATUS,X'20'      SET NON-PRINTABLE CHAR OFF
   134F C0 87 1527             746         B     REPLCE            REPLACE
   1353 240000          1355   747         DC    XL3'240000'        B2N2, B2S2
   1356 C0 87 1504             748 S9      B     SAV3              RESET MALFUNCTION BITS
                               749 *
                               750 *       CYCLE TOO LONG TEST
                               751 *
   135A C0 87 021A             752         B     PRINT             PRINT
   135E 06              135E   753         DC    XL1'06'           'CYCLE
   135F 0E              135F   754         DC    IL1'14'             TOO
   1360 1DDD            1361   755         DC    AL2(TLONG)           LONG'
   1362 3C 81 1CFE             756         MVI   STSHDB,X'81'      SET INTRPT PEND AND MALF ON
   1366 3C 01 1CFD             757         MVI   STSHDB-1,X'01'    SET CYCLE 2 LONG ON
   136A F3 18 82               758         SIO   X'82',PRNT        ISSUE PRINT COMMAND
   136D C0 87 14C5             759         B     DEL49             WAIT 34.6 MILLISECONDS
   1371 F3 18 22               760         SIO   X'22',PRNT        ISSUE FEEDBACK COMMAND
   1374 C2 01 0032             761         LA    50,XR1            WAIT
   1378 C0 87 14D2             762 WAIT    B     DEL100             FIVE
   137C 36 01 1D0A             763         A     HEXFF,XR1           SECONDS
   1380 C0 01 1378             764         BNZ   WAIT
   1384 F3 18 02               765         SIO   X'02',PRNT        RESET FEEDBACK SWITCH
   1387 C0 87 14EC             766         B     DEL05             WAIT 8 MSEC
   138B C0 87 184B             767         B     SENSOR            SAVE STATUS
   138F 3B 24 1CFA             768         SBF   STATUS,X'24'      SET NON-PRINT CHAR AND EOF SW OFF
   1393 3B 80 1CF7             769         SBF   STATUS-3,X'80'    SET UPPR CASE MODE SW OFF
   1397 0D 02 1CFA 1CFE        770         CLC   STATUS(3),STSHDB  CHECK FOR
   139D F2 81 3D               771         JE    D26                CORRECT STATUS
   13A0 3C 5C 1DCF             772         MVI   MCTL,C'*'
   13A4 3C 5C 1E18             773         MVI   MMAL,C'*'
   13A8 38 01 1CF9             774         TBN   STATUS-1,X'01'    CHECK CYCLE 2 LONG
   13AC F2 10 15               775         JT    D27
   13AF 38 01 1CFA             776         TBN   STATUS,X'01'      CHECK MALF
   13B3 F2 10 07               777         JT    D28
   13B6 C0 87 1527             778         B     REPLCE            REPLACE
   13BA 8C0000          13BC   779         DC    XL3'8C0000'        B2L2, B2R2, B2S2
   13BD C0 87 1527             780 D28     B     REPLCE            REPLACE
   13C1 280000          13C3   781         DC    XL3'280000'        A-B2N2, B2R2
   13C4 38 02 1CF9             782 D27     TBN   STATUS-1,X'02'    CHECK XTRA CYCLE
   13C8 3C 5C 1DDF             783         MVI   MXTRA,C'*'
   13CC F2 10 07               784         JT    D29
   13CF C0 87 1527             785         B     REPLCE            REPLACE
   13D3 A00000          13D5   786         DC    XL3'A00000'        B2L2, B2N2
   13D6 C0 87 1527             787 D29     B     REPLCE            REPLACE
   13DA 040000          13DC   788         DC    XL3'040000'        A-B2S2
   13DD C0 87 1504             789 D26     B     SAV3              RESET SNS BITS
                               790 *
                               791 *       EXTRA CYCLE  TEST
                               792 *
   13E1 C0 87 021A             793         B     PRINT             PRINT
   13E5 06              13E5   794         DC    XL1'06'           'XTRA
   13E6 0B              13E6   795         DC    IL1'11'             CYCLE'
   13E7 1DEA            13E8   796         DC    AL2(XTRA)
   13E9 0C 02 1CFE 1CE3        797         MVC   STSHDB(3),XCSTAT  SET XPTD STATUS
   13EF F3 18 A2               798         SIO   X'A2',PRNT        SET FEEDBACK SW
   13F2 C0 87 14EC             799         B     DEL05             WAIT 8 MSEC
   13F6 C0 87 184B             800         B     SENSOR            SAVE STATUS
   13FA 38 01 1CFA             801         TBN   STATUS,X'01'      CHECK MALF ON
   13FE 39 02 1CF9             802         TBF   STATUS-1,X'02'    CHECK XTRA CYCLE OFF
   1402 F2 90 0F               803         JF    **18
   1405 3C 5C 1E18             804         MVI   MMAL,C'*'
   1409 3C 5C 1DDF             805         MVI   MXTRA,C'*'
   140D C0 87 1527             806         B     REPLCE            REPLACE
   1411 200000          1413   807         DC    XL3'200000'        A-B2N2
   1414 3B 20 1CFA             808         SBF   STATUS,X'20'      SET NON-PRINT CHAR OFF
   1418 3B 80 1CF7             809         SBF   STATUS-3,X'80'    SET UPPER CASE SW OFF
   141C 38 01 1CFA             810         TBN   STATUS,X'01'      CHECK MALF ON
   1420 38 02 1CF9             811         TBN   STATUS-1,X'02'    CHECK XTRA CYCLE ON
   1424 F2 10 0F               812         JT    D30
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1427 3C 5C 1E18            813        MVI   MMAL,C'*'
   142B 3C 5C 1DDF            814        MVI   MXTRA,C'*'
   142F C0 87 1527             815        B     REPLCE              REPLACE
   1433 0C0000           1435  816        DC    XL3'0C0000'          B2R2, B2S2
   1436 0C 02 1CFE 1CE6        817 D30    MVC   STSHDB(3),XCST1     SET XPTD STATUS
   143C C0 87 1504             818        B     SAV3                RESET SNS BITS
   1440 30 19 1CFA             819        SNS   STATUS,X'19'        SAVE STATUS
   1444 39 02 1CF9             820        TBF   STATUS-1,X'02'      CHECK XTRA CYCLE OFF
   1448 F2 10 0B               821        JT    *+16
   144B 3C 5C 1DDF             822        MVI   MXTRA,C'*'
   144F C0 87 1527             823        B     REPLCE              REPLACE
   1453 080000           1455  824        DC    XL3'080000'          B2R2
   1456 F3 18 82               825        SIO   X'82',PRNT          ISSUE PRINT COMMAND
   1459 C0 87 14DF             826        B     DEL31               WAIT 56 MSEC
   145D F3 18 22               827        SIO   X'22',PRNT          ISSUE FEEDBACK COMMAND
   1460 C0 87 14EC             828        B     DEL05               WAIT 8 MSEC
   1464 C0 87 184B             829        B     SENSOR
   1468 38 01 1CFA             830        TBN   STATUS,X'01'        CHECK MALF ON
   146C 38 02 1CF9             831        TBN   STATUS-1,X'02'      CHECK XTRA CYCLE ON
   1470 F2 10 0F               832        JT    D31
   1473 3C 5C 1DDF             833        MVI   MXTRA,C'*'
   1477 3C 5C 1E18             834        MVI   MMAL,C'*'
   147B C0 87 1527             835        B     REPLCE              REPLACE
   147F 4C0000           1481  836        DC    XL3'4C0000'          B2R2, B2S2, B2M2
   1482 0C 02 1CFE 1CE9        837 D31    MVC   STSHDB(3),XCST2
   1488 C0 87 1504             838        B     SAV3                RESET SNS BITS
   148C F3 18 42               839        SIO   X'42',PRNT          ISSUE RETURN COMMAND
   148F C0 87 14D2             840        B     DEL100              WAIT 200
   1493 C0 87 14D2             841        B     DEL100               MSEC
   1497 F3 18 22               842        SIO   X'22',PRNT          ISSUE FEEDBACK COMMAND
   149A C0 87 14EC             843        B     DEL05               WAIT 8 MSEC
   149E C0 87 184B             844        B     SENSOR
   14A2 38 01 1CFA             845        TBN   STATUS,X'01'        CHECK MALF ON
   14A6 38 02 1CF9             846        TBN   STATUS-1,X'02'      CHECK XTRA CYCLE ON
   14AA F2 10 0F               847        JT    D32
   14AD 3C 5C 1E18             848        MVI   MMAL,C'*'
   14B1 3C 5C 1DDF             849        MVI   MXTRA,C'*'
   14B5 C0 87 1527             850        B     REPLCE              REPLACE
   14B9 040000           14BB  851        DC    XL3'040000'          A-B2S2
   14BC C0 87 1504             852 D32    B     SAV3                RESET MALFUNCTION BITS
   14C0 C0 87 022A             853        B     LOAD                GO TO
   14C4 00               14C4  854        DC    XL1'00'              NEXT SECTION
                               855 *********************************************************************
                               856 *
                               857 *      DELAY SUBROUTINE:  THIS SUBRCUTINE SETS UP AND DELAYS
                               858 *      FOR THE MILLISECOND TIMINGS INDICATED BELOW.
                               859 *
                               860 *********************************************************************
                               861
                               862 DEL49  ST    ENDDEL+3,ARR        SETUP
   14C5 34 08 1503             863        MVC   WORK4(3),CDEL49      FOR 34.6
   14C9 0C 02 1CC5 1CE0        864        J     SUB                   MILLISECONDS
   14CF F2 87 24               865 DEL100 ST    ENDDEL+3,ARR        SETUP
   14D2 34 08 1503             866        MVC   WORK4(3),CDEL10      FOR 98
   14D6 0C 02 1CC5 1CDD        867        J     SUB                   MILLISECONDS
   14DC F2 87 17               868 DEL31  ST    ENDDEL+3,AKR        SETUP
   14DF 34 08 1503             869        MVC   WORK4(3),CDEL31      FOR 56
   14E3 0C 02 1CC5 1CDA        870        J     SUB                   MILLISECONDS
   14E9 F2 87 0A               871 DEL05  ST    ENDDEL+3,ARR        SETUP FOR
   14EC 34 08 1503             872        MVC   WORK4(3),CDEL05      8 MSEC DELAY
   14F0 0C 02 1CC5 1CD7        873 SUB    SLC   WORK4(3),ONE
   14F6 0F 02 1CC5 1CB6        874        BNZ   SUB
   14FC C0 01 14F6             875 ENDDEL B     *-*                 RETURN
   1500 C0 87 C000             876 *
                               877 *      THIS SUBROUTINE RESETS MALFUNCTION SENSE BITS
                               878 *
   1504 34 08 1526             879 SAV3   ST    ESAV3+3,ARR
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1508 C2 01 001E             880 SAV4   LA    30,XR1              WAIT
   150C C0 87 14D2             881        B     DEL100               THREE
   1510 36 01 1D0A             882        A     HEXFF,XR1             SECONDS
   1514 C0 01 150C             883        BNZ   SAV4+4
   1518 30 19 1CFA             884        SNS   STATUS,X'19'        RESET
   151C 30 1B 1CF8             885        SNS   STATUS-2,X'1B'       SNS BITS
   1520 F3 18 03               886        SIO   X'03',PRNT
   1523 C0 87 0000             887 ESAV3  B     *-*                 RETURN
                               888 *********************************************************************
                               889 *                                                                   *
                               890 *            THIS SUBROUTINE IS USED TO PRINT CARD CALLOUTS         *
                               891 *            WHICH HAVE BEEN ISOLATED AS FAILING UNITS.             *
                               892 *            LINKAGE IS VIA                                         *
                               893 *                                                                   *
                               894 *                B     REPLCE                                       *
                               895 *                DC    XL3'XXXXXX'                                  *
                               896 *                                                                   *
                               897 *            WHERE -XXXXXX- REPRESENTS THE CARDS TO BE PRINTED.     *
                               898 *                                                                   *
                               899 *********************************************************************
                               900
                               900
   1527 34 08 1694             901 REPLCE ST    END7+3,ARR          SAVE RETURN ADDRESS
   152B 0C 01 1682 1D08        902        MVC   END61+3(2),STATCA
   1531 34 08 1CBE             903        ST    WORK1,ARR           MODIFY
   1535 0E 01 1694 1C88        904        ALC   END7+3,THREE(2)      RETURN
   153B 3C 00 1CD4             905        MVI   SWITCH,X'00'
   153F 34 01 1CF0             906        ST    SAV1,XR1            KEEP CONTENTS
   1543 34 02 1CF2             907        ST    SAV2,XR2             OF THE REGISTERS
   1547 3B 08 1CB1             908        SBF   MAP",MARK4
   154B 35 01 1C8E             909        L     WORK1,XR1
   154F 78 20 01               910        TBN   1(,XR1),X'20'       CHECK FOR SLT CARD PRINTOUT
   1552 F2 90 07               911        JF    *+10
   1555 7B 20 01               912        SBF   1(,XR1),X'20'
   1558 3A 08 1CB1             913        SBN   MARK,MARK4
   155C 39 10 1CB1             914        TBF   MARK,MARK3
   1560 F2 10 21               915        JT    CON11
   1563 C0 87 021A             916        B     PRINT               PRINT
   1567 02               1567  917        DC    XL1'02'              NON-ERROR
   1568 19               1568  918        DC    IL1'25'               REPLACE MESSAGE
   1569 1896             156A  919        DC    AL2(REP)
   156B 0C 01 1682 1D06        920        MVC   END61+3(2),END7A
   1571 3B 10 1CB1             921        SBF   MARK,MARK3
   1575 3C 01 15B7             922        MVI   MOD5,X'01'
   1579 3C 01 15E2             923        MVI   MOD2,X'01'
   157D 3C 01 15F8             924        MVI   MOD3,X'01'
   1581 F2 87 16               925        J     C01
   1584 C0 87 021A             926 CON11  B     PRINT               PRINT
   1588 C2               1588  927        DC    XL1'C2'              REPLACE
   1589 19               1589  928        DC    IL1'25'               CARDS
   158A 1896             158B  929        DC    AL2(REP)              MESSAGE
   158C 1001             158D  930        DC    XL2'1001'
   158E 3C 81 15B7             931        MVI   MOD5,X'81'
   1592 3C 81 15E2             932        MVI   MOD2,X'81'
   1596 3C 81 15F8             933        MVI   MOD3,X'81'
   159A 7D 00 02               934 C01    CLI   2(,XR1),X'00'
   159D F2 81 2B               935        JE    END66
   15A0 C2 02 18D8             936        LA    CABLE,XR2           SETUP FOR
   15A4 3C 01 15A9             937        MVI   TST2+1,X'01'         CABLE PRINTOUT
   15A8 78 00 02               938 TST2   TBN   2(,XR1),*-*         CHECK FOR BIT ON
   15AB F2 90 10               939        JF    INC2
   15AE 2C 04 18BE 00          940        MVC   CABL(5),0(,XR2)      MOVE LOGIC PAGE # INTO PRINTOUT
   15B3 C0 87 021A             941        B     PRINT               PRINT
   15B7 01               15B7  942 MOD5   DC    XL1'01'              'CHECK
   15B8 25               15B8  943        DC    IL1'37'               CABLE
   15B9 18D2             15BA  944        DC    AL2(MSGCAB)           XXXXX'
   15BB F2 87 0D               945        J     END66
   15BE E2 02 05               946 INC2   LA    5(,XR2),XR2         INCREMENT MESSAGE POINTER
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   15C1 0E 00 15A9 15A9        947        ALC   TST2+1(1),TST2+1
   15C7 C0 20 15A8             948        BNOL  TST2
   15CB C2 02 1PA0             949 END66  LA    CARDS,XR2          SET MESSAGE POINTER
   15CF 3C 01 15D4             950 CON1   MVI   TST+1,X'01'        SETUP
   15D3 78 00 00               951 TST    TBN   0(,XR1),*-*        CHECK FOR
   15D6 F2 90 23               952        JF    INC                 CARD PRINTING
   15D9 2C 03 189C 00          953        MVC   CARD(4),0(,XR2)
   15DE C0 87 021A             954        B     PRINT              PRINT
   15E2 01              15E2   955 MOD2   DC    XL1'01'             CARDS
   15E3 06              15E3   956        DC    IL1'6'
   15E4 189C            15E5   957        DC    AL2(CARD)
   15E6 3D 02 15D4             958        CLI   TST+1,X'02'        CHECK FOR B2U2 CARD PRINTOUT
   15EA F2 01 0F               959        JNE   INC
   15ED 38 20 0A0B             960        TBN   MFCU-1,X'20'       MFCU SYS.?
   15F1 F2 90 08               961        JF    INC                  NO, SKIP PRINT
   15F4 C0 87 021A             962        B     PRINT              PRINT
   15F8 01              15F8   963 MOD3   DC    XL1'01'             B2U2
   15F9 23              15F9   964        DC    IL1'35'              SWAPABLE
   15FA 19C5            15FB   965        DC    AL2(MSG12)            WITH A3A3
   15FC E2 02 04               966 INC    LA    4(,XR2),XR2        INCREMENT CARD POINTER
   15FF 0E 00 15D4 15D4        967        ALC   TST+1(1),TST+1     INCREMENT BIT CHECKER
   1605 C0 20 15D3             968        BNOL  TST                CHECK ALL BITS PER BYTE
   1609 D2 01 01               969        LA    1(,XR1),XR1         INCREMENT BYTE COUNTER
   160C 0E 00 1CD4 1CEE        970        ALC   SWITCH,HEX80       CHECK ALL
   1612 C0 20 15CF             971        BNOL  CON1                 BITS FOR ON
   1616 36 01 1D0A             972        A     HEXFF,XR1
   161A 38 03 1CB1             973        TBN   MARK,MARK4
   161E F2 90 0F               974        JF    END6
   1621 C0 87 021A             975        B     PRINT
   1625 81              1625   976        DC    XL1'81'
   1626 08              1626   977        DC    IL1'08'
   1627 187A            1628   978        DC    AL2(MSGSLT)
   1629 3B 08 1CB1             979        SBF   MARK,MARK4
   162D 7A 20 00               980        SBN   0(,XR1),X'20'
   1630 78 20 01               981 END6   TBN   1(,XR1),X'20'      CHECK FOR INTERRUPT PRINTOUT
   1633 F2 90 10               982        JF    FUSE                          GNK
   1636 C0 87 021A             983        B     PRINT              PRINT
   163A 81              163A   984        DC    XL1'81'             INTERRUPT
   163B 4D              163B   985        DC    IL1'77'              MESSAGE
   163C 1A57            163D   986        DC    AL2(MSG141)
   163E C0 87 021A             987        B     PRINT
   1642 81              1642   988        DC    XL1'81'
   1643 2A              1643   989        DC    IL1'42'
   1644 1A81            1645   990        DC    AL2(MSG142)
   1646 3D FF 1CB3             991 FUSE   CLI   FUSTAT,BDFUSE     CHK FOR BAD FUSE PRINTOUT          04
   164A 3B FF 1CB3             992        SBF   FUSTAT,X'FF'          TURN OFF FLAG                 04
   164E F2 01 08               993        JNE   FBKCHT               IF NO FLAG SKIP PRINT         GNK
   1651 C0 87 021A             994        B     PRINT                ELSE PRINT MSG.               04
   1655 81              1655   995        DC    XL1'81'                                            04
   1656 16              1656   996        DC    IL1'22'                                            04
   1657 1EBE            1658   997        DC    AL2(FUSM)                                          04
   1659 38 01 1CB2             998 FBKCHT TBN   PRTMSG,X'01'        CHECK FOR PRINT MSG FLAG      GNK
   165D F2 90 0C               999        JF    END061               SKIP IF NOT ON               GK
   1660 C0 87 021A            1000        B     PRINT              PRINT 'CHK MECH ENTRY          GK
   1664 81              1664  1001        DC    XL1'81'                          CHRT PG 001-AX'  GK
   1665 1D              1665  1002        DC    IL1'29'                                           GK
   1666 1EDB            1667  1003        DC    AL2(FDB)                                          GK
   1668 3B 01 1CB2            1004        SBF   PRTMSG,X'01'        TURN OFF PRINT MSG FLAG       GNK
   166C 35 01 1CF0            1005 END061 L     SAV1,XR1           RESTORE
   1670 35 02 1CF2            1006        L     SAV2,XR2            REGISTERS
   1674 0C 13 1BD2 1BD3       1007        MVC   MSGCAB(20),MSGCAB+1
   167A C0 87 021A            1008        B     PRINT              SPACE
   167E 92              167E  1009        DC    XL1'92'             2 LINES
   167F C0 87 1695            1010 END61  B     STATCK             PRINT XPTD AND RCVD STATUS
   1683 C0 87 021A            1011        B     PRINT              PRINT
   1687 86              1687  1012        DC    XL1'86'             DO NOT
   1688 30              1688  1013        DC    IL1'48'              RESET HALT
   1689 1B15            168A  1014        DC    AL2(MSWARN)
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   168B C0 87 0222            1015        B     HALT               ERROR
   168F 1001            1690  1016        DC    XL2'1001'           HALT
   1691 C0 87 0000            1017 END7   B     *-*                RETURN
                              1018 *
                              1019 *            STATUS RECORDER
   1695 34 08 1836            1020 STATCK ST    ENDSTR+3,ARR
   1699 34 01 1CD1            1021        ST    R1SAV1,XR1          RETAIN CONTENTS
   169D 34 02 1CD3            1022        ST    R2SAV2,XR2           OF REGISTERS
   16A1 0C 00 1CCF 1CF7       1023        MVC   WORK,STATUS-3(1)    KEEP
   16A7 0C 00 1CCE 1CFB       1024        MVC   WORK-1,STSHDB-3(1)    ONLY
   16AD 3B C0 1CCF            1025        SBF   WORK,X'C0'             TITLT
   16B1 3B C0 1CCE            1026        SBF   WORK-1,X'C0'              ROTATE
   16B5 0C 18 1B4C 1B4D       1027        MVC   MSGTR1-1(25),MSGTR1        CODE
   16BB 0C 01 16DD 1CC9       1028        MVC   COR+3(2),AMSTR1     SET UP MESSAGE AREA
   16C1 3C 00 1CD4            1029        MVI   SWITCH,X'00'        CLEAR SWITCH
   16C5 C2 01 1CCF            1030        LA    WORK,XR1            RECEIVED TILT ROTATE CODES
   16C9 3C 01 16D5            1031 DOER1  MVI   TSTR+1,X'01'        SET UP BIT CHECKER
   16CD C2 02 1C98            1032        LA    TABLE7-4,XR2        TABLE FOR PRINTOUTS
   16D1 E2 02 04              1033 DOER   LA    4(,XR2),XR2         INCREMENT TABLE
   16D4 78 00 00              1034 TSTR   TBN   0(,XR1),*-*         CHECK FOR BIT ON
   16D7 F2 90 0B              1035        JF    INCR
   16DA 2C 03 0000 00         1036 COR    MVC   *-*(4),0(,XR2)      IF ON, MOVE TLT-ROTATE
   16DF 0E 01 16DD 1CBA       1037        ALC   COR+3(2),FOUR        CODE TO PRINTOUT AREA
   16E5 0E 00 16D5 16D5       1038 INCR   ALC   TSTR+1,TSTR+1(1)    CHECK ALL BITS
   16EB C0 20 16D1            1039        BNOL  DOER                 IN EACH BYTE
   16EF 3D 80 1CD4            1040        CLI   SWITCH,X'80'
   16F3 F2 81 18              1041        JE    *+27                SET UP FOR
   16F6 0C 01 16DD 1CCB       1042        MVC   COR+3(2),AMSTE1      PRINTING
   16FC C2 01 1CCE            1043        LA    WORK-1,XR1            EXPECTED
   1700 3C 80 1CD4            1044        MVI   SWITCH,X'80'           TILT-ROTATE
   1704 0C 18 1B83 1B84       1045        MVC   MSGTE1-1(25),MSGTE1      CODES
   170A C0 87 16C9            1046        B     DOER1
   170E C0 87 021E            1047        B     UNPACK             UNPACK
   1712 01              1712  1048        DC    IL1'1'              RECEIVED
   1713 1CCF            1714  1049        DC    AL2(WORK)            TILT-ROTATE
   1715 1B33            1716  1050        DC    AL2(MSGTRC-1)          CODES
   1717 C0 87 021A            1051        B     PRINT              PRINT
   171B 81              171B  1052        DC    XL1'81'             RECEIVED
   171C 37              171C  1053 LEN1   DC    IL1'55'              TILT-ROTATE
   171D 1B4D            171E  1054        DC    AL2(MSGTR1)          MESSAGE
   171F 3C 37 171C            1055        MVI   LEN1,X'37'
   1723 C0 87 021E            1056        B     UNPACK             UNPACK
   1727 01              1727  1057        DC    IL1'1'              EXPECTED
   1728 1CCE            1729  1058        DC    AL2(WORK-1)          TILT-ROTATE
   172A 1B6A            172B  1059        DC    AL2(MSGTEX-1)          CODES
   172C C0 87 021A            1060        B     PRINT              PRINT
   1730 82              1730  1061        DC    XL1'82'             EXPECTED
   1731 37              1731  1062        DC    IL1'55'              TILT-ROTATE
   1732 1B84            1733  1063        DC    AL2(MSGTE1)            MESSAGE
   1734 39 04 1CB1            1064        TBF   MARK,MARK5       CHECK FOR 5.24 PRINTOUT
   1738 F2 10 0C              1065        JT    T1
   173B 38 04 1CB1            1066        SBF   MARK,MARK5
   173F C0 87 021A            1067        B     PRINT              PRINT
   1743 82              1743  1068        DC    XL1'82'             5.24
   1744 1E              1744  1069        DC    IL1'30'              MESSAGE
   1745 19EA            1746  1070        DC    AL2(MSG25)
                              1071 T1     TBF   MARK,MARK6       CHECK FOR 2.68 PRINTOUT
   1747 39 02 1CB1            1072        JT    T2
   174B F2 10 0C              1073        SBF   MARK,MARK6
   174E 3B 02 1CB1            1074        B     PRINT              PRINT
   1752 C0 87 021A            1075        DC    XL1'82'             2.68
   1756 82              1756  1076        DC    IL1'32'              MESSAGE
   1757 20              1757  1077        DC    AL2(MSG26)
   1758 1A0A            1759  1078 T2     B     MOD1               SET XPTD STATUS
   175A C0 87 1837            1079        SBF   STATUS-3,X'3F'
   175E 3B 3F 1CF7            1080        SBF   STSHDB-3,X'3F'
   1762 3B 3F 1CFB            1081        MVI   SWITCH,X'00'           CLEAR SWITCH
   1766 3C 00 1CD4            1082        B     PRINT                  PRINT
   176A C0 87 021A
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   176E 82                176E 1083         DC    XL1'82'            'STATUS
   176F 14                176F 1084         DC    IL1'20'              RECEIVED
   1770 1872              1771 1085         DC    AL2(MSGRCV)            WAS,'
   1772 C2 01 1CF7             1086         LA    STATUS-3,XR1     SET UP RECEIVED STATUS POINTER
   1776 F2 87 11               1087         J     CHECK             AND GO CHECK STATUS
   1779 C0 87 021A             1088 EXPSTT B     PRINT            PRINT
   177D 92                1770 1089         DC    XL1'92'            'STATUS
   177E C0 87 021A             1090         B     PRINT
   1782 82                1782 1091         DC    XL1'82'
   1783 14                1783 1092         DC    IL1'20'              EXPECTED
   1784 1AE5              1785 1093         DC    AL2(MSGEXP)            WAS,'
   1786 C2 01 1CFB             1094         LA    STSHDB-3,XR1     SET EXPECTED STATUS POINTER
   178A C2 02 1D0F             1095 CHECK   LA    FIRST-1,XR2      SET FOR CORRECT COUNT
   178E 79 C0 00               1096         TBF   0(,XR1),X'C0'
   1791 79 DE 01               1097         TBF   1(,XR1),X'DE'
   1794 79 87 02               1098         TBF   2(,XR1),X'87'
   1797 79 BF 03               1099         TBF   3(,XR1),X'BF'
   179A F2 90 08               1100         JF    CHECK1              BITS ON
   179D C0 87 021A             1101         B     PRINT                PRINT
   17A1 81                17A1 1102         DC    XL1'81'               'NONE'
   17A2 05                17A2 1103         DC    IL1'5'
   17A3 1EA8              17A4 1104         DC    AL2(NONE)
   17A5 3C 01 17C8             1105 CHECK1 MVI   TSTBTO+1,X'01'       SET
   17A9 2C 00 17D2 00          1106 DOIT   MVC   LENGTH,0(,XR2)        UP
   17AE 0E 00 17D2 1CB6        1107         ALC   LENGTH,ONE            FOR
   17B4 2C 00 17BB 00          1108         MVC   INCADR+2(1),0(,XR2)    STATUS
   17B9 E2 02 00               1109 INCADR LA    *-*(,XR2),XR2           PRINT
   17BC 34 02 17D4             1110         ST    ADRMSG,XR2               OUT
   17C0 E2 02 01               1111         LA    1(,XR2),XR2
   17C3 34 02 1CC7             1112         ST    KEEP1,XR2          SAVE XR2
   17C7 78 00 00               1113 TSTBTO TBN   0(,XR1),*-*        BYPASS PRINTING IF
   17CA F2 90 08               1114         JF    INCBTO              STATUS BIT NOT ON
   17CD C0 87 021A             1115         B     PRINT              PRINT
   17D1 81                17D1 1116         DC    XL1'81'             STATUS
   17D2 00                17D2 1117 LENGTH DC    IL1'0'                IF BIT
   17D3 0000              17D4 1118 ADRMSG DC    AL2(0)                 ON
   17D5 C0 87 17F6             1119 INCBTO B     INCB2
   17D9 0C 00 1CBC 17BB        1120 INCB1  MVC   KEEP2(1),.NCADR+2
   17DF 0F 01 17D4 1CBC        1121         SLC   ADRMSG(2),KEEP2      SUBTRACT MESSAGE COUNT
   17E5 35 02 17D4             1122         L     ADRMSG,XR2
   17E9 8D 01 00               1123         CLI   0(,XR2),X'01'
   17EC F2 81 03               1124         JE    *+6
   17EF BC 40 01               1125         MVI   1(,XR2),X'40'
   17F2 35 02 1CC7             1126         L     KEEP1,XR2          RESTORE XR2
   17F6 0E 00 17C8 17C8        1127 INCB2  ALC   TSTBTO+1,TSTBTO+1(1)  TEST ALL BITS
   17FC C0 20 17A9             1128         BNOL  DOIT                 OF EACH BYTE
   1800 D2 01 01               1129         LA    1(,XR1),XR1         INCREMENT BYTE COUNTER
   1803 8D 04 00 1EA4          1130         CLC   0(5,XR2),NONE-4      LAST BYTE
   1808 C0 01 17A5             1131         BNE   CHECK1               NO--CONTINUE CHECKING
   180C 0C 01 17D8 1CEB        1132         MVC   INCBTO+3(2),AINCB1
   1812 0E 00 1CD4 1CEE        1133         ALC   SWITCH,HEX80          PRINT EXPECTED STATUS
   1818 C0 20 1779             1134         BNOL  EXPSTT                IF NOT ALREADY PRINTED
   181C C0 87 021A             1135         B     PRINT                SPACE THREE
   1820 93                1820 1136         DC    XL1'93'               LINES
   1821 0C 01 17D8 1CED        1137         MVC   INCBTO+3(2),AINCB2
   1827 3B FF 1C61             1138         SBF   MARK,X'FF'           RESET FLAGS
   182B 35 01 1CD1             1139         L     R1SAV1,XR1           RESTORE
   182F 35 02 1CD3             1140         L     R2SAV2,XR2            REGISTERS
   1833 C0 87 0000             1141 ENDSTR B     *-*                  RETURN
                               1142 *
                               1143 *       MOD1 SUBROUTINE:
                               1144 *       SETS RESERVED STATUS BITS TO ZERO.
                               1145 *
   1837 34 08 184A             1146 MOD1   ST    ENDM+3,ARR
   183B 3B 40 1CFA             1147         SBF   STATUS,X'40'         SET
   183F 3B 78 1CF9             1148         SBF   STATUS-1,X'78'        RESERVED
   1843 3B 21 1CF8             1149         SBF   STATUS-2,X'21'         BITS OFF
   1847 C0 87 0000             1150 ENDM   B     *-*                  RETURN
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                            1151 *
                            1152 *       SENSOR SUBROUTINE:
                            1153 *       SAVES KEYBOARD STATUS
   184B 34 08 185E          1154 SENSOR ST    ENDS+3,ARR
   184F 30 18 1CF8          1155         SNS   STATUS-2,X'1B'        SAVE
   1853 30 19 1CFA          1156         SNS   STATUS,X'19'           STATUS
   1857 C0 87 1837          1157         B     MOD1                SET RESERVED BITS OFF
   185B C0 87 0000          1158 ENDS   B     *-*                  RETURN
                            1159 *
                            1160 *       MESSAGES
                            1161 *
   185F E2E3C1E3E4E240D9 1872 1162 MSGRCV DC    CL20'STATUS RECEIVED WAS,'
   1867 C5C3C5C9E5C5C440      1162
   186F E6C1E268              1162
   1873 E2D3E340C3C1D9C4 187A 1163 MSGSLT DC    CL8'SLT CARD'
   187B 40D6D5           187D 1164 BLON   DC    CL3' ON'
   187E D9C5D7D3C1C3C540 1896 1165 REP    DC    CL25'REPLACE FOLLOWING CARD/S:'
   1886 C6D6D3D3D6E6C9D5      1165
   188E C740C3C1D9C461E2      1165
   1896 7A                    1165
   1897 C160             1898 1166         DC    CL2'A-'
   1899 E7E7E7E7         189C 1167 CARD   DC    CL4'XXXX'
   189D C2F3D3F2         18A0 1168 CARDS  DC    CL4'B3L2'
   18A1 C2F2E4F2         18A4 1169         DC    CL4'B2U2'
   18A5 C2F2E2F2         18A8 1170         DC    CL4'B2S2'
   18A9 C2F2D9F2         18AC 1171         DC    CL4'B2R2'
   18AD C2F2D7F2         18B0 1172         DC    CL4'B2P2'
   18B1 C2F2D5F2         18B4 1173         DC    CL4'B2N2'
   18B5 C2F2D4F2         18B8 1174         DC    CL4'B2N2'
   18B9 C2F2D3F2         18BC 1175         DC    CL4'B2L2'
   18BD                  18D4 1176         DS    CL24
   18D5 C2F3E2F2         18D8 1177         DC    CL4'B3S2'
   18D9 C2F3D7F2         18DC 1178         DC    CL4'B3P2'
   18DD E2C5D5E2C540C961 18EA 1179 MSG01  DC    CL14'SENSE I/O TEST'
   18E5 D640E3C5E2E3          1179
   18EB D4C1D5E4C1D3D3E8 18F3 1180         DC    CL9'MANUALLY '
   18F3 40                    1180
   18F4 D7D6E2C9E3C9D6D5 1918 1181         DC    CL37'POSITION CARRIER AT LEFT HAND MARGIN,'
   18FC 40C3C1D9D9C9C5D9      1181
   1904 40C1E340D3C5C6E3      1181
   190C 40C8C1D5C440D4C1      1181
   1914 D9C7C9D56B            1181
   1919 D3D6C1C440D7D9C9 1938 1182 MSG03  DC    CL32'LOAD PRINTER KEYBOARD WITH PAPER'
   1921 D5E3C5D940D2C5E8      1182
   1929 C2D6C1D9C440E6C9      1182
   1931 E3C840D7C1D7C5D9      1182
   1939 D3D6C1C440C961D6 1960 1183 MSG04  DC    CL40'LOAD I/O TEST-IF PROGRAM HANGS ON A LIO '
   1941 40E3C5E2E360C9C6      1183
   1949 40D7D9D6C7D9C1D4      1183
   1951 40C8C1D5C7E240D6      1183
   1959 D540C140D3C9D640      1183
   1961 E2E3C1D9E340C961 1989 1184 MSG05  DC    CL41'START I/O TEST-IF PROGRAM HANGS ON A SIO '
   1969 D640E3C5E2E360C9      1184
   1971 C640D7D9D6C7D9C1      1184
   1979 D440C8C1D5C7E240      1184
   1981 D6D540C140E2C9D6      1184
   1989 40                    1184
   198A D7D9C9D5E3C5D940 19A2 1185 MSG06  DC    CL25'PRINTER MALFUNCTION TESTS'
   1992 D4C1D3C6E4D5C3E3      1185
   199A C9D6D540E3C5E2E3      1185
   19A2 E2                    1185
   19A3 60C160C2F2E4F240 19C5 1186 MSG12  DC    CL35'-A-B2U2 MAY BE SWAPPED WITH A-A3A3-'
   19AB D4C1E840C2C540E2      1186
   19B3 E6C1D7D7C5C440E6      1186
   19BB C9E3C840C160C1F3      1186
   19C3 C1F360                1186
   19C6 C7D640D6C6C640   19CC 1187 GOOF   DC    CL7'GO OFF '
   19CD 5C               19CD 1188         DC    CL1'*'
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    19CE F54BF2F440D4E2C5 19EA 1189 MSG25  DC    CL29'5.24 MSEC BIT DID NOT XXXX ON'
    19D6 C340C2C9E340C4C9      1189
    19DE C440D5D6E340E7E7      1189
    19E6 E7E740D6D5            1189
    19EB 5C               19EB 1190        DC    CL1'*'
    19EC F24BF6F840E2C5C3 1A0A 1191 MSG26  DC    CL31'2.68 SECOND BIT DID NOT XXXX ON'
    19F4 D6D5C440C2C9E340      1191
    19FC C4C9C440D5D6E340      1191
    1A04 E7E7E7E740D6D5        1191
    1A0B C9C640C1D5E840D6 1A34 1192        DC    CL42'IF ANY OTHER INTERRUPTING DEVICES ATTACHED'
    1A13 E3C8C5D940C9D5E3      1192
    1A1B C5D9D9E4D7E3C9D5      1192
    1A23 C740C4C5E5C9C3C5      1192
    1A2B E240C1E3E3C1C3C8      1192
    1A33 C5C4                  1192
    1A35 40E3D640E2E8E2E3 1A57 1193 MSG141 DC    CL35' TO SYSTEM ARE OPERATING CORRECTLY,'
    1A3D C5D440C1D9C540D6      1193
    1A45 D7C5D9C1E3C9D5C7      1193
    1A4D 40C3D6D9D9C5C3E3      1193
    1A55 D3E86B                1193
    1A58 D6D4C9E340C3C8C5 1A81 1194 MSG142 DC    CL42'OMIT CHECKING B3S2, B3P2, AND CABLE(KD141)'
    1A60 C3D2C9D5C740C2F3      1194
    1A68 E2F26B40C2F3D7F2      1194
    1A70 6B40C1D5C440C3C1      1194
    1A78 C2D3C54DD2C4F1F4      1194
    1A80 F15D                  1194
    1A82 E6C1E3C3C840E3E8 1AA9 1195 MSGPMF DC    CL40'WATCH TYPEBALL AND CARRIER-IF ANY MOTION'
    1A8A D7C5C2C1D3D340C1      1195
    1A92 D5C440C3C1D9D9C9      1195
    1A9A C5D960C9C640C1D5      1195
    1AA2 E840D4D6E3C9D6D5      1195
    1AAA D9C5C6C5D940E3D6 1AC7 1196 MFEM   DC    CL30'REFER TO FEMM 2-138 THRU 2-140'
    1AB2 40C6C5D4D440F260      1196
    1ABA F1F3F840E3C8D9E4      1196
    1AC2 40F260F1F4F0          1196
    1AC8 D9C5E2C5E340C2E4 1AD1 1197 RSBSY  DC    CL10'RESET BUSY'
    1AD0 E2E8                  1197
    1AD2 E2E3C1E3E4E240C5 1AE5 1198 MSGEXP DC    CL20'STATUS EXPECTED WAS,'
    1ADA E7D7C5C3E3C5C440      1198
    1AE2 E6C1E26B              1198
    1AE6 E6C1D9D5C9D5C760 1B15 1199 MSWARN DC    CL48'WARNING-RESETTING THIS ERROR HALT MAY BE INVALID'
    1AEE D9C5E2C5E3E3C9D5      1199
    1AF6 C740E3C8C9E240C5      1199
    1AFE D9D9D6D940C8C1D3      1199
    1B06 E340D4C1E840C2C5      1199
    1B0E 40C9D5E5C1D3C9C4      1199
    1B16 5C               1B16 1200        DC    CL1'*'
    1B17 E3C9D3E340D9D6E3 1B34 1201 MSGTRC DC    CL30'TILT ROTATE CODE RECEIVED -  -'
    1B1F C1E3C540C3D6C4C5      1201.
    1B27 40D9C5C3C5C9E5C5      1201
    1B2F C44060404060          1201
    1B35 4040404040404040 1B4D 1202 MSGTR1 DC    CL25'                     '
    1B3D 4040404040404040      1202
    1B45 4040404040404040      1202
    1B4D 40                    1202
    1B4E E3C9D3E340D9D6E3 1B6B 1203 MSGTEX DC    CL30'TILT ROTATE CODE EXPECTED -  -'
    1B56 C1E3C540C3D6C4C5      1203
    1B5E 40C5E7D7C5C3E3C5      1203
    1B66 C44060404060          1203
    1B6C 4040404040404040 1B84 1204 MSGTE1 DC    CL25'                     '
    1B74 4040404040404040      1204
    1B7C 4040404040404040      1204
    1B84 40                    1204
    1B85 D3D6D5C740C6D540 1B8F 1205 LONG   DC    CL11'LONG FN SW)'
    1B8D E2E65D                1205
    1B90 C6C5C5C4C2C1C3D2 1B9F 1206 FDSW   DC    CL16'FEEDBACK SWITCH)'
    1B98 40E2E6C9E3C3C85D      1206
    1BA0 C5D6C640E2E65D   1BA6 1207 EOF    DC    CL7'EOF SW)'
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    1BA7 C5D6D340E2E65D   1BAD 1208 EOL    DC    CL7'EOL SW)'
    1BAE C3C8C5C3D240C3C1 1BB9 1209        DC    CL12'CHECK CABLE('
    1BB6 C2D3C54D              1209
    1BBA E7E7E7E7E7E7     1BBE 1210 CABL   DC    CL5'XXXXX'
    1BBF 4040404040404040 1BD2 1211 MSGCAB DC    20XL1'40'
    1BC7 4040404040404040      1211
    1BCF 40404040              1211
    1BD3 40               1BD3 1212        DC    XL1'40'
    1BD4                  1BD8 1213 CABLE  DS    CL5
    1BD9                  1BEC 1214        DS    CL20
    1BED D2C4F1F4F1       1BF1 1215        DC    CL5'KD141'
    1BF2 C7C3F5F5F3       1BF6 1216        DC    CL5'GC553'
    1BF7 C7C3F5F5F2       1BFB 1217        DC    CL5'GC552'
    1BFC D9C5E2C5E340E3C8 1C09 1218 MSGRES DC    CL14'RESET THE HALT'
    1C04 C540C8C1D3E3          1218
    1C0A 40C7D640         1C0D 1219 GO     DC    CL4' GO '
    1C0E E2E3C1E8         1C11 1220 STAY   DC    CL4'STAY'
                               1221 *
                               1222 *       TABLE1-LOWER SHIFT REQUIRED COMBINATIONS
                               1223 *
    1C12 F1               1C12 1224 TABLE1 DC    XL1'F1'
    1C13 F2F3F4F5F6F7F8F9 1C1A 1225        DC    XL8'F2F3F4F5F6F7F8F9'
    1C1B F060507C5B7B6B4B 1C22 1226        DC    XL8'F060507C5B7B6B4B'
    1C23 61FF             1C24 1227        DC    XL2'61FF'
                               1228 *
                               1229 *       TABLE2-UPPER SHIFT REQUIRED COMBINATIONS
                               1230 *
    1C25 7E               1C25 1231 TABLE2 DC    XL1'7E'
    1C26 4C5E7A6C7D6E5C4D 1C2D 1232        DC    XL8'4C5E7A6C7D6E5C4D'
    1C2E 5D6D4E4A5A7F4F5F 1C35 1233        DC    XL8'5D6D4E4A5A7F4F5F'
    1C36 6FFF             1C37 1234        DC    XL2'6FFF'
                               1235 *
                               1236 *       TABLE3-TILT ROTATE CODES
                               1237 *
    1C38 3F               1C38 1238 TABLE3 DC    XL1'3F'
    1C39 363E353D343C3931 1C40 1239        DC    XL8'363E353D343C3931'
    1C41 3717072710302000 1C48 1240        DC    XL8'3717072710302000'
    1C49 2FFF             1C4A 1241        DC    XL2'2FFF'
                               1242 *
                               1243 *       TABLE4--LOWER SHIFT CHARACTERS
                               1244 *
    1C4B D8               1C4B 1245 TABLE4 DC    XL1'D8'
    1C4C E6C5D9E3E8E4C9D6 1C54 1246        DC    XL9'E6C5D9E3E8E4C9D6D7'
    1C54 D7                    1246
    1C55 C1E2C4C6C7C8D1D2 1C5D 1247        DC    XL9'C1E2C4C6C7C8D1D2D3'
    1C5D D3                    1247
    1C5E E9E7C3E5C2D5D4   1C64 1248        DC    XL7'E9E7C3E5C2D5D4'
                               1249 *
                               1250 *       TABLE5--TILT ROTATE CODES
                               1251 *
    1C65 19               1C65 1252 TABLE5 DC    XL1'19'
    1C66 240D112E29250114 1C6D 1253        DC    XL8'240D112E29250114'
    1C6E 1C0F2605040C091F 1C75 1254        DC    XL8'1C0F2605040C091F'
    1C76 161E212C0E2D061D 1C7E 1255        DC    XL9'161E212C0E2D061D15'
    1C7E 15                    1255
    1C7F FF               1C7F 1256        DC    XL1'FF'
                               1257 *
                               1258 *       TABLE6--NO-PRINT COMBINATIONS
                               1259 *
    1C80 00               1C80 1260 TABLE6 DC    XL1'00'
    1C81 0102030405060708 1C88 1261        DC    XL8'0102030405060708'
    1C89 FFFEFDFCFB8B7B6  1C90 1262        DC    XL8'FFFEFDFCFB8B7B6'
    1C91 A1A09F8C8B757466 1C98 1263        DC    XL8'A1A09F8C8B757466'
    1C99 40D9F140         1C9C 1264 TABLE7 DC    CL4' R1 '
    1C9D 6BD9F2406BD9F2C1 1CB0 1265        DC    CL20',R2 ,R2A,R5 ,T1 ,T2 '
    1CA5 6BD9F5406BE3F140      1265
    1CAD 6BE3F240              1265
                               1266 *
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1267 *                          *********
                         1268 *                          * FLAGS *
                         1269 *                          *********
   1CB1 00               1CB1 1270 MARK    DC    XL1'00'          PROGRAM FLAGS
                         0010 1271 MARK3   EQU   X'10'           NON-ERROR PRINTOUT
                         0008 1272 MARK4   EQU   X'08'           SLT CARD PRINTOUT
                         0004 1273 MARK5   EQU   X'04'           2.62 MILLISECOND BIT
                         0002 1274 MARK6   EQU   X'02'           1.34 SECOND BIT
                         0001 1275 MARK7   EQU   X'01'           SHIFT CYCLE
   1CB2 00               1CB2 1276 PRTMSG  DC    XL1'00'          PRINT MSG FLAG          GNK
   1CB3 00               1CB3 1277 FUSTAT  DC    XL1'00'                                  04
                         00FF 1278 BDFUSE  EQU   X'FF'           BAD FUSE FLAG           04
                         1279 *       CONSTANTS AND STORAGE AREAS
                         1280 *
   1CB4 00               1CB4 1281         DC    XL1'00'
   1CB5 0001             1CB6 1282 ONE     DC    XL2'0001'
   1CB7 0003             1CB8 1283 THREE   DC    XL2'0003'
   1CB9 0004             1CBA 1284 FOUR    DC    XL2'0004'
   1CBB 0000             1CBC 1285 KEEP2   DC    XL2'0000'
   1CBD 0000             1CBE 1286 WORK1   DC    XL2'00'
   1CBF 0000             1CC0 1287         DC    XL2'00'
   1CC1 0000             1CC2 1288         DC    XL2'00'
   1CC3 000000           1CC5 1289 WORK4   DC    XL3'00'
   1CC6 0000             1CC7 1290 KEEP1   DC    XL2'00'
   1CC8 1B38             1CC9 1291 AMSTR1  DC    AL2(MSGTR1-21)
   1CCA 186F             1CCB 1292 AMSTE1  DC    AL2(MSGTE1-21)
   1CCC 00000000         1CCF 1293 WORK    DC    XL4'00'
   1CD0 0000             1CD1 1294 R1SAV1  DC    XL2'00'
   1CD2 0000             1CD3 1295 R2SAV2  DC    XL2'00'
   1CD4 00               1CD4 1296 SWITCH  DC    XL1'00'
   1CD5 000147           1CD7 1297 CDEL05  DC    XL3'000147'
   1CD8 000902           1CDA 1298 CDEL31  DC    XL3'000902'
   1CDB 00100D           1CDD 1299 CDEL10  DC    XL3'00100D'
   1CDE 00058B           1CE0 1300 CDEL49  DC    XL3'00058B'
   1CE1 080211           1CE3 1301 XCSTAT  DC    XL3'080211'
   1CE4 080211           1CE6 1302 XCST1   DC    XL3'080211'
   1CE7 1E0211           1CE9 1303 XCST2   DC    XL3'1E0211'
   1CEA 17D9             1CEB 1304 AINCB1  DC    AL2(INCB1)
   1CEC 17F6             1CED 1305 AINCB2  DC    AL2(INCB2)
   1CEE 80               1CEE 1306 HEX80   DC    XL1'80'
   1CEF 0000             1CF0 1307 SAV1    DC    XL2'00'
   1CF1 0000             1CF2 1308 SAV2    DC    XL2'00'
   1CF3 0000             1CF4 1309         DC    XL2'00'
   1CF5 0000             1CF6 1310 ZERO    DC    XL2'00'
   1CF7 00000000         1CFA 1311 STATUS  DC    XL4'00'
   1CFB 00000000         1CFE 1312 STSHDB  DC    XL4'00'
   1CFF 000080           1D01 1313 STATL   DC    XL3'000080'
   1D02 00EA60           1D04 1314 C268    DC    XL3'00EA60'
   1D05 1691             1D06 1315 END7A   DC    AL2(END7)
   1D07 1695             1D08 1316 STATCA  DC    AL2(STATCK)
   1D09 FFFF             1D0A 1317 HEXFF   DC    XL2'FFFF'
   1D0B 78000020         1D0E 1318 STATNP  DC    XL4'78000020'
                         1319 *
                         1320 *       STATUS MESSAGES
                         1321 *
   1D0F 01               1D0F 1322         DC    IL1'01'
   1D10 01               1D10 1323 FIRST   DC    IL1'01'
   1D11 0101010101010101 1D18 1324         DC    XL8'0101010101010101'
   1D19 0101             1D1A 1325         DC    XL2'0101'
   1D1B 09               1D1B 1326         DC    IL1'09'
   1D1C 40               1D1C 1327 MNOP    DC    XL1'40'
   1D1D D5D640D7D9C9D5E3 1D24 1328         DC    CL8'NO PRINT'
   1D25 1A               1D25 1329         DC    IL1'26'
   1D26 40               1D26 1330         DC    XL1'40'
   1D27 D7D9C9D5E3C5D940 1D3F 1331         DC    CL25'PRINTER SHIFT MODE SWITCH'
   1D2F E2C8C9C6E340D4D6       1331
   1D37 C4C540E2E6C9E3C3       1331
   1D3F C8                     1331
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1D40 0101             1D41 1332         DC    XL2'0101'
   1D42 1D               1D42 1333         DC    IL1'29'
   1D43 40               1D43 1334 MLFNS   DC    XL1'40'
   1D44 D3D6D5C740C6E4D5 1D5F 1335         DC    CL28'LONG FUNCTION SWITCH SAMPLED'
   1D4C C3E3C9D6D540E2E6       1335
   1D54 C9E3C3C840E2C1D4       1335
   1D5C D7D3C5C4               1335
   1D60 15               1D60 1336         DC    IL1'21'
   1D61 40               1D61 1337 MLFN    DC    XL1'40'
   1D62 D3D6D5C740C6E4D5 1D75 1338 LONGG   DC    CL20'LONG FUNCTION SWITCH'
   1D6A C3E3C9D6D540E2E6       1338
   1D72 C9E3C3C8               1338
   1D76 18               1D76 1339         DC    IL1'24'
   1D77 40               1D77 1340 MFDS    DC    XL1'40'
   1D78 C6C5C5C4C2C1C3D2 1D8E 1341         DC    CL23'FEEDBACK SWITCH SAMPLED'
   1D80 40E2E6C9E3C3C840       1341
   1D88 E2C1D4D7D3C5C4         1341
   1D8F 10               1D8F 1342         DC    IL1'16'
   1D90 40               1D90 1343 MFD     DC    XL1'40'
   1D91 C6C5C5C4C2C1C3D2 1D9F 1344 FEED    DC    CL15'FEEDBACK SWITCH'
   1D99 40E2E6C9E3C3C8         1344
   1DA0 0101             1DA1 1345         DC    XL2'0101'
   1DA2 15               1DA2 1346         DC    IL1'21'
   1DA3 40               1DA3 1347         DC    XL1'40'
   1DA4 E4D7D7C5D940E2C8 1DB7 1348         DC    CL20'UPPER SHIFT REQUIRED'
   1DAC C9C6E340D9C5D8E4       1348
   1DB4 C9D9C5C4               1348
   1DB8 15               1DB8 1349         DC    IL1'21'
   1DB9 40               1DB9 1350 MLWR    DC    XL1'40'
   1DBA D3D6E6C5D940E2C8 1DCD 1351         DC    CL20'LOWER SHIFT REQUIRED'
   1DC2 C9C6E340D9C5D8E4       1351
   1DCA C9D9C5C4               1351
   1DCE 0F               1DCE 1352         DC    IL1'15'
   1DCF 40               1DCF 1353 MCTL    DC    XL1'40'
   1DD0 C3E8C3D3C540E3D6 1DDD 1354 TLONG   DC    CL14'CYCLE TOO LONG'
   1DD8 D640D3D6D5C7           1354
   1DDE 0C               1DDE 1355         DC    IL1'12'
   1DDF 40               1DDF 1356 MXTRA   DC    XL1'40'
   1DE0 C5E7E3D9C140C3E8 1DEA 1357 XTRA    DC    CL11'EXTRA CYCLE'
   1DE8 C3D3C5                 1357
   1DEB 12               1DEB 1358         DC    IL1'18'
   1DEC 40               1DEC 1359 MF2L    DC    XL1'40'
   1DED C6C5C5C4C2C1C3D2 1DFD 1360 FD2     DC    CL17'FEEDBACK TOO LATE'
   1DF5 40E3D6D640D3C1E3       1360
   1DFD C5                     1360
   1DFE 0101010101010101 1E05 1361         DC    XL8'0101010101010101'
   1E06 10               1E06 1362         DC    IL1'16'
   1E07 40               1E07 1363 MPEN    DC    XL1'40'
   1E08 D7D9C9D5E3C5D940 1E16 1364         DC    CL15'PRINTER ENABLED'
   1E10 C5D5C1C2D3C5C4         1364
   1E17 14               1E17 1365         DC    IL1'20'
   1E18 40               1E18 1366 MMAL    DC    XL1'40'
   1E19 D7D9C9D5E3C5D940 1E2B 1367         DC    CL19'PRINTER MALFUNCTION'
   1E21 D4C1D3C6E4D5C3E3       1367
   1E29 C9D6D5                 1367
   1E2C 19               1E2C 1368         DC    IL1'25'
   1E2D 40               1E2D 1369 MXLAT   DC    XL1'40'
   1E2E D7D9C9D5E3C5D940 1E45 1370         DC    CL24'PRINTER TRANSLATOR CHECK'
   1E36 E3D9C1D5E2D3C1E3       1370
   1E3E D6D940C3C8C5C3D2       1370
   1E46 0C               1E46 1371         DC    IL1'12'
   1E47 40               1E47 1372 MEOF    DC    XL1'40'
   1E48 C5D5C440D6C640C6 1E52 1373         DC    CL11'END OF FORM'
   1E50 D6D9D4                 1373
   1E53 0C               1E53 1374         DC    IL1'12'
   1E54 40               1E54 1375 MEOL    DC    XL1'40'
   1E55 C5D5C440D6C640D3 1E5F 1376         DC    CL11'END OF LINE'
   1E5D C9D5C5                 1376
```

1011 SECTION 1--INITIAL PRINTER DIAGNOSTIC TESTS MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   1E60 0D               1E60 1377        DC    IL1'13'
   1E61 40               1E61 1378 MBUSY  DC    XL1'40'
   1E62 D7D9C9D5E3C5D940 1E6D 1379 PRBUSY DC    CL12'PRINTER BUSY'
   1E6A C2E4E2E8              1379
   1E6E 18               1E6E 1380        DC    IL1'24'
   1E6F 40               1E6F 1381        DC    XL1'40'
   1E70 D5D6D560D7D9C9D5 1E86 1382        DC    CL23'NON-PRINTABLE CHARACTER'
   1E78 E3C1C2D3C540C3C8      1382
   1E80 C1D9C1C3E3C5D9        1382
   1E87 0101             1E88 1383        DC    XL2'0101'
   1E89 1A               1E89 1384        DC    IL1'26'
   1E8A 40               1E8A 1385 MPEND  DC    XL1'40'
   1E8B D7D9C9D5E3C5D940 1EA3 1386        DC    CL25'PRINTER INTERRUPT PENDING'
   1E93 C9D5E3C5D9D9E4D7      1386
   1E98 E340D7C5D5C4C9D5      1386
   1EA3 C7                    1386
   1EA4 40D5D6D5C5       1EA8 1387 NONE   DC    CL5' NONE'
   1EA9 D6D940C3C8C5C3D2 1EBE 1388 FUSM   DC    CL22'OR CHECK BEZEL FUSE F1'
   1EB1 40C2C5E9C5D340C6      1388
   1EB9 E4E2C540C6F1          1388
   1EBF C3C8D240D4C5C3C8 1EDB 1389 FDB    DC    CL29'CHK MECH ENTRY CHRT PG 001-A '
   1EC7 40C5D5E3D9E840C3      1389
   1ECF C8D9E340D7C740F0      1389
   1ED7 F0F160C140            1389
   1EDC 4DC1D3D340D3C9D5 1EE6 1390 ALLIN  DC    CL11'(ALL LINES)'
   1EE4 C5E25D                1390
                              1391 *
                              1392 *       EQUATES
                              1393 *
                         0001 1394 XR1     EQU   X'01'
                         0002 1395 XR2     EQU   X'02'
                         0008 1396 ARR     EQU   X'08'
                         021A 1397 PRINT   EQU   X'21A'
                         021E 1398 UNPACK  EQU   X'21E'
                         0216 1399 LINK    EQU   X'216'
                         022A 1400 LOAD    EQU   X'022A'
                         0222 1401 HALT    EQU   X'222'
                         0018 1402 PRNT    EQU   X'18'
                         FFFF 1403         END
```


1011 SECTION 1--INITIAL PRINTER DIAGNOSTIC TESTS MOD 12

CROSS-REFERENCE

```
SYMBOL   T LEN VALUE DEFN  REFERENCES
ADRMSG   A 002  17D4 1118  1110* 1121* 1122
AINCB1   A 002  1CEB 1304  1132
AINCB2   A 002  1CED 1305  1137
ALLIN    A 011  1EE6 1390  0085
AMSTE1   A 002  1CCB 1292  1042
AMSTR1   A 002  1CC9 1291  1028
ARR      C 001  0008 1396  0862  0865  0868  0871  0879  0901  0903  1020  1146  1154
A1       A 003  0A83 0073  0064
A10      A 003  0B64 0138  0120
A11      A 003  0B75 0143  0110
A111     A 003  0A5F 0063  0060
A12      A 003  0B95 0152  0145
A13      A 003  0BB8 0161  0153
A14      A 003  0BD4 0168  0139
A15      A 003  0BEB 0174  0169
A16      A 003  0C0A 0182  0175
A17      A 003  0C1B 0187  0183
A18      A 003  0C2C 0192  0188
A19      A 003  0C3D 0197  0193
A2       A 003  0AB9 0088  0133
A20      A 003  0C5F 0207  0203
A201     A 003  0C4E 0202  0198
A21      A 006  0C7D 0219  0213
A211     A 003  0C70 0212  0208
A3       A 003  0ACA 0093  0089
A4       A 003  0ADB 0098  0076
A5       A 003  0B00 0109  0094
A6       A 003  0B11 0114  0162
A7       A 003  0B22 0119  0115
A8       A 003  0B33 0124  0100
A9       A 003  0B48 0131  0126
BDFUSE   C 001  00FF 1278  0084  0991
BLON     A 003  187D 1164  0043
B1       A 005  0D87 0297  0293
B11      A 004  0D8F 0299  0277* 0322  0324*
B12      A 004  0DB8 0310  0279* 0326*
B2       A 005  0DA1 0304  0298  0300
B3       A 004  0DB4 0309  0278* 0305  0325*
B4       A 006  0DCA 0315  0311
B5       A 003  0DDA 0319  0316
B6       A 004  0E07 0331  0323
B61      A 003  0E15 0334  0350
B7       A 003  0E4C 0348  0344
B71      A 004  0E5C 0352  0368
B8       A 004  0E9D 0369  0362
CABL     A 005  1B8E 1210  0940*
CABLE    A 005  1BD8 1213  0936
CARD     A 004  189C 1167  0953* 0957
CARDS    A 004  18A0 1168  0949
CDEL05   A 003  1CD7 1297  0872
CDEL10   A 003  1CDD 1299  0866
CDEL31   A 003  1CDA 1298  0869
CDEL49   A 003  1CE0 1300  0863
CHECK    A 004  178A 1095  1087
CHECK1   A 004  17A5 1105  1100  1131
CON1     A 004  15CF 0950  0971
CON11    A 004  1584 0926  0915
COR      A 005  16DA 1036  1028* 1037* 1042*
CO1      A 003  159A 0934  0925
C1       A 003  0EE4 0400  0396
C2       A 003  0EFD 0407  0403
C268     A 003  1D04 1314  0735
C3       A 004  0F16 0414  0410
DEL05    A 004  14EC 0871  0454  0493  0508  0510  0559  0577  0593  0595  0597  0599  0619  0621
                                0656  0670  0691  0694  0766  0799  0828  0843
DEL100   A 004  14D2 0865  0692  0693  0762  0840  0841  0881
```

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
DEL31	A	004	14DF	0868	0826
DEL49	A	004	14C5	0862	0491 0506 0592 0618 0759
DOER	A	003	16D1	1033	1039
DOER1	A	004	16C9	1031	1046
DOIT	A	005	17A9	1106	1128
D1	A	004	0F99	0469	0457
D10	A	004	1172	0610	0585
D12	A	003	1214	0655	0626
D13	A	004	11E9	0643	0637
D15	A	004	11FB	0648	0644
D16	A	004	120D	0653	0650
D17	A	004	1243	0667	0662
D18	A	004	1268	0677	0673
D19	A	004	1292	0693	0690
D2	A	004	0F8E	0466	0462
D20	A	004	12F8	0721	0696
D21	A	004	12EF	0718	0701
D22	A	004	12DA	0712	0705
D23	A	004	12D3	0710	0707
D24	A	004	12E8	0716	0713
D25	A	004	1311	0727	0723
D26	A	004	13DD	0789	0771
D27	A	004	13C4	0782	0775
D28	A	004	13BD	0780	0777
D29	A	004	13D6	0787	0784
D3	A	004	10C6	0556	0522
D30	A	006	1436	0817	0812
D31	A	006	1482	0837	0832
D32	A	004	14BC	0852	0847
D4	A	004	1077	0534	0531
D5	A	004	108D	0540	0537
D6	A	004	109F	0545	0542
D69	A	004	116B	0605	0602
D7	A	004	10AD	0549	0546
D70	A	004	11CF	0636	0629
D8	A	004	10BF	0554	0551
D80	A	004	103A	0518	0502
D81	A	004	1033	0516	0513
D91	A	004	10EB	0566	0562
D92	A	004	0FBE	0479	0476
ENDDEL	A	004	1500	0875	0862* 0865* 0868* 0871*
ENDM	A	004	1847	1150	1146*
ENDS	A	004	185B	1158	1154*
ENDSTR	A	004	1833	1141	1020*
END061	A	004	166C	1005	0999
END6	A	003	1630	0981	0974
END61	A	004	167F	1010	0902* 0920*
END66	A	004	15CB	0949	0935 0945
END7	A	004	1691	1017	0901* 0904* 1315
END7A	A	002	1D06	1315	0920
EOF	A	007	1BA6	1207	0177
EOL	A	007	1BAD	1208	0171
ESAV3	A	004	1523	0887	0879*
EXPSTT	A	004	1779	1088	1134
FBKCHT	A	004	1659	0998	0993
FDB	A	029	1EDB	1389	0158* 0179* 0640* 1003
FDSW	A	016	1B9F	1206	0165
FD2	A	017	1DFD	1360	0684
FEED	A	015	1D9F	1344	0484
FIRST	A	001	1D10	1323	1095
FOUR	A	002	1C8A	1284	1037
FUSE	A	004	1646	0991	0982
FUSM	A	022	1EBE	1388	0997
FUSTAT	A	001	1CB3	1277	0084* 0991 0992*
GO	A	004	1C0D	1219	0237 0742
GOOF	A	007	19CC	1187	0065 0227

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
HALT	C	001	0222	1401	0053 0275 0390 0441 1015
HEXFF	A	002	1D0A	1317	0225 0235 0246 0763 0882 0972
HEX80	A	001	1CEE	1306	0970 1133
INC	A	003	15FC	0966	0952 0959 0961
INCADR	A	003	17B9	1109	1108* 1120
INCBTO	A	004	17D5	1119	1114 1132* 1137*
INCB1	A	006	17D9	1120	1304
INCB2	A	006	17F6	1127	1119 1305
INCR	A	006	16E5	1038	1035
INC2	A	003	15BE	0946	0939
KEEP1	A	002	1CC7	1290	1112* 1126
KEEP2	A	002	1CBC	1285	1120* 1121
LENGTH	A	001	17D2	1117	1106* 1107*
LEN1	A	001	171C	1053	0306* 1055*
LINK	C	001	0216	1399	0254 0369 0414
LOAD	C	001	022A	1400	0853
LONG	A	011	188F	1205	0156
LONGG	A	020	1D75	1338	0573
MARK	A	001	1CB1	1270	0066* 0228* 0238* 0250* 0270* 0385* [illegible]* 0743* 0908* 0913* 0914 0921* 0973 0979* 1064 1066* 1071 1073* 1138*
MARK3	C	001	0010	1271	0270 0385 0434 0914 0921
MARK4	C	001	0008	1272	0908 0913 0973 0979
MARK5	C	001	0004	1273	0228 0238 0250 1064 1066
MARK6	C	001	0002	1274	0066 0743 1071 1073
MARK7	C	001	0001	1275	
MBUSY	A	001	1E61	1378	0140* 0147* 0523* 0563* 0631* 0649* 0664* 0674*
MCTL	A	001	1DCF	1353	0095* 0135* 0149* 0474* 0772*
MEOF	A	001	1E47	1372	0176*
MEOL	A	001	1E54	1375	0170* 0638*
MFCU	A	003	0A0C	0026	0960
MFD	A	001	1D90	1343	0163* 0204*
MFDS	A	001	1D77	1340	0079* 0116* 0164* 0503* 0525* 0581* 0633*
MFEM	A	030	1AC7	1196	
MF2L	A	001	1DEC	1359	0102* 0111* 0473* 0528* 0645* 0703* 0724*
MLFN	A	001	1D61	1337	0155* 0199*
MLFNS	A	001	1D43	1334	0121* 0154* 0498* 0590* 0632* 0663*
MLWR	A	001	1DB9	1350	0301* 0312*
MMAL	A	001	1E18	1366	0077* 0090* 0101* 0127* 0134* 0146* 0526* 0702* 0773* 0804* 0813* 0834* 0848*
MNOP	A	001	1D1C	1327	0364*
MOD1	A	004	1837	1146	0288 0338 0357 1078 1157
MOD2	A	001	15E2	0955	0923* 0932*
MOD3	A	001	15F8	0963	0924* 0933*
MOD5	A	001	1587	0942	0922* 0931*
MPEN	A	001	1E07	1363	0194* 0397* 0404* 0411*
MPEND	A	001	1E8A	1385	0148* 0184* 0463* 0466* 0524* 0630*
MSGCAB	A	001	18D2	1211	0085* 0156* 0165* 0171* 0177* 0944 1007 1007*
MSGEXP	A	020	1AE5	1198	1093
MSGPMF	A	040	1AA9	1195	0433
MSGRCV	A	020	1872	1162	1085
MSGRES	A	014	1C09	1216	0052 0440
MSGSLT	A	008	187A	1163	0978
MSGTEX	A	030	1B6B	1203	1059
MSGTE1	A	025	1B84	1204	1045 1045* 1063 1292
MSGTRC	A	030	1B34	1201	1050
MSGTR1	A	025	1B4D	1202	1027 1027* 1054 1291
MSG01	A	014	18EA	1179	0041
MSG03	A	032	1938	1182	0048
MSG04	A	040	1960	1183	0268
MSG05	A	041	1989	1184	0383
MSG06	A	025	19A2	1185	0428
MSG12	A	035	19C5	1186	0965
MSG141	A	035	1A57	1193	0986
MSG142	A	042	1A81	1194	0990
MSG25	A	029	19EA	1189	0044* 0227* 0237* 0249* 1070
MSG26	A	031	1A0A	1191	0043* 0044 0065* 0734 0742* 1077

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
MSWARN	A	048	1B15	1199	1014
MXLAT	A	001	1E2D	1369	0209* 0294* 0345* 0363*
MXTRA	A	001	1DDF	1356	0078* 0128* 0189* 0527* 0783* 0805* 0814* 0822* 0833* 0849*
NONE	A	005	1EA8	1387	1104 1130
NS2	A	004	0AA8	0084	0081
ONE	A	002	1CB6	1282	0740 0873 1107
PRBUSY	A	012	1E6D	1379	0451
PRINT	C	001	021A	1397	0038 0045 0049 0265 0273 0380 0388 0425 0430 0437 0448 0481
					0570 0611 0681 0731 0752 0793 0916 0926 0941 0954 0962 0975
					0983 0987 0994 1000 1008 1011 1051 1060 1067 1074 1082 1088
					1090 1101 1115 1135
PRNT	C	001	0018	1402	0393 0400 0407 0452 0453 0490 0492 0505 0507 0509 0558 0576
					0591 0594 0596 0598 0617 0620 0655 0669 0688 0736 0758 0760
					0765 0798 0825 0827 0839 0842 0886
PRTMSG	A	001	1CB2	1276	0157* 0178* 0639* 0998 1004*
REP	A	025	1896	1165	0919 0929
REPLCE	A	004	1527	0901	0061 0069 0071 0082 0086 0091 0096 0105 0107 0112 0117 0122
					0129 0136 0141 0150 0159 0166 0172 0180 0185 0190 0195 0200
					0205 0210 0214 0229 0240 0252 0271 0295 0302 0307 0313 0317
					0346 0365 0386 0398 0405 0412 0435 0464 0467 0477 0479 0499
					0514 0516 0532 0538 0543 0547 0552 0554 0564 0582 0603 0605
					0634 0641 0646 0651 0653 0665 0675 0708 0710 0714 0716 0725
					0746 0778 0780 0785 0787 0806 0815 0823 0835 0850
REP02	A	003	0D52	0283	0321 0330
RSBSY	A	010	1AD1	1197	0614
RTN01	A	001	0A10	0034	0024
RTN02	A	001	0D14	0261	0036
RTN03	A	001	0EA1	0376	0263
RTN04	A	001	0F1A	0421	0378
R1SAV1	A	002	1CD1	1294	1021* 1139
R2SAV2	A	002	1CD3	1295	1022* 1140
SAV1	A	002	1CF0	1307	0906* 1005
SAV2	A	002	1CF2	1308	0907* 1006
SAV3	A	004	1504	0879	0458 0469 0504 0549 0566 0586 0610 0677 0719 0727 0748 0789
					0818 0838 0852
SAV4	A	004	1508	0880	0883
SENSOR	A	004	184B	1154	0394 0401 0408 0455 0460 0470 0511 0560 0578 0600 0622 0658
					0671 0697 0721 0767 0800 0829 0844
SIO2	A	003	1280	0688	0685* 0689 0695 0718* 0720
STATCA	A	002	1D08	1316	0902
STATCK	A	004	1695	1020	1010 1316
STATL	A	003	1D01	1313	0282
STATNP	A	004	1D0E	1318	0351
STATUS	A	004	1CFA	1311	0056 0220* 0222* 0223 0232* 0233 0239* 0243* 0244 0251* 0286* 0287*
					0289* 0290* 0291* 0292 0297 0299 0304 0309 0310 0315 0336* 0337*
					0340* 0341* 0342* 0343 0355* 0356* 0358* 0359* 0360* 0361 0395 0402
					0409 0456 0461 0471 0475 0494* 0495* 0496 0501 0512 0518 0519
					0520 0521 0529 0530 0534 0535 0536 0540 0541 0545 0550 0561
					0579 0584 0601 0623* 0624* 0625 0627 0628 0636 0643 0648 0659*
					0660* 0661 0672 0698* 0699* 0700 0704 0706 0712 0722 0737* 0738
					0744* 0745* 0768* 0769* 0770 0774 0776 0782 0801 0802 0808* 0809*
					0810 0811 0819* 0820 0830 0831 0845 0846 0884* 0885* 1023 1079*
					1086 1147* 1148* 1149* 1155* 1156*
STAY	A	004	1C11	1220	0249
STSHDB	A	004	1CFE	1312	0055* 0219* 0282* 0284* 0315 0329* 0333* 0339* 0343 0351* 0361 0392*
					0443* 0444* 0459* 0488* 0489* 0556* 0557* 0574* 0575* 0587* 0588* 0589*
					0615* 0616* 0625 0657* 0661 0667* 0668* 0686* 0687* 0700 0756* 0757*
					0770 0797* 0817* 0837* 1024 1080* 1094
SUB	A	006	14F6	0873	0864 0867 0870 0874
SWITCH	A	001	1CD4	1296	0905* 0970* 1029* 1040 1044* 1081* 1133*
S1	A	004	0CDF	0242	0234
S2	A	004	0CB5	0232	0224 0236
S22	A	004	0C8D	0222	0226
S3	A	004	0CE3	0243	0247
S4	A	004	0D10	0254	0248
S5	A	006	0CF9	0249	0245

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
S6	A	004	0FC5	0481	0472
S7	A	004	1326	0737	0741
S9	A	004	1356	0748	0739
TABLE1	A	001	1C12	1224	0280
TABLE2	A	001	1C25	1231	0327
TABLE3	A	001	1C38	1238	0281 0328
TABLE4	A	001	1C48	1245	0331
TABLE5	A	001	1C65	1252	0332
TABLE6	A	001	1C80	1260	0352
TABLE7	A	004	1C9C	1264	1032
THREE	A	002	1CB8	1283	0904
TLONG	A	014	1DDD	1354	0755
TST	A	003	15D3	0951	0950* 0958 0967 0967* 0968
TSTBTO	A	003	17C7	1113	1105* 1127 1127*
TSTR	A	003	16D4	1034	1031* 1038 1038*
TST2	A	003	15A8	0938	0937* 0947 0947* 0948
T1	A	004	1747	1071	1065
T2	A	004	175A	1078	1072
UNPACK	C	001	021E	1398	1047 1056
UVWXYZ	A	001	0A00	0005	
WAIT	A	004	1378	0762	0764
WORK	A	004	1CCF	1293	1023* 1024* 1025* 1026* 1030 1043 1049 1058
WORK1	A	002	1CBE	1286	0903* 0909
WORK4	A	003	1CC5	1289	0735* 0740* 0863* 0866* 0869* 0872* 0873*
XCSTAT	A	003	1CE3	1301	0797
XCST1	A	003	1CE6	1302	0817
XCST2	A	003	1CE9	1303	0837
XR1	C	001	0001	1394	0056* 0057 0058 0059 0063 0067 0073 0074 0075 0080 0088 0093
					0098 0099 0103 0109 0114 0119 0124 0125 0131 0132 0138 0143
					0144 0152 0161 0168 0174 0182 0187 0192 0197 0202 0207 0212
					0221* 0225* 0231* 0235* 0242* 0246* 0280* 0283 0283* 0285 0327* 0331*
					0334 0334* 0335 0352* 0353 0353* 0354 0367 0761* 0763* 0880* 0882*
					0906 0909* 0910 0912 0934 0938 0951 0969 0969* 0972* 0980 0981
					1005* 1021 1030* 1034 1043* 1086* 1094* 1096 1097 1098 1099 1113
					1129 1129* 1139*
XR2	C	001	0002	1395	0281* 0284 0297 0304 0319 0319* 0320 0328* 0332* 0339 0348 0348*
					0349 0907 0936* 0940 0946 0946* 0949* 0953 0966 0966* 1006* 1022
					1032* 1033 1033* 1036 1095* 1106 1108 1109 1109* 1110 1111 1111*
					1112 1122* 1123 1125 1126* 1130 1140*
XTRA	A	011	1DEA	1357	0796
ZERO	A	002	1CF6	1310	0055 0059 0219 0220 0239 0251 0333 0392 0444 0587 0744

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

OBJECT CARD LISTING

THE CHARACTER ' INDICATES A BLANK COLUMN AND THE CHARACTERS D̄ Ē H̄ 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'GBD̄'''PN 42	48243'EC 827805'	PRINTER/KEYBOARD	'''''''''MOD'12	84@@84@@	'''''''' 10110000
T+-Y:DAD''''B/'	''|'''AA&''D'CJL	'/OHĒ&-8Q:/C/C'H	ĒB//'C'HR:/YH̄OH*	BF-I+FLT'/OHĒA-8	*B*''3K010110001
T+-Z5/OHSD+D<'13	=G|$B'J37*AUC*A%	AL&HBG|$2'&¬'/1M	XY'''';K'B@/';C'Q	ĒB/X<+-H*%P-&'"H	&A@''6&<10110002
T+-D̄O/1MXI'A'OH*	NI2-''G-A'7-B'X-	H'¬H̄&LC1*G/-@PA7	¬|EO))7-&'¬H&A@B	GEK;H''':"123C'Y	$2J8'9ZM10110003
T+-,,9%BGEK*UHDA	8'&|2U'%@PA8QOH*	NI2-''G-A'?H̄&<C1	*G*"'/1MX̄H'''';'D	C;'&B@ZA||EO;FC1	*G;0'*B'10110004
T+-%W;A'B@/'GOH*	NIOO''<BGEK)-''A	8A'.2UF@@PA7%OH*	NI2-''G-H'¬H̄&B31	*GP¬'/1MXH̄'''';H	A@Z''8HU10110005
T+-_/|C1*GM|'/1M	XD̄'''';DC;'HB@Z'	||EO;FC1*G)"'/1M	XB'''';DC;'DBOI'	H̄>L1*G/-@PA7|OH*	NIOO'RC410110006
T+->"'DA8D'|2UFY	@PA9/OH*NI2'''G-	J'7-A'?H̄&E31*G/-	@PA9/|EO;ST1*G*"	'/1MXB'''';QA@Z'	)|EO'|#Y10110007
T+-?PGM<@PA5/C'Y	$2/>|+-D*%T37G_?	'/1MXI'A';A-AOI	.DL1*GR'@PA57C'@	$31>¬OH*NIO&'&G-	H"H'3H*10110008
T+-OKUAD@PA9MC'Q	$1/>_OH*NI2-'&G-	D"H̄&FL1*GU*<A/?	FF:Q:'J22||Q;6@B	GEK*U'DA8-'|2U'%	@PA8'QR810110009
T+-1(S%BGEK*-''A	8'-.2U'%@PA7¬OH*	NI2-''GS''?H̄&B31	*G-¬'/1MXY'''';&	A@Z'.|EO)Q*BGEK*	-''''&T'10110010
T+-2H;A'A@Z'.|EO	)U<BGEK*-''A8'-|	2U'%@PA8_OH*NI='	''GU&'?H&A@BGEK*	-'''<'13=G|Q<'J3	8G|Q'52&10110011
T+-3CO-D'ZL'RG|Y	9&A39@/'R(-D)B%	ACH4<A/XD̄F*O:AA2	1OH*NI:'''<HA'HM	OFJ3:+D'*=¬H&G3Q	AG&Y'8'-10110012
T+-3=O'D<_&OCF;*	*CLYDG.D<'J3:G|$	'/1MXY'''O-D'JT'	RG|Y9&A39@/'.(-D	)B%'AC+!2/1*<'1X	XGAD';9410110013
T+-49+-&*%&OAG|-	*'%BGEK;'''C'/OH	O'-'+Y*8G'/ZĀHAV	-DH̄P:DAZ1OH*NI8-	''<BG'/YMOH*8H/B	S|H''''&10110014
T+-54CR'@-'65|D'	()*HAGA.B'/O8C'H	*"/4A4-DA.''*=OA	1F''OFJ3:<A%*=<B	GFC*#A/38+8'*'3%	DG|Y'OH010110015
T+-6?+&H*=?H&B31	*GS7'/1MXO'''.&	*'OC2-JH8-A38@/'	.|EO)>*BGEK¬''''	_'A37'|HAB3O8E13'	/1M",Y10110016
T+-7D̄I6'''CS'G|-	9&A38@/'.|EO|>*B	GEK)-'''('/3=G|,	2D¬'/1MXQ'''8-H	A?¬@'O'D(MT5'CRC	2-JO'QB-10110017
T+-8V|D'(UC1'C$M	@-'69O-D*I*HBGC-	@&A3&OH*(M%HAGD?	B'/1VC'H*"/364-D	A*J-'<AU*=T'$G|T	'/1-'6Q&10110018
T+-9-(2O'G|%'+OQ	*=C>'G|*#A@3:C&<	*=/3=@YD.|EO;.*B	GEK¬-''CS'-F'"OC	''&8NC'<*"/4+O-D	*-(H'|&U10110019
T+-:$'&E1F''OFJ3	:<A%*=<BGFC*#A/3	8+8'*'3%DG|Y('13	:G|#2-JQ@PA8_|EO	)G<BGEK¬-''A'R-C	''&8'PR010110020

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+-#OQ<BG'/QC''a	ĒUH*BFUDZFQU&Y3Y	&G.G'/1MX-'''OH*	BF/L'/OHSD̄<<'13	=G|$3F'C'/1/.+Q'	*=¬H';I-10110021
T+-@JD'%@PA8GOH*	NI:'''|<QA<BGFD%	8-A39@/'.|EO;A@B	GEK;-''C3F'C'/1/	.+Q'*=¬H&B31*G-¬	'/1M'MR810110022
T+-'<I8'''<BG'/Q	D'|""OH*BFUDRF̄EH	&#<BG'/YĀHĀDZ+/'	*%*BGEK;'''C'/OH	ĒA-8*B*BG'SH&#CO	&G|8'ĒDH10110023
T+-=GC'H*"J36OH*	BF-Q<GW73F'G3FH.'	/1L%OH*QK3-&G|,	2DBX'/1MD|H'*"%B	GFD%9-A3:@/'.|EO	;>2''')Q'10110024
T+-"B/1MXH'''|EO	;S%BGEK¬H''C'/1M	DOH*QK3UEG|X2DA4	@PA7%|EO)33-EG|X	2D¬'/1MXB'''OH*	NI8-'QL&10110025
T+-"'C'/OHĒA-@	)X3O&G|8@BA3@@1S	BOH*M1¬<QH%BGE+C	OFJ3:<A%*=CUBG|T	2D'%@PA5COH*NI8-'	''C-'Ē&010110026
T+/'8BA38@/'6|EO	))@BGE&L3FH.'/1L	E@1-SOH*M#|<Q'%B	GE+3'/1/.+A'*=?H	&A@BGEK*-''C'/1M	XW'''4H410110027
T+/A3'CW'G|Y8DA3	:+'-*=CUAG|,2DGU	@PA9/|EO;ST1*GP*	@PA8Q|EO)731*G;O	8'J3:+'H*=¬H̄&A@B	GEK*'4S<10110028
T+/B>L'''+'D*=T-	BG|U9EJ39@Z'GOH*	NI6'''C-AG|Y8A/3	9@Z'GOH*NI8O''CW	'G|,2D¬'/1MXD̄''	'OH*'3-<10110029
T+/CZE&&8DA3:@/'	GOH*NI2'''<BGEK;	Q'''@-A3=+1-*"|<	Q'%BGE+3'/1/.+J'	*=?H&B31*GWG'/1M	XK'''=.-10110030
T+/DU'<BGE&L'/OH	ĒA/&|)LO'G|8@'/3	@@1-KOH*M#<BGFD%	9BA38@/'.|EO))@B	GEK;H'''8'/38@/A	|OH*'@$'10110031
T+/E¬E&&<'13=G|Q	:-A3=+-H*"C1*GM|	3FD.'/1LEOH*M#|<	Q<%BGE+33FA.'/1L	%@1-BOH*M#<BGFD%	9DAO'Ē/Q10110032
T+/FĒ=?H&A@BGEK;	Q''C'/1MX+'''OH*	NA<BG'/YFB/,J|A'	*"TOH̄G|33FD.'/1L	EOH*M#|<Q<%BGE+3'	/1-'RR%10110033
T+/GNK3%UG|Y#-A3	7C&H*=/3=@YEX+I'	*=T-H̄G|T2UA*@PA:	H̄|EO;QL1*GM<@PA5	7OH*NI2-''CUHG|,	2DA<'=BY10110034
T+/H&|EO;NCYAG-H	@@J#$OH*NIOO'&C-	DG|X2U'%@PA7%OH*	NI4-''CU&G|Y@PA9	/@/'GOH*NI4&''<B	GEK*'3I*10110035
T+/I.2'''@1-KOH*	M#C%QG|3'/1/.+2&	*=T>'G|*('/3:G|#	2-&@@PA5C|EO;C*B	GEK*H'''@-A3=|''	**|<'NZQ10110036
T+/HFF'./1L%OH*	QK3U&G|,2D'%@PA9	/OH*NI4-''<BGE&L	'/OHĒA/D)"L2BDYH	@DJ3=|'&*"¬<Q'C6	BDYH'*I'10110037
T+/.A@YDHOH*M#<B	GE(./1LKOH*M#C5	BDY.2-N,'/1/.+2&	*=T>'G|*('/3:G|#	2-LU@PA8Q|EO)#CU	AG|Y';OM10110038
T+/.@@Z'N+'&*=¬H	&A@BGEK;<''C'/1M	XH̄'''+&&*=¬H&A@B	GEK*H''C'/1MXH''	'|DHK-%BGE&L'/1H̄	'OH*'O&M10110039
T+/<7FD%8AA39@/'	.|EO)#<BGEK*D''C	'/1MDOH*BF-Q|F¬Y	<'/3EG&L3FHHOFJ3	:+B'*=¬H&I&@BG<M	*_%''@T410110040
T+/(2'J<WC'<ĒA1O	(+-H*%&OAG|-*'T%	-G|,'/1MXI'''OH*	NA<BG'/YFC/7)|HD	*"TOAG|73FH.'/1L	E@1-'2:U10110041
T+/+_H%HA'C.'/1L	K(-D)B%'AD7T3F.'	'/1L%OH*QK3%UG|Y	#-A37C&H*=/3=@YD	'|EO)331*G/-8'J3	9@/''2:O10110042

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+/|YEL-AG|,2D¬	/1MXT OH*NI2-	C-BG|U@PA7¬@/	GOH*NI: <BGEK*	D C /1MDOH*BF-Q	.G;Y 0--10110043
T+/&TC H*"/3T@1S	SOH*M#<BGFD%8 J3	:+£H*=¬H&C31*G/-	@PA7¬OH*NI2 C%	-G|Y#-A37+ D*=T-	BG|U =0%1J110044
T+/J;@/ ||EO;FC1	*G)" /1MXC C H	*"/3WOH*NAC RG|Y	9 /39@/ .|EO)7@B	GEK*H C3FH. /1L	¬@1- ¬A-10110045
T+/KRH%BGE+3 /1/	.+ D*=T-BG|X2D @	@PA7¬|EO;F<BGEK)	< < /3=G+X /1M	D@1/BOH*M4%BGE(.	3FBH ¬HU10110046
T+/LMOH*M#<BGFD%	8 J3:+ H*=¬H&C31	*G/-@PA7¬OH*NIO&	<BGE&L /OHD C&	HE&<< /3EG+C2/2&	4BAM @1<10110047
T+/M| OOBG<M*7¬H	G 3&HE&<< /3EG(,	2/OY4BAMCC H*1J3	PCOH*1J260 DM'%B	G 4BAMWO-D G%B	GE(H @,D10110048
T+/NH(-D)B% AE&O	OFJ3:<A%*=|<Q @B	G 4BAEMC DO-/4	H(-*?-8AEZ&*>CO	G(&4 J30(H*@T%	HG.D NO 10110049
T+/OE(&D*?X-- ¬H	&A7%- LYHG.D9DA2	1@/ /OH*BF-HRFIQ	< JEBG&Q#DA21| D	N_30AE;H@ JP8@Y*	OOH* #IQ10110050
T+/P /,BFJSOD D	@-J07|HDN8T2AE¬/	.2-K?B /?Q| D	NDP- ?H&DBODF#8	OH*BF-DVF'.2/07	S -M LL&10110051
—T+/P#C- NDJOZOB	ND<HBFH @ JPM;	@Z T. <QX C /OH	E &QQXC4BE)L2 &@	8H Y.@Z HOH*BF-D	TF*M 4-@10110052
T+/Q68-HDC- N5AP	MOB N4'HA &8 G(&	*#% -E*@6 J4H+ -	*%¬H&C@BG /DABA/	:+O-*%PY- G-- ¬H	&D< #D810110053
T+/R1/OHE-M4EN@B	G /DAH/DA|¬@*%3?	"G.|2 &T /OHE-JQ	;?T-AG..2U 3 /OH	E-J4;63%AG.H5 J3	O(&H :$H10110054
T+/E%G|H<D1?KF'|	/OHEU%BGEZP /OH	E/T $E*BG SH& *B	G 4BA-6(D*4L&	BG(<< A3|G|*< A3	+G|% ¬AD10110055
T+/$X+@ *33? G<8	<FA_<F44< J$)G<U	@ A3MO-D*330AE_P	B /2Q8-HD; @Z	.. < + J$)G.Y	+ AQ)8<10110056
T+/*S5J$NOB O4L6	G(L2-J-< J$)G<?	B J3+|H *5 OQF8<	$/<BGE%X /OH; J3	|F3| /OHE-L*$LLC	7E1O R&410110057
T+/))OH*BG-D*3/_	DOH*BFYH7F8&9AA2	1@/ <+O&*%*BG /D	BG/XD+&H*%¬H&CC%	BG.G /OHE-S EB%B	GFC* &Y8110110058
T+/;Q+3@*'3%"G|%	@ A3MOH*BFYHMFG.	B J37@Y*JOH*BFZ.	/OHE-/&E9*HAG|?	B /4|;* ;)8A;Q*	B;$@ =9H10110059
T+/¬L "H&B<BG /D	AAJ:Y| DP2BO E'H	C- P4/26." P>OC	S - 4 /¬M8-HA(H	*17- |H&B<BG /D	A =C*10110060
T+/-+ <BGE"Q< A2	3E#%| J¬MG.05 /¬	M?&D 2YDC?D A(&H	*108 E@-P2< -E:X	K &F(A ;Z< AE:M	< J* *$%10110061
T+//I6A3,C- *5A3	>OB P;*BG /DLC D	P6A3_+"@*%LMAG(D	5 /3LOH* C&HFDY	#&A3:+7-*=L%/G|T	/O EK 10110062
T+/SD C&HFE8OF13	8<AU*=%BGFC¬ /O	8>|AB=LS&(XEO@P	I9*PD&+$A8W?S4=(	O@GR1DCO5)XE5'|	A0@M "Z*10110063
T(1S@&<$O4'|O9%X	N14CCO)XDQ;I:OOC	X9=¬XO?|L@%.29|.	B@>.20?.R@%.25".	B@_P20?.M@%.24"H	8QD10110064

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+/U|O?|S@%.35".	S1|PS1MCIQ|R 8@P	S8'LA5;LA4'|Y&(¬	O8%XT2)$N&<|A6)X	I1)V 0;(4@PF84C	HO)M 3TQ10110065
T+/VH1DCMO)XG2)N	,4'$A1DCP6*XN8@P	R&(.E:<.OO)XD&+$	I8@/ 5@GP1)XL5%G	D&<V/5UCT1;.TQ<X	F&(* P.810110066
T+/WE6)$G6*GM&<T	A5*¬S&($N&<E 4@X	O&+.TO)XT&<V/5UC	T1;.TQ<XF&(¬R5%¬	RO)J 2<GN1=I 5_N	OM *,M10110067
T+/X 8%XO&(¬R2)P	T1)V 5<GL1>LNO=|	I5_N 8@PS8=I-OOC	B@>L2&(LA:DCB1MC	S9%GP5@PD&+$I8@/	OO $$Y10110068
T+/X#0¬|A@6CG5UC	O1%R P|N.@?J 5+.	EO4CB2;(1<XD&(P	O84CX9=¬X&($NP|I	.'?/ 8%PC5_PD&<.	I84 68U10110069
T+/Y61<XD&(PO84C	X9=¬X&($N2*R O)P	Y&($T2<PR&<XN8@P	R6;LP8@XN14CD1;P	IO@PS&<GT8@GC2<P	D&+< M8H10110070
T+/NH(-D)B% AE&O	OFJ3:<A%*=|<Q @B	G 4BAEMC DO-/4	H(-*?-8AEZ&*>CO	G(&4 J30(H*@T%	HG.D NO 10110049
T+/Z15UCS:+.T1)J	O)XE&($P1)XA8@X	N14CC5_XR1*|T4=/	,5_LI84CC2<PC4%X	N14CB@=.2E4CB@'¬	2E4 3/ 10110071
T+/D%O)PD&<|AO_|	EL).D@¬L1P;$A8@|	H&+|Y5@PBO)|L&<G	N1DCCO)XR2*PRQ<X	F&<GN:DCM5>|I5_P	R1*Q LH<10110072
T+/,X1)V 8'R 1%P	M5DC2Q|G3=DCT2(X	U&|I-@¬LO6*PS1;(	O>LS:+.TO;|U8UC	E9'¬EO=|E1DCWO;I	,9%D PH*10110073
T+/%S6)PI5*)-6*P	S1;|T2)PG&+|H2;I	1)XR5_V 2<GL84C	MO;/ O%N 2)P/O)|	I1E3T2)|T&(XO8@G	T1M 3Z 10110074
T+/_)O'$D1MCR1*|	E2;PE1DA-&DA-&DA	&DA &DA &DA &DA	&DA &DA &DA &+|	I4=(6)$TO;|E&<|	O1<M R Y10110075
T+/>Q&<PX5@PC8@P	D&FA &FA &DA &DA	&DA &DA &DA &DA	&DA &DA 4'$N14C	F5MCS9V7F1*PDO%G	C4U #E410110076
T+/?L8>$I8@|HP*P	O1UCS9V7E5_(8>R	)O@TEO'I O@GB4@N	(9=¬X9=) &DA &DA	&DA &DA &DA &DA	&D 7#-10110077
T+/OX4%L1'|GGO"P	5@@¬C'¬P26*PS1;(	8@TE&<TA4=(1'R	8>|A:|G2@"L5'?¬	8=¬A-MG1$;6_.Q¬'	=LE8 3Q 10110078
T+/1S;W1'$V1(PO5	+KVZ"L5'?"3@6|TM	'(CO9<L*PA2*&<B	.""Q9%PR8=TU2)$	PO;.D1%¬H4).L:;¬	C9*H ;,*10110079
T+/2)5)&RI 4J.SU	V J&*C2QEA OIG1Q	;HKO+.&Q)E¬@ &H	CA MFAOT""?7@=#S	7_DF-X82.)PJW&(X	1&F% 6D@10110080
T+/3Q6¬I E'X2OO?	R'MA,8"E E=|2&	& C & F3-	$$O AJO ;1-10110081
T+/4L6&H D 4 AQ%	H /DH /D; /DP6J¬	6- H :W	OUJEN""'8 - &D	A &D 1HM10110082
T+/5+ &DA &DA &V	5)R 5'X!5;<E&(¬	R2)PT1)V 8%TI1>(	5($D1MCS9%XTO@-	A J5 4'$N14CF9(P	C8@U @&Y10110083
T+/6I5_N 8>$I8@|	H&+.A5(¬L1*&N&(|	O5*) 1>LNO=|I5_N	8>$I8@|HFDCF1*P	DO%GC4UCS9%XTO@/	8%D "A*10110084
T+/7D5(¬L1*&&&<$	E1*LBO*|K&+.W2;|	C2 DAEMCU5'¬E6MC	S2<XF84CR1)TU2)X	E1AN 4'$W1)V 8%T	I1>< JLU10110085
T+/7"&(XE6+LI6*P	DC4CC:<|L1MCT5_R	4'$N101 1;¬T6*E	O=TC4@MK&<$E1*L	BO*|K&+|O5UCLO;|	E &D 1:<10110086

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: &DA &DADDC	P6*XN8@PR&<PNO*.	L1*&M&(¬R2)PT1)V	5<GL1>LNO=|I5_M	R&(¬R2)PT1)V 8'X	A5;H 5.-10110087
T+/?54@GT5_V 0@T	E0'H<&<PN1DCO1UC	F5_XMCDCE5*J 5%R	4@XN1&5 5'XI5;|	E6MCB9+.YFDCN5_N	-5'U Q@*10110088
T+/:O2)PTO*.L1MC	C2<GRO*|T1)UA JZ	5'XI5;|E6MCI5;|	E6)XU5=(5@PN1<X	N14CN5_PE5_V 0@T	E0'H JL*10110089
T(J#W&<.E:*PL&<$	U8%N 1?GC2(I 5<P	C2DCE5;|R:DCC2(X	T&(¬G&|CO@OCA&D7	A4'(4@XN1;I)	#,U10110090
E""'*E7*=¬DC"PH$	="7M&F| | C	F% ASC R A	SO Q	21310630751	107752$%10110091

LAST PAGE

1021   SECTION 2--INITIAL PRINTER DIAGNOSTIC TESTS   MOD 12

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

                                2 *                                                         LAST CHG :10:28 75
                                3        DECK  4
                                4        SEQ   0
    0A00                        5 UVWXYZ START X'A00'
                                6        TREP
                                7
                                7
                                8 ****************************************************************
                                9 *                                                              *
                               10 *               5471 PRINTER KEYBOARD DIAGNOSTIC TESTS         *
                               11 *                                                              *
                               12 *                  SECTION 2--INITIAL PRINTER TESTS            *
                               13 *                                                              *
                               14 ****************************************************************
                               15 ****                                                        ****
                               16 ****                    SECTION PREFACE                     ****
                               17 ****                                                        ****
                               18 ****************************************************************
                               19
                               19
    0A00 1021            0A01  20        DC    XL2'1021'          PROGRAM ID AND REVISION LEVEL
    0A02 00              0A02  21        DC    XL1'00'            SECTION FLAGS
    0A03 00              0A03  22 CRTNO  DC    XL1'00'            CURRENT ROUTINE NUMBER
    0A04 0000            0A05  23        DC    XL2'00'            RESERVED
    0A06 0A10            0A07  24        DC    AL2(RTNO1)         ADDRESS OF FIRST ROUTINE
    0A08 0000            0A09  25        DC    XL2'00'            RESERVED
    0A0A F00000          0A0C  26 MFCU   DC    XL3'F00000'        MFCU SPUT ENTRY
    0A0D 105000          0A0F  27        DC    XL3'105000'        CONSOLE SPUT ENTRY
                               28 *
                               29 *********                                                *********
                               30 * RTNO1 *              SPACE OPERATION TEST              * RTNO1 *
                               31 *********                                                *********
                               32 *
                               33 *                                ROUTINE PREFIX
    0A10 01              0A10  34 RTNO1  DC    XL1'01'            ROUTINE PREFIX
    0A11 00              0A11  35        DC    XL1'00'            INTERVENTION REQUIRED
    0A12 0C04            0A13  36        DC    AL2(RTNO2)         ADDRESS OF NEXT ROUTINE
                               37
                               37
    0A14 C0 87 021A            38        B     PRINT              PRINT
    0A18 42              0A18  39        DC    XL1'42'             ROUTINE
    0A19 1F              0A19  40        DC    IL1'31'              TITLE
    0A1A 18C2            0A1B  41        DC    AL2(MSG07)
    0A1C 10E2            0A1D  42        DC    XL2'10E2'
    0A1E C0 87 021A            43        B     PRINT              PRINT
    0A22 01              0A22  44        DC    XL1'01'             'FIRST
    0A23 18              0A23  45        DC    IL1'24'              ONE SPACE
    0A24 18DA            0A25  46        DC    AL2(MSG08)             IS TAKEN'
    0A26 C0 87 021A            47        B     PRINT              PRINT
    0A2A 02              0A2A  48        DC    XL1'02'             'THEN CARRIER
    0A2B 34              0A2B  49        DC    IL1'52'               SPACED TO
    0A2C 190E            0A2D  50        DC    AL2(MSG09)              END OF LINE'
    0A2E 0C 06 1D86 1DC2       51        MVC   MSGCAB-12(7),NOPRT
    0A34 3A 10 1ED2            52        SBN   MARK,MARK3
    0A38 C0 87 021A            53        B     PRINT              PRINT                          GK
    0A3C 01              0A3C  54        DC    XL1'01'              'IF ANY                      GK
    0A3D 13              0A3D  55        DC    IL1'19'                      CHAR                 GK
    0A3E 1BC1            0A3F  56        DC    AL2(MSGACP)                      PRINTED'         GK
    0A40 3C F5 211D            57        MVI   FDB,X'F5'          MOVE IN PG NUMBER              GK
    0A44 3A 10 1ED3            58        SBN   PRTMSG,MECM        FLAG MECH ENTRY CHRT MSG       GK
    0A48 C0 87 113B            59        B     REPLCE             REPLACE
    0A4C 422080          0A4E  60        DC    XL3'422080'         B2M2, B2U2, SLT, CABLE(GC552)
    0A4F C0 87 021A            61        B     PRINT              PRINT
    0A53 06              0A53  62        DC    XL1'06'             RESET
    0A54 0E              0A54  63        DC    IL1'14'              THE
    0A55 1D20            0A56  64        DC    AL2(MSGRES)           HALT
    0A57 C0 87 0222            65        B     HALT               HALT
    0A5B 10E2            0A5C  66        DC    XL2'10E2'           OF -E2-
```


1021   SECTION 2--INITIAL PRINTER DIAGNOSTIC TESTS   MOD 12

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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

    0A5D 0C 03 20EE 1F33        67        MVC   STSHDB(4),STATSP   SET XPTD STATUS
    0A63 31 18 1F2F             68        LIO   SPACE,X'18'        LOAD BUFFER FOR A SPACE
    0A67 0C 02 1F36 1F39        69        MVC   COUNT(3),ZONE1     SET UP FOR DELAY
    0A6D C2 02 001E             70        LA    30,XR2
    0A71 C0 87 080E             71        B     PRINT1
    0A75 C0 87 1109             72 REP555 B     DEL100             WAIT
    0A79 36 02 1F43             73        A     HEXFF,XR2           THREE
    0A7D C0 01 0A75             74        BNZ   REP555               SECONDS
    0A81 30 19 20EA             75        SNS   STATUS,X'19'       SAVE STATUS
    0A85 39 01 20EA             76        TBF   STATUS,X'01'       CHECK FOR
    0A89 39 07 20E9             77        TBF   STATUS-1,X'07'      NO MALFUNCTIONS
    0A8D F2 10 12               78        JT    REP15
    0A90 0C 02 18CC 1F36        79 REP35  MVC   MVE(3),COUNT       PRINT
    0A96 C0 87 021A             80        B     PRINT               NUMBER
    0A9A 01               0A9A  81        DC    XL1'01'               OF SPACE
    0A9B 19               0A9B  82        DC    IL1'25'                COMMANDS
    0A9C 18E2             0A9D  83        DC    AL2(MSGSPC)              ISSUED
    0A9E C0 87 08A0             84        B     MSGNON
    0AA2 06 20 1F36 1F3A        85 REP15  AZ    COUNT(3),F1(1)     SPACE
    0AA8 0D 02 1F36 1F3D        86        CLC   COUNT(3),F126       126
    0AAE F2 81 35               87        JE    REP25                POSITIONS
    0AB1 38 08 20EA             88        TBN   STATUS,X'08'       CHECK FOR END OF LINE
    0AB5 F2 10 2E               89        JT    REP25
    0AB8 31 18 1F2F             90        LIO   SPACE,X'18'
    0ABC 30 1B 20E8             91        SNS   STATUS-2,X'1B'
    0AC0 30 19 20EA             92        SNS   STATUS,X'19'
    0AC4 C0 87 1476             93        B     MOD1
    0AC8 3B 80 20E7             94        SBF   STATUS-3,X'80'
    0ACC 3B 04 20EA             95        SBF   STATUS,X'04'       SET EOF SW OFF
    0AD0 3B 06 20E8             96        SBF   STATUS-2,X'06'
    0AD4 0D 03 20EA 20EE        97        CLC   STATUS(4),STSHDB   CHECK FOR
    0ADA C0 01 0A90             98        BNE   REP35               CORRECT STATUS
    0ADE C0 87 080E             99        B     PRINT1
    0AE2 C0 87 0AA2            100        B     REP15               CONTINUE SPACING
    0AE6 3A 08 20EE            101 REP25  SBN   STSHDB,X'08'       CHECK
    0AEA 38 08 20EA            102        TBN   STATUS,X'08'        FOR
    0AEE F2 10 19              103        JT    END05                EOL
    0AF1 0C 06 1D86 1DD9       104        MVC   MSGCAB-12(7),EOL
    0AF7 3C 5C 2089            105        MVI   MEOL,C'*'
    0AFB 3C F1 211D            106        MVI   FDB,X'F1'          MOVE IN PG NUMBER              GK
    0AFF 3A 10 1ED3            107        SBN   PRTMSG,MECM        FLAG MECH ENTRY CHRT MSG       GK
    0B03 C0 87 113B            108        B     REPLCE             REPLACE
    0B07 2C0040          0B09  109        DC    XL3'2C0040'         B2N2, B2R2, B2S2,CABLE(GC553)
    0B0A C0 87 0216            110 END05  B     LINK               GO TO NEXT ROUTINE
    0B0E 34 08 16FC            111 PRINT1 ST    ENDPRT+3,ARR
    0B12 F3 18 80              112        SIO   X'80',PRNT
    0B15 30 1B 20E8            113        SNS   STATUS-2,X'1B'
    0B19 30 19 20EA            114        SNS   STATUS,X'19'
    0B1D 3A 10 20EE            115        SBN   STSHDB,X'10'       SET BUSY ON
    0B21 38 10 20EA            116        TBN   STATUS,X'10'       CHECK BUSY ON
    0B25 F2 10 0E              117        JT    PRINT2
    0B28 3C 5C 2096            118        MVI   MBUSY,C'*'
    0B2C C0 87 17F5            119        B     BBC1               PRINT RETRY MESSAGE
    0B30 C0 87 0222            120        B     HALT
    0B34 1006            0B35  121        DC    XL2'1006'
    0B36 0C 01 20E3 1EF9       122 PRINT2 MVC   WORK3(2),CD65
    0B3C 3A 18 20EC            123        SBN   STSHDB-2,X'18'
    0B40 38 18 20E8            124 PRINT6 TBN   STATUS-2,X'18'
    0B44 F2 10 51              125        JT    PRINT3
    0B47 39 10 20E8            126        TBF   STATUS-2,X'10'
    0B4B F2 10 04              127        JT    PRINT4
    0B4E 3A 04 1ED2            128        SBN   MARK,MARK5         SET FEEDBACK SWITCH RECEIVED FLAG
    0B52 39 08 20E8            129 PRINT4 TBF   STATUS-2,X'08'
    0B56 F2 10 04              130        JT    PRINT5
    0B59 3A 02 1ED2            131        SBN   MARK,MARK6         SET SAMPLED FLAGON
    0B5D 30 1B 20E8            132 PRINT5 SNS   STATUS-2,X'1B'
    0B61 0E 01 20E3 1ED6       133        ALC   WORK3(2),ONE
    0B67 C0 20 0840            134        BNOL  PRINT6
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    0B6B 39 06 1ED2           135        TBF   MARK,X'06'
    0B6F C0 10 08A0           136        BT    MSGNON
    0B73 38 04 1ED2           137        TBN   MARK,MARK5
    0B77 F2 90 0F             138        JF    PRINT8
    0B7A 3C 5C 1FAC           139        MVI   MFDS,C'*'
    0B7E 3B 06 1ED2           140        SBF   MARK,X'06'
    0B82 C0 87 113B           141        B     REPLCE              REPLACE
    0B86 080000         0B88  142        DC    XL3'080000'          B2R2
    0B89 3B 06 1ED2           143 PRINT8 SBF   MARK,X'06'
    0B8D 3C 5C 1FC5           144        MVI   MFD,C'*'
    0B91 C0 87 113B           145        B     REPLCE              REPLACE
    0B95 200000         0B97  146        DC    XL3'200000'          B2N2
    0B98 3B 06 1ED2           147 PRINT3 SBF   MARK,X'06'
    0B9C C0 87 1659           148        B     ADONE1
    0BA0 0C 03 20EE 1F33      149 MSGNON MVC   STSHDB(4),STATSP
    0BA6 C0 87 021A           150        B     PRINT               PRINT
    0BAA C1             0BAA  151        DC    XL1'C1'              'IF NO
    0BAB 2C             0BAB  152        DC    IL1'44'                SPACE TAKEN OR
    0BAC 1844           0BAD  153        DC    AL2(MSG10)             CHAR ARE PRINTED'
    0BAE 100A           0BAF  154        DC    XL2'100A'
    0BB0 3C 80 11E0           155        MVI   JMP+1,X'80'         SET FOR GC553 PRINT AND CHG   GK
    0BB4 3A 01 1ED3           156        SBN   PRTMSG,RDSWM        FLAG REED SW MSG              GK
    0BB8 3A 10 1ED2           157        SBN   MARK,MARK3
    0BBC 3C F5 211D           158        MVI   FDB,X'F5'           MOVE IN PG NUMBER             GK
    0BC0 3A 10 1ED3           159        SBN   PRTMSG,MECM         FLAG MECH ENTRY CHRT MSG      GK
    0BC4 0C 1D 1D90 214E      160        MVC   MSGCAB-2(17),FDBRSW MOVE IN PROPER MSG            GK
    0BCA C0 87 113B           161        B     REPLCE              REPLACE B2N2, B2N2, B2U2,     GK
    0BCE E220C0         0BD0  162        DC    XL3'E220C0'          CABLE(GC552), (GC553), B2L2, SLT GK
    0BD1 C0 87 021A           163        B     PRINT               PRINT
    0BD5 01             0BD5  164        DC    XL1'01'              'IF ONLY
    0BD6 1A             0BD6  165        DC    IL1'26'                ONE SPACE
    0BD7 1928           0BD8  166        DC    AL2(MSG11)             IS TAKEN'
    0BD9 3A 10 1ED2           167        SBN   MARK,MARK3
    0BDD 0C 0F 1D8F 1DD2      168        MVC   MSGCAB-3(16),FDSW
    0BE3 3C F7 211D           169        MVI   FDB,X'F7'           MOVE IN PG NUMBER             GK
    0BE7 3A 10 1ED3           170        SBN   PRTMSG,MECM         FLAG MECH ENTRY CHRT MSG      GK
    0BEB C0 87 113B           171        B     REPLCE              REPLACE
    0BEF 040000         0BF1  172        DC    XL3'040000'          B2S2
    0BF2 3C 5C 1FC5           173        MVI   MFD,C'*'
    0BF6 3C 5C 1FAC           174        MVI   MFDS,C'*'
    0BFA C0 87 12FA           175        B     STATCK              PRINT STATUS
    0BFE C0 87 0222           176        B     HALT
    0C02 100A           0C03  177        DC    XL2'100A'
                              178 *
                              179 *********                                   *********
                              180 * RTN02 *          CARRIER RETURN TEST      * RTN02 *
                              181 *********                                   *********
                              182 *
                              183 *                  ROUTINE PREFIX
    0C04 02             0C04  184 RTN02  DC    XL1'02'              ROUTINE PREFIX
    0C05 00             0C05  185        DC    XL1'00'              NO INTERVENTION REQUIRED
    0C06 0CD6           0C07  186        DC    AL2(RTN03)           ADDRESS OF NEXT ROUTINE
                              187
                              187
    0C08 0C 03 20EE 1F33      188        MVC   STSHDB(4),STATSP
    0C0E C0 87 021A           189        B     PRINT               PRINT
    0C12 42             0C12  190        DC    XL1'42'              ROUTINE
    0C13 20             0C13  191        DC    IL1'32'                TITLE
    0C14 196B           0C15  192        DC    AL2(MSG13)
    0C16 10E3           0C17  193        DC    XL2'10E3'
    0C18 3C F7 211D           194        MVI   FDB,X'F7'           MOVE IN PG NUMBER             GK
    0C1C C0 87 021A           195        B     PRINT               PRINT                         GK
    0C20 06             0C20  196        DC    XL1'06'              'IF RETURN FAILURE       GK
    0C21 2F             0C21  197        DC    IL1'47'               CHK MECH ENTRY CHRT     GK
    0C22 211D           0C23  198        DC    AL2(FDB)                              PG 001-A7' GK
    0C24 C0 87 021A           199        B     PRINT               PRINT
    0C28 06             0C28  200        DC    XL1'06'              RESET
    0C29 0E             0C29  201        DC    IL1'14'                THE
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    0C2A 1D20           0C2B  202        DC    AL2(MSGRES)           HALT
    0C2C C0 87 0222           203        B     HALT                HALT
    0C30 10E3           0C31  204        DC    XL2'10E3'            OF -E3-
    0C32 C0 87 148A           205        B     RETURN              RETURN
    0C36 31 18 1F2F           206        LIO   SPACE,PRNT           CARRIER
    0C3A C2 01 004B           207        LA    75,XR1              POSITION
    0C3E C0 87 15EC           208 F2     B     PRINTS               CARRIER
    0C42 36 01 1F43           209        A     HEXFF,XR1             75 SPACES
    0C46 C0 01 0C3E           210        BNZ   F2
    0C4A C0 87 148A           211        B     RETURN              RETURN CARRIER
    0C4E C0 87 0216           212        B     LINK                GO TO NEXT ROUTINE
    0C52 C0 87 021A           213 RET3   B     PRINT               PRINT
    0C56 C1             0C56  214        DC    XL1'C1'              'IF NO
    0C57 21             0C57  215        DC    IL1'33'                RETURN
    0C58 1982           0C59  216        DC    AL2(MSG15)             OR NO INDEX'
    0C5A 100C           0C5B  217        DC    XL2'100C'
    0C5C 3A 10 1ED2           218        SBN   MARK,MARK3
    0C60 3A 01 1ED3           219        SBN   PRTMSG,RDSWM        FLAG REED SW MSG              GK
    0C64 C0 87 113B           220        B     REPLCE              REPLACE
    0C68 480000         0C6A  221        DC    XL3'480000'          B2M2, B2R2
    0C6B 3A 10 1ED2           222        SBN   MARK,MARK3
    0C6F 0C 12 1D92 1DEC      223        MVC   MSGCAB(19),MAG
    0C75 0C 01 19AC 1993      224        MVC   MSG15-6(2),MSG14+2  REPLACE 'NO' WITH 'IF'     GK
    0C7B 3C F2 211D           225        MVI   FDB,X'F2'           MOVE IN PG NUMBER             GK
    0C7F C0 87 021A           226        B     PRINT               PRINT                         GK
    0C83 81             0C83  227        DC    XL1'81'              'IF NO CARRIER            GK
    0C84 21             0C84  228        DC    IL1'33'                 RETURN AND             GK
    0C85 1982           0C86  229        DC    AL2(MSG15)                          IF INDEX'  GK
    0C87 C0 87 021A           230        B     PRINT               PRINT                         GK
    0C8B 81             0C8B  231        DC    XL1'81'              'CHK MECH                 GK
    0C8C 1D             0C8C  232        DC    IL1'29'                 ENTRY CHRT             GK
    0C8D 211D           0C8E  233        DC    AL2(FDB)                            PG 001-A2' GK
    0C8F 0C 01 19AC 1996      234        MVC   MSG15-6(2),MSG14+5  REPLACE 'IF' WITH 'NO'     GK
    0C95 0C 01 1996 1F2F      235        MVC   MSG14+5(2),SPACE    REPLACE 'NO' WITH '  '      GK
    0C9B 3C F3 211D           236        MVI   FDB,X'F3'           MOVE IN PG NUMBER             GK
    0C9F C0 87 021A           237        B     PRINT               PRINT                         GK
    0CA3 81             0CA3  238        DC    XL1'81'              'IF    CARRIER            GK
    0CA4 21             0CA4  239        DC    IL1'33'                 RETURN AND             GK
    0CA5 19B2           0CA6  240        DC    AL2(MSG15)                        NO INDEX'    GK
    0CA7 C0 87 021A           241        B     PRINT               PRINT                         GK
    0CAB 81             0CAB  242        DC    XL1'81'              'CHK MECH                 GK
    0CAC 1D             0CAC  243        DC    IL1'29'                 ENTRY CHRT             GK
    0CAD 211D           0CAE  244        DC    AL2(FDB)                            PG 001-A3' GK
    0CAF 0C 01 1996 19AC      245        MVC   MSG14+5(2),MSG15-6  REPLACE '  ' WITH 'NO'      GK
    0CB5 C0 87 021A           246        B     PRINT               PRINT
    0CB9 01             0CB9  247        DC    XL1'01'              'OTHERWISE'
    0CBA 09             0CBA  248        DC    IL1'09'
    0CBB 1A73           0CBC  249        DC    AL2(MSG20)
    0CBD 3C F7 211D           250        MVI   FD8,X'F7'           MOVE IN PG NUMBER             GK
    0CC1 3A 10 1ED3           251        SBN   PRTMSG,MECM         FLAG MECH ENTRY CHRT MSG      GK
    0CC5 C0 87 113B           252        B     REPLCE              REPLACE
    0CC9 022080         0CCB  253        DC    XL3'022080'          B2U2, CABLE(GC552), SLT
    0CCC C0 87 12FA           254        B     STATCK              PRINT ERROR STATUS
    0CD0 C0 87 0222           255        B     HALT
    0CD4 100C           0CD5  256        DC    XL2'100C'
                              257 *
                              258 *********                                   *********
                              259 * RTN03 *          LOWER CASE PRINT TEST    * RTN03 *
                              260 *********                                   *********
                              261 *
                              262 *                  ROUTINE PREFIX
    0CD6 03             0CD6  263 RTN03  DC    XL1'03'              ROUTINE PREFIX
    0CD7 00             0CD7  264        DC    XL1'00'              NO INTERVENTION REQUIRED
    0CD8 0E30           0CD9  265        DC    AL2(RTN04)           ADDRESS OF NEXT ROUTINE
                              266
                              266
    0CDA 0C 04 19C8 1D25      267        MVC   MSG161(5),LWR       PUT 'LOWER' INTO PRINT MESSAGE
    0CE0 C0 87 021A           268        B     PRINT               PRINT
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0CE4 41               0CE4  269        DC    XL1'41'             'LOWER
   0CE5 52               0CE5  270        DC    IL1'82'               CASE
   0CE6 1A15             0CE7  271        DC    AL2(MSG16)              PRINT
   0CE8 10E4             0CE9  272        DC    XL2'10E4'                 TEST'
   0CEA C0 87 021A             273        B     PRINT               RESET
   0CEE 06               0CEE  274        DC    XL1'06'              THE
   0CEF 0E               0CEF  275        DC    IL1'14'                HALT
   0CF0 1D20             0CF1  276        DC    AL2(MSGRES)
   0CF2 C0 87 0222             277        B     HALT                HALT
   0CF6 10E4             0CF7  278        DC    XL2'10E4'            OF -E4-
   0CF8 C0 87 148A             279        B     RETURN              RETURN CARRIER
   0CFC C2 01 1DED             280        LA    TBL1,XR1            SET LOWER CASE TABLE
   0D00 C2 02 1E46             281        LA    TBLE3-1,XR2         SET TILT ROTATE TABLE
   0D04 0C 03 20EE 1F03        282 G2     MVC   STSHDB(4),STRT07    SET XPTD STATUS
   0D0A 34 02 1F25             283        ST    SAV2,XR2
   0D0E C2 02 1EBF             284        LA    TABLEA,XR2          LOWER SHIFT REQUIRED TABLE
   0D12 BD FF 00               285 COMP1  CLI   0(,XR2),X'FF'       CHECK
   0D15 F2 81 15               286        JE    COMP2
   0D18 9D 00 C0 00            287        CLC   0(1,XR2),0(,XR1)
   0D1C F2 01 07               288        JNE   COMP4
   0D1F 3A 80 20EC             289        SBN   STSHDB-2,X'80'
   0D23 F2 87 0B               290        J     COMP3
   0D26 E2 02 01               291 COMP4  LA    1(,XR2),XR2
   0D29 C0 87 0D12             292        B     COMP1
   0D2D 3B 80 20EC             293 COMP2  SBF   STSHDB-2,X'80'
   0D31 35 02 1F25             294 COMP3  L     SAV2,XR2
   0D35 D2 01 01               295        LA    1(,XR1),XR1         INCREMENT
   0D38 E2 02 01               296        LA    1(,XR2),XR2          COUNTERS
   0D3B BD FF 00               297        CLI   0(,XR2),X'FF'       CHECK FOR
   0D3E C0 01 0DA0             298        BNE   D73                  END OF TABLE
   0D42 0C 04 1A2C 1D25        299        MVC   MSGCKP(5),LWR
   0D48 C0 87 021A             300        B     PRINT               PRINT
   0D4C 41               0D4C  301        DC    XL1'41'             CHECK
   0D4D 24               0D4D  302        DC    IL1'36'              PRINTOUT
   0D4E 1A39             0D4F  303        DC    AL2(MSGCKP+13)
   0D50 10F1             0D51  304        DC    XL2'10F1'
   0D52 C0 87 021A             305        B     PRINT
   0D56 01               0D56  306        DC    XL1'01'
   0D57 0C               0D57  307        DC    IL1'12'
   0D58 1B0C             0D59  308        DC    AL2(MSG30)
   0D5A C0 87 021A             309        B     PRINT
   0D5E 02               0D5E  310        DC    XL1'02'
   0D5F 1A               0D5F  311        DC    IL1'26'
   0D60 1BAE             0D61  312        DC    AL2(MSGTPB)
   0D62 3A 10 1ED2             313        SBN   MARK,MARK3
   0D66 C0 87 113B             314        B     REPLCE              REPLACE
   0D6A 440000           0D6C  315        DC    XL3'440000'          B2M2, B2S2
   0D6D C0 87 021A             316        B     PRINT               PRINT
   0D71 01               0D71  317        DC    XL1'01'              OTHERWISE
   0D72 09               0D72  318        DC    IL1'09'
   0D73 1A73             0D74  319        DC    AL2(MSG20)
   0D75 3A 10 1ED2             320        SBN   MARK,MARK3
   0D79 0C 03 1D83 1D5E        321        MVC   MSGCAB-15(4),TOR
   0D7F 3C F5 211D             322        MVI   FDB,X'F5'           MOVE IN PG NUMBER                    GK
   0D83 3A 10 1ED3             323        SBN   PRTMSG,MECM         FLAG MECH ENTRY MSG                  GK
   0D87 C0 87 113B             324        B     REPLCE              REPLACE
   0D8B C22080           0D8D  325        DC    XL3'C22080'
   0D8E C0 87 021A             326        B     PRINT
   0D92 06               0D92  327        DC    XL1'06'
   0D93 0E               0D93  328        DC    IL1'14'
   0D94 1D20             0D95  329        DC    AL2(MSGRES)
   0D96 C0 87 0222             330        B     HALT
   0D9A 10F1             0D9B  331        DC    XL2'10F1'
   0D9C C0 87 0216             332        B     LINK
   0DA0 71 18 00               333 D73    LIO   0(,XR1),PRNT        LOAD BUFFER
   0DA3 C0 87 1805             334        B     SENSOR              SAVE STATUS
   0DA7 3B 06 20E8             335        SBF   STATUS-2,X'06'      SET LONG FN OFF
   0DAB 3B 04 20EA             336        SBF   STATUS,X'04'        SET EOF SW OFF
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0DAF 0D 02 20EA 20EE        337        CLC   STATUS(3),STSHDB    CHECK STATUS
   0DB5 F2 81 0B               338        JE    G1
   0DB8 3C 5C 2062             339        MVI   MXLAT,C'*'
   0DBC C0 87 113B             340        B     REPLCE              REPLACE
   0DC0 480000           0DC2  341        DC    XL3'480000'          B2M2, B2R2
   0DC3 C0 87 15EC             342 G1     B     PRINTS              PRINT CHARACTER
   0DC7 0C 02 20EA 1F29        343        MVC   STATUS(3),ZERO      CLEAR
   0DCD 0C 02 20EE 1F29        344        MVC   STSHDB(3),ZERO       STATUS
   0DD3 2C 00 20EB 00          345        MVC   STSHDB-3(1),0(,XR2)
   0DD8 0D 00 20E7 20EB        346        CLC   STATUS-3(1),STSHDB-3 CHECK
   0DDE C0 81 0D04             347        BE    G2                   TILT-ROTATE CODE
   0DE2 3C 38 1381             348        MVI   LEN1,X'38'
   0DE6 C0 87 021A             349 GGG    B     PRINT               PRINT
   0DEA C2               0DEA  350        DC    XL1'C2'              'ONLY
   0DEB 31               0DEB  351        DC    IL1'49'                1 CHAR
   0DEC 1A6A             0DED  352        DC    AL2(MSG19)               PRINTED'
   0DEE 1002             0DEF  353        DC    XL2'1002'
   0DF0 3A 10 1ED2             354        SBN   MARK,MARK3
   0DF4 0C 0D 1D8D 1D3D        355        MVC   MSGCAB-5(14),RDSW                                        GK
   0DFA C0 87 113B             356        B     REPLCE              REPLCE
   0DFE 240040           0E00  357        DC    XL3'240040'          A-B2N2, B2S2, CABLE(GC553)          GK
   0E01 0C 09 1D89 1D47        358        MVC   MSGCAB-9(10),SHIFT
   0E07 C0 87 021A             359        B     PRINT               PRINT
   0E0B 02               0E0B  360        DC    XL1'02'              'OTHERWISE'
   0E0C 09               0E0C  361        DC    IL1'09'
   0E0D 1A73             0E0E  362        DC    AL2(MSG20)
   0E0F 3A 10 1ED2             363        SBN   MARK,MARK3
   0E13 3C F4 211D             364        MVI   FDB,X'F4'           MOVE IN PG NUMBER                    GK
   0E17 3A 10 1ED3             365        SBN   PRTMSG,MECM         FLAG MECH ENTRY CHRT MSG             GK
   0E1B C0 87 113B             366        B     REPLCE              REPLACE
   0E1F 4A2080           0E21  367        DC    XL3'4A2080'          B2M2, B2U2, B2R2,CABLE(GC552),SLT GK
   0E22 C0 87 12FA             368        B     STATCK              PRINT STATUS
   0E26 C0 87 0222             369        B     HALT
   0E2A 1002             0E2B  370        DC    XL2'1002'
   0E2C C0 87 0D04             371        B     G2
                               372 *
                               373 *********                                                  *********
                               374 * RTN04 *              UPPER CASE PRINT TEST               * RTN04 *
                               375 *********                                                  *********
                               376 *
                               377 *                    ROUTINE PREFIX
   0E30 04               0E30  378 RTN04  DC    XL1'04'              ROUTINE NUMBER
   0E31 00               0E31  379        DC    XL1'00'              NO INTERVENTION REQUIRED
   0E32 0FC5             0E33  380        DC    AL2(RTN05)           ADDRESS OF NEXT ROUTINE
                               381
                               381
   0E34 3A 10 1ED2             382        SBN   MARK,MARK3
   0E38 0C 04 19C8 1D2A        383        MVC   MSG161(5),UPR        MESSAGES
   0E3E C0 87 021A             384        B     PRINT               PRINT
   0E42 41               0E42  385        DC    XL1'41'              'UPPER
   0E43 52               0E43  386        DC    IL1'82'                CASE
   0E44 1A15             0E45  387        DC    AL2(MSG16)               PRINT
   0E46 10E5             0E47  388        DC    XL2'10E5'                 TEST'
   0E48 C0 87 021A             389        B     PRINT               PRINT
   0E4C 02               0E4C  390        DC    XL1'02'              'ASTERISK
   0E4D 30               0E4D  391        DC    IL1'48'                PRINTED WERE
   0E4E 1AA3             0E4F  392        DC    AL2(MSG21)               UC DOESN'T EXIST'
   0E50 C0 87 021A             393        B     PRINT               PRINT
   0E54 01               0E54  394        DC    XL1'01'              'IF
   0E55 13               0E55  395        DC    IL1'19'                CONTINUOUS
   0E56 1AB6             0E57  396        DC    AL2(MSG22)               INDEX'
   0E58 C0 87 113B             397        B     REPLCE              REPLACE
   0E5C 400000           0E5E  398        DC    XL3'400000'          A-B2M2
   0E5F C0 87 021A             399        B     PRINT               RESET
   0E63 06               0E63  400        DC    XL1'06'              THE
   0E64 0E               0E64  401        DC    IL1'14'                HALT
   0E65 1D20             0E66  402        DC    AL2(MSGRES)
   0E67 0C 01 12E7 1F41        403        MVC   END61+3(2),STATCA
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1021 SECTION 2--INITIAL PRINTER DIAGNOSTIC TESTS MOD 12

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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

    0E6D C0 87 0222             404         B    HALT                  HALT
    0E71 10E5              0E72 405         DC   XL2'10E5'              OF -E4-
    0E73 C0 87 148A             406         B    RETURN                RETURN CARRIER
    0E77 C2 01 1E1A             407         LA   TBL2,XR1              SET UPPER CASE TABLE
    0E7B C2 02 1E73             408         LA   TBLE4-1,XR2           SET TILT ROTATE TABLE
    0E7F 0C 03 20EE 1F07        409 H1      MVC  STSHDB(4),STRTC8
    0E85 D2 01 01               410         LA   1(,XR1),XR1           INCREMENT
    0E88 E2 02 01               411         LA   1(,XR2),XR2            COUNTERS
    0E8B BD FF 00               412         CLI  0(,XR2),X'FF'         CHECK FOR
    0E8E C0 01 0ECD             413         BNE  D74                    END OF LIST
    0E92 0C 04 1A2C 1D2A        414         MVC  MSGCKP(5),UPR
    0E98 C0 87 021A             415         B    PRINT                 PRINT
    0E9C 41                0E9C 416         DC   XL1'41'               CHECK
    0E9D 24                0E9D 417         DC   IL1'36'                PRINTOUT
    0E9E 1A39              0E9F 418         DC   AL2(MSGCKP+13)
    0EA0 10F2              0EA1 419         DC   XL2'10F2'
    0EA2 C0 87 021A             420         B    PRINT
    0EA6 02                0EA6 421         DC   XL1'02'
    0EA7 0C                0EA7 422         DC   IL1'12'
    0EA8 1B0C              0EA9 423         DC   AL2(MSG30)
    0EAA 3A 10 1ED2             424         SBN  MARK,MARK3
    0EAE 0C 03 1D83 1D5E        425         MVC  MSGCAB-15(4),TOR
    0EB4 C0 87 113B             426         B    REPLCE                REPLACE
    0EB8 C22080            0EBA 427         DC   XL3'C22080'
    0EBB C0 87 021A             428         B    PRINT
    0EBF 06                0EBF 429         DC   XL1'06'
    0EC0 0E                0EC0 430         DC   IL1'14'
    0EC1 1D20              0EC2 431         DC   AL2(MSGRES)
    0EC3 C0 87 0222             432         B    HALT
    0EC7 10F2              0EC8 433         DC   XL2'10F2'
    0EC9 C0 87 0F90             434         B    H5
    0ECD 71 18 00               435 D74     LIO  0(,XR1),PRNT          LOAD BUFFER
    0ED0 C0 87 1805             436         B    SENSOR                SAVE STATUS
    0ED4 3B 06 20E8             437         SBF  STATUS-2,X'06'        SET LONG FN OFF
    0ED8 3B 04 20EA             438         SBF  STATUS,X'04'          SET EOF SW OFF
    0EDC 3A 80 20E8             439         SBN  STSHDB-3,X'80'
    0EE0 0D 02 20EA 20EE        440         CLC  STATUS(3),STSHDB      CHECK FOR
    0EE6 F2 81 1D               441         JE   H2                     CORRECT STATUS
    0EE9 38 01 20EA             442         TBN  STATUS,X'01'          CHECK FOR
    0EED F2 90 08               443         JF   H3                     MALFUNCTION
    0EF0 3C 5C 204D             444         MVI  MMAL,C'*'
    0EF4 C0 87 113B             445         B    REPLCE                REPLACE
    0EF8 040000            0EFA 446         DC   XL3'040000'            A-B2S2
    0EFB 3C 5C 2062             447 H3      MVI  MXLAT,C'*'
    0EFF C0 87 113B             448         B    REPLCE                REPLACE
    0F03 480000            0F05 449         DC   XL3'480000'            B2M2, B2R2
    0F06 C0 87 15EC             450 H2      B    PRINTS                PRINT CHARACTER
    0F0A 0C 02 20EA 1F29        451         MVC  STATUS(3),ZERO        CLEAR
    0F10 0C 02 20EE 1F29        452         MVC  STSHDB(3),ZERO         STATUS
    0F16 2C 00 20E8 00          453         MVC  STSHDB-3(1),0(,XR2)
    0F1B 0D 00 20EB 20E7        454         CLC  STSHDB-3(1),STATUS-3  CHECK TILT
    0F21 C0 81 0E7F             455         BE   H1                     ROTATE CODE
    0F25 3C 38 1381             456         MVI  LEN1,X'38'
    0F29 C0 87 021A             457 TYPBL   B    PRINT                 PRINT
    0F2D C2                0F2D 458         DC   XL1'C2'               'IF                    GK
    0F2E 1D                0F2E 459         DC   IL1'29'                 TYPEBALL
    0F2F 1AD3              0F30 460         DC   AL2(MSG23)               NOT IN UPPER CASE'
    0F31 1003              0F32 461         DC   XL2'1003'
    0F33 3A 10 1ED2             462         SBN  MARK,MARK3
    0F37 C0 87 113B             463         B    REPLCE                REPLACE
    0F3B 480000            0F3D 464         DC   XL3'480000'            B2M2, B2R2
    0F3E 0C 0D 1D8D 1D3D        465         MVC  MSGCAB-5(14),RDSW
    0F44 3A 10 1ED2             466         SBN  MARK,MARK3
    0F48 C0 87 021A             467         B    PRINT                 PRINT
    0F4C 02                0F4C 468         DC   XL1'02'               'OTHERWISE'
    0F4D 09                0F4D 469         DC   IL1'09'
    0F4E 1A73              0F4F 470         DC   AL2(MSG20)
    0F50 3C F4 211D             471         MVI  FDB,X'F4'             MOVE IN PG NUMBER      GK
```


1021 SECTION 2--INITIAL PRINTER DIAGNOSTIC TESTS MOD 12

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

    0F54 3A 10 1ED3             472         SBN  PRTMSG,MECM           FLAG MECH ENTRY CHRT MSG      GK
    0F58 C0 87 113B             473         B    REPLCE                REPLACE
    0F5C 240040            0F5E 474         DC   XL3'240040'            B2N2, B2S2, CABLE(GC553)
    0F5F C0 87 12FA             475         B    STATCK                PRINT STATUS
    0F63 C0 87 0222             476         B    HALT
    0F67 1003              0F68 477         DC   XL2'1003'
    0F69 C0 87 0E7F             478         B    H1
    0F6D C2 02 1EBA             479 H41     LA   TABLE9+1,XR2
    0F71 0C 03 20EE 1F03        480 H4      MVC  STSHDB(4),STRT07      SET XPTD STATUS
    0F77 B1 18 00               481         LIO  0(,XR2),PRNT          LOAD PRINT BUFFER
    0F7A C0 87 148A             482         B    RETURN                RETURN CARRIER
    0F7E C0 87 15EC             483         B    PRINTS                PRINT
    0F82 BD FF 00               484         CLI  0(,XR2),X'FF'         CHECK FOR END
    0F85 C0 81 0216             485         BE   LINK                  IF AT END,GO TO NEXT ROUTINE
    0F89 E2 02 01               486         LA   1(,XR2),XR2           INCREMENT COUNTER
    0F8C C0 87 0F71             487         B    H4
    0F90 C0 87 021A             488 H5      B    PRINT                 PRINT
    0F94 41                0F94 489         DC   XL1'41'               '5 RETURN
    0F95 25                0F95 490         DC   IL1'37'                 COMMANDS
    0F96 1C7B              0F97 491         DC   AL2(MSGXTM)               ISSUED'
    0F98 10E8              0F99 492         DC   XL2'10E8'
    0F9A 3A 10 1ED2             493         SBN  MARK,MARK3
    0F9E 0C 12 1D92 1DEC        494         MVC  MSGCAB(19),MAG
    0FA4 C0 87 021A             495         B    PRINT                 PRINT
    0FA8 01                0FA8 496         DC   XL1'01'                 IF CARRIER
    0FA9 26                0FA9 497         DC   IL1'38'                  DOES NOT
    0FAA 1991              0FAB 498         DC   AL2(MSG14)                RETURN'
    0FAC C0 87 113B             499         B    REPLCE                REPLACE
    0FB0 020080            0FB2 500         DC   XL3'020080'            B2U2, CABLE(GC552)
    0FB3 C0 87 021A             501         B    PRINT                 PRINT
    0FB7 06                0FB7 502         DC   XL1'06'               'RESET
    0FB8 0E                0FB8 503         DC   IL1'14'                 THE
    0FB9 1D20              0FBA 504         DC   AL2(MSGRES)              HALT'
    0FBB C0 87 0222             505         B    HALT                  HALT
    0FBF 10E8              0FC0 506         DC   XL2'10E8'              OF -E8-
    0FC1 C0 87 0F6D             507         B    H41                   GO RETURN CARRIER
                                508 *
                                509 *********                                                     *********
                                510 * RTN05 *                     END OF FORMS TEST               * RTN05 *
                                511 *********                                                     *********
                                512 *
                                513 *                        ROUTINE PREFIX
    0FC5 05                0FC5 514 RTN05   DC   XL1'05'               ROUTINE NUMBER
    0FC6 80                0FC6 515         DC   XL1'80'               INTERVENTION REQUIRED
    0FC7 1071              0FC8 516         DC   AL2(RTN06)            ADDRESS OF NEXT ROUTINE
                                517
                                517
    0FC9 0C 06 1AF0 1AF8        518         MVC  MSG24-1(7),FOR
    0FCF C0 87 021A             519         B    PRINT                 PRINT
    0FD3 41                0FD3 520         DC   XL1'41'               'FLIP END
    0FD4 1D                0FD4 521         DC   IL1'29'                 OF FORMS
    0FD5 1AF0              0FD6 522         DC   AL2(MSG24-1)             SWITCH ON'
    0FD7 10E9              0FD8 523         DC   XL2'10E9'
    0FD9 C0 87 021A             524         B    PRINT                 PRINT
    0FDD 06                0FDD 525         DC   XL1'06'               'RESET
    0FDE 0E                0FDE 526         DC   IL1'14'                 THE
    0FDF 1D20              0FE0 527         DC   AL2(MSGRES)              HALT'
    0FE1 C0 87 0222             528         B    HALT                  HALT
    0FE5 10E9              0FE6 529         DC   XL2'10E9'              OF -E9-
    0FE7 0C 03 20EE 1F0B        530         MVC  STSHDB(4),STAT09      SET XPTD STATUS
    0FED C0 87 1805             531         B    SENSOR                SAVE STATUS
    0FF1 38 04 20EA             532         TBN  STATUS,X'04'          CHECK FOR
    0FF5 F2 10 1B               533         JT   I1                     END OF FORM
    0FF8 3C 5C 207C             534         MVI  MEOF,C'*'
    0FFC 3B FB 20EA             535         SBF  STATUS,X'FB'          CLEAR
    1000 0C 02 20E9 1F29        536         MVC  STATUS-1(3),ZERO       STATUS
    1006 0C 06 1D86 1D4E        537         MVC  MSGCAB-12(7),EOF
    100C C0 87 113B             538         B    REPLCE                REPLACE
```

1021 SECTION 2--INITIAL PRINTER DIAGNOSTIC TESTS MOD 12

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ERR LOC  OBJECT CODE       ADDR STMT SOURCE STATEMENT

    1010 240040            1012  539        DC    XL3'240040'          B2N2, B2S2, CABLE(GC553)
    1013 39 04 20E9              540 I1     TBF   STATUS-1,X'04'
    1017 F2 10 08                541        JT    I2
    101A 3C 5C 2021              542        MVI   MF2L,C'*'
    101E C0 87 113B              543        B     REPLCE               REPLACE
    1022 200000            1024  544        DC    XL3'200000'           A-B2N2
    1025 0C 07 1AF1 1B00         545 I2     MVC   MSG24(8),BCK
    102B C0 87 021A              546        B     PRINT                PRINT
    102F 41                102F  547        DC    XL1'41'               'FLIP END
    1030 1E                1030  548        DC    IL1'30'                 OF FORMS
    1031 1AF1              1032  549        DC    AL2(MSG24)               SWITCH OFF'
    1033 10EA              1034  550        DC    XL2'10EA'
    1035 C0 87 021A              551        B     PRINT                PRINT
    1039 06                1039  552        DC    XL1'06'               'RESET
    103A 0E                103A  553        DC    IL1'14'                 THE
    103B 1D20              103C  554        DC    AL2(MSGRES)              HALT'
    103D C0 87 0222              555        B     HALT                 HALT
    1041 10EA              1042  556        DC    XL2'10EA'             OF -EA-
    1043 3B 04 20EE              557        SBF   STSHDB,X'04'         SET END OF FORMS OFF
    1047 C0 87 1805              558        B     SENSOR               SAVE STATUS
    104B 39 04 20EA              559        TBF   STATUS,X'04'         CHECK EOF OFF
    104F F2 10 1B                560        JT    I3
    1052 3C 5C 207C              561        MVI   MEOF,C'*'
    1056 0C 06 1D86 1D4E         562        MVC   MSGCAB-12(7),EOF
    105C 3B FB 20EA              563        SBF   STATUS,X'FB'         CLEAR
    1060 0C 02 20E9 1F29         564        MVC   STATUS-1(3),ZERO      STATUS
    1066 C0 87 113B              565        B     REPLCE               REPLACE
    106A 240040            106C  566        DC    XL3'240040'           B2N2, B2S2, CABLE(GC553)
    106D C0 87 0216              567 I3     B     LINK                 GO TO NEXT ROUTINE
                                 568 *********                                            *********
                                 569 * RTN06 *                      SHIFT CYCLE TESTS     * RTN06 *
                                 570 *********                                            *********
                                 571 *
                                 572 *                          ROUTINE PREFIX
    1071 06                1071  573 RTN06  DC    XL1'06'              ROUTINE NUMBER
    1072 00                1072  574        DC    XL1'00'              NO INTERVENTION REQUIRED
    1073 FFFF              1074  575        DC    XL2'FFFF'            LAST ROUTINE
                                 576
                                 576
    1075 C0 87 021A              577        B     PRINT                PRINT
    1079 46                1079  578        DC    XL1'46'               'SHIFT
    107A 11                107A  579        DC    IL1'17'                 CYCLE
    107B 181D              107C  580        DC    AL2(MSG41)               TESTS'
    107D 10C1              107E  581        DC    XL2'10C1'
    107F 0C 02 20EE 1F0E         582        MVC   STSHDB(3),XCST1      SET
    1085 3B FF 20E8              583        SBF   STSHDB-3,X'FF'        XPTD STATUS
    1089 31 18 1F28              584        LIO   LOWER,PRNT           LOAD BUFFER WITH LOWER CASE
    108D F3 18 82                585        SIO   X'82',PRNT           START PRINT
    1090 C0 87 1109              586        B     DEL100
    1094 31 18 1F2D              587        LIO   UPPER,PRNT           LOAD BUFFER WITH UPPER CASE
    1098 F3 18 82                588        SIO   X'82',PRNT           START PRINT
    109B C0 87 1116              589        B     DEL23
    109F F3 18 22                590        SIO   X'22',PRNT           ISSUE FEEDBACK COMMAND
    10A2 C0 87 1123              591        B     DEL05
    10A6 C0 87 1805              592        B     SENSOR               SAVE STATUS
    10AA 38 01 20EA              593        TBN   STATUS,X'01'         CHECK MALFUNCTION ON
    10AE 38 02 20E9              594        TBN   STATUS-1,X'02'       CHECK XTRA CYCLE ON
    10B2 F2 10 0F                595        JT    K1
    10B5 3C 5C 204D              596        MVI   MMAL,C'*'
    10B9 3C 5C 2014              597        MVI   MXTRA,C'*'
    10BD C0 87 113B              598        B     REPLCE               REPLACE
    10C1 040000            10C3  599        DC    XL3'040000'           A-B2S2
    10C4 0C 03 20EE 1F29         600 K1     MVC   STSHDB(4),ZERO
    10CA 31 18 1F28              601        LIO   LOWER,PRNT           PERFORM
    10CE F3 18 82                602        SIO   X'82',PRNT            SHIFT
    10D1 C0 87 1109              603        B     DEL100                 CYCLE
    10D5 31 18 1F2D              604        LIO   UPPER,PRNT
    10D9 F3 18 82                605        SIO   X'82',PRNT
```


1021 SECTION 2--INITIAL PRINTER DIAGNOSTIC TESTS MOD 12

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ERR LOC  OBJECT CODE       ADDR STMT SOURCE STATEMENT

    10DC C0 87 1109              606        B     DEL100
    10E0 F3 18 22                607        SIO   X'22',PRNT           SET FEEDBACK SWITCH
    10E3 C0 87 1123              608        B     DEL05
    10E7 F3 18 02                609        SIO   X'02',PRNT           RESET FEEDBACK SWITCH
    10EA C0 87 1123              610        B     DEL05
    10EE C0 87 1805              611        B     SENSOR               SAVE STATUS
    10F2 39 10 20EA              612        TBF   STATUS,X'10'         CHECK BUSY OFF
    10F6 F2 10 0B                613        JT    K2
    10F9 3C 5C 2096              614        MVI   MBUSY,C'*'
    10FD C0 87 113B              615        B     REPLCE               REPLACE
    1101 400000            1103  616        DC    XL3'400000'           A-B2M2
    1104 C0 87 022A              617 K2     B     LOAD                 GO TO
    1108 00                1108  618        DC    XL1'00'               NEXT SECTION
                                 619 *************************************************************************
                                 620 *                                                                       *
                                 621 *      DELAY SUBROUTINE:  THIS SUBROUTINE SETS UP AND DELAYS            *
                                 622 *      FOR THE MILLISECOND TIMINGS INDICATED BELOW.                     *
                                 623 *                                                                       *
                                 624 *************************************************************************
                                 625
                                 625
    1109 34 08 113A              626 DEL100 ST    ENDDEL+3,ARR         SETUP
    110D 0C 02 20E6 1EF1         627        MVC   WORK4(3),CDEL10       FOR 98
    1113 F2 87 17                628        J     SUB                     MILLISECONDS
    1116 34 08 113A              629 DEL23  ST    ENDDEL+3,ARR         SETUP
    111A 0C 02 20E6 1EEE         630        MVC   WORK4(3),CDEL23       FOR 20
    1120 F2 87 0A                631        J     SUB                     MILLISECONDS
    1123 34 08 113A              632 DEL05  ST    ENDDEL+3,ARR         SETUP FOR
    1127 0C 02 20E6 1EEB         633        MVC   WORK4(3),CDEL05       8 MSEC DELAY
    112D 0F 02 20E6 1ED6         634 SUB    SLC   WORK4(3),ONE
    1133 C0 01 112D              635        BNZ   SUB
    1137 C0 87 0000              636 ENDDEL B     *-*                  RETURN
                                 637 *************************************************************************
                                 638 *                                                                       *
                                 639 *             THIS SUBROUTINE IS USED TO PRINT CARD CALLOUTS            *
                                 640 *             WHICH HAVE BEEN ISOLATED AS FAILING UNITS.                *
                                 641 *             LINKAGE IS VIA                                            *
                                 642 *                                                                       *
                                 643 *                 B       REPLCE                                        *
                                 644 *                 DC      XL3'XXXXXX'                                   *
                                 645 *                                                                       *
                                 646 *             WHERE -XXXXXX- REPRESENTS THE CARDS TO BE PRINTED.        *
                                 647 *                                                                       *
                                 648 *************************************************************************
                                 649
                                 649
    113B 34 08 12F9              650 RLPLCE ST    END7+3,ARR           SAVE RETURN ADDRESS
    113F 0C 01 12E7 1F41         651        MVC   END61+3(2),STATCA
    1145 34 08 20DF              652        ST    WORK1,ARR            MODIFY
    1149 0E 01 12F9 1ED8         653        ALC   END7+3,THREE(2)       RETURN
    114F 3C 00 1EE7              654        MVI   SWITCH,X'00'
    1153 34 01 1F23              655        ST    SAV1,XR1             KEEP CONTENTS
    1157 34 02 1F25              656        ST    SAV2,XR2              OF THE REGISTERS
    115B 3B 08 1ED2              657        SBF   MARK,MARK4
    115F 35 01 20DF              658        L     WORK1,XR1
    1163 78 20 01                659        TBN   1(,XR1),X'20'        CHECK FOR SLT CARD PRINTOUT
    1166 F2 90 07                660        JF    *+10
    1169 7B 20 01                661        SBF   1(,XR1),X'20'
    116C 3A 08 1ED2              662        SBN   MARK,MARK4
    1170 39 10 1ED2              663        TBF   MARK,MARK3
    1174 F2 10 29                664        JT    CON11
    1177 C0 87 021A              665        B     PRINT                PRINT
    117B 02                117B  666        DC    XL1'02'               NON-ERROR
    117C 19                117C  667        DC    IL1'25'                 REPLACE MESSAGE
    117D 185D              117E  668        DC    AL2(REP)
    117F 3C 01 11DB              669        MVI   MOD5,X'01'
    1183 3C 01 123F              670        MVI   MOD2,X'01'
    1187 3C 01 1255              671        MVI   MOD3,X'01'
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   118B 3C 01 1204             672         MVI   MOD4,X'01'
   118F 3C 01 1282             673         MVI   MOD7,X'01'
   1193 0C 01 12E7 1F3F        674         MVC   END61+3(2),END7A
   1199 3B 10 1ED2             675         SBF   MARK,MARK3
   119D F2 87 1E               676         J     CO1
   11A0 C0 87 021A             677 CON11   B     PRINT                PRINT
   11A4 C2                11A4 678         DC    XL1'C2'               REPLACE
   11A5 19                11A5 679         DC    IL1'25'                CARDS
   11A6 185D              11A7 680         DC    AL2(REP)               MESSAGE
   11A8 1001              11A9 681         DC    XL2'1001'
   11AA 3C 81 11D8             682         MVI   MOD5,X'81'
   11AE 3C 81 123F             683         MVI   MOD2,X'81'
   11B2 3C 81 1255             684         MVI   MOD3,X'81'
   11B6 3C 81 1204             685         MVI   MOD4,X'81'
   11BA 3C 81 1282             686         MVI   MOD7,X'81'
   11BE 7D 00 02               687 CO1     CLI   2(,XR1),X'00'
   11C1 F2 81 51               688         JE    END66
   11C4 C2 02 1D98             689         LA    CABLE,XR2              SETUP FOR
   11C8 3C 01 11CD             690         MVI   TST2+1,X'01'            CABLE PRINTOUT
   11CC 78 00 02               691 TST2    TBN   2(,XR1),*-*            CHECK FOR BIT ON
   11CF F2 90 36               692         JF    INC2
   11D2 2C 04 1D7E 00          693 MOD6    MVC   CABL(5),0(,XR2)        MOVE LOGIC PAGE # INTO PRINTOUT
   11D7 C0 87 021A             694         B     PRINT                  PRINT
   11DB 01                11DB 695 MOD5    DC    XL1'01'                 'CHECK
   11DC 25                11DC 696         DC    IL1'37'                   CABLE
   11DD 1D92              11DE 697         DC    AL2(MSGCAB)               XXXXX'
   11DF F2 87 10               698 JMP     J     CAB552                 SKIP NEXT INST UNLESS CHGED        GK
   11E2 3C 87 11E0             699         MVI   JMP+1,X'87'                        RESET JMP            GK
   11E6 0C 13 1D92 1D93        700         MVC   MSGCAB(20),MSGCAB+1                                     GK
   11EC 0C 06 1D86 1DC2        701         MVC   MSGCAB-12(7),NOPRT       CHG PRNTOUT ONLY IF JMP CHGED  GK
   11F2 2D 04 1DBB 00          702 CAB552  CLC   GC552(5),0(,XR2)                                       GK
   11F7 F2 01 0E               703         JNE   INC2                                                    GK
   11FA 0C 04 1D7E 1D2F        704         MVC   CABL(5),GC095
   1200 C0 87 021A             705         B     PRINT                  PRINT
   1204 01                1204 706 MOD4    DC    XL1'01'                 CHECK
   1205 25                1205 707         DC    IL1'37'                   CABLE
   1206 1D92              1207 708         DC    AL2(MSGCAB)               GC095
   1208 E2 02 05               709 INC2    LA    5(,XR2),XR2            INCREMENT MESSAGE POINTER
   1208 0E 00 11CD 11CD        710         ALC   TST2+1(1),TST2+1
   1211 C0 20 11CC             711         BNOL  TST2
   1215 C2 02 1867             712 END66   LA    CARDS,XR2              SET MESSAGE POINTER
   1219 3C 01 1231             713 CON1    MVI   TST+1,X'01'            SETUP
   121D 3B 01 1ED3             714         TBN   PRTMSG,RDSWM            CHECK FOR                    GK
   1221 F2 90 35               715         JF    INC                     PTR REED SW MSG FLAG         GK
   1224 3B 01 1ED3             716         SBF   PRTMSG,RDSWM            RESET FLAG                   GK
   1228 C0 87 021A             717         B     PRINT                  PRINT  'CHK PTR REED          GK
   122C 81                122C 718         DC    XL1'81'                          SW WIRING           GK
   122D 20                122D 719         DC    IL1'32'                                GC552-       GK
   122E 213D              122F 720         DC    AL2(PRNTRD)                                    GC553'  GK
   1230 78 00 00               721 TST     TBN   0(,XR1),*-*            CHECK FOR
   1233 F2 90 23               722         JF    INC                     CARD PRINTING
   1236 2C 03 1863 00          723         MVC   CARD(4),0(,XR2)
   123B C0 87 021A             724         B     PRINT                  PRINT
   123F 01                123F 725 MOD2    DC    XL1'01'                 CARDS
   1240 06                1240 726         DC    IL1'6'
   1241 1863              1242 727         DC    AL2(CARD)
   1243 3D 02 1231             728         CLI   TST+1,X'02'            CHECK FOR B2U2 CARD PRINTOUT
   1247 F2 01 0F               729         JNE   INC
   124A 3B 20 0A0B             730         TBN   MFCU-1,X'20'           MFCU SYS.?
   124E F2 90 08               731         JF    INC                     NO, SKIP PRINT
   1251 C0 87 021A             732         B     PRINT                  PRINT
   1255 01                1255 733 MOD3    DC    XL1'01'                 B2U2
   1256 23                1256 734         DC    IL1'35'                   SWAPABLE
   1257 1948              1258 735         DC    AL2(MSG12)                WITH A3A3
   1259 E2 02 04               736 INC     LA    4(,XR2),XR2            INCREMENT CARD POINTER
   125C 0E 00 1231 1231        737         ALC   TST+1(1),TST+1         INCREMENT BIT CHECKER
   1262 C0 20 1230             738         BNOL  TST                    CHECK ALL BITS PER BYTE
   1266 02 01 01               739         LA    1(,XR1),XR1             INCREMENT BYTE COUNTER
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1269 0E 00 1EE7 1F21        740         ALC   SWITCH,HEX80           CHECK ALL
   126F C0 20 1219             741         BNOL  CON1                    BITS FOR ON
   1273 36 01 1F43             742         A     HEXFF,XR1
   1277 38 08 1ED2             743         TBN   MARK,MARK4
   127B F2 90 0F               744         JF    END6
   127E C0 87 021A             745         B     PRINT
   1282 01                1282 746 MOD7    DC    XL1'01'
   1283 08                1283 747         DC    IL1'08'
   1284 1BC9              1285 748         DC    AL2(MSGSLT)
   1286 3B 08 1ED2             749         SBF   MARK,MARK4
   128A 7A 20 00               750         SBN   0(,XR1),X'20'
   128D 78 20 01               751 END6    TBN   1(,XR1),X'20'          CHECK FOR INTERRUPT PRINTOUT
   1290 F2 90 10               752         JF    CHKPRT                                              GK
   1293 C0 87 021A             753         B     PRINT                  PRINT
   1297 81                1297 754         DC    XL1'81'                 INTERRUPT
   1298 4D                1298 755         DC    IL1'77'                  MESSAGE
   1299 1B6A              129A 756         DC    AL2(MSG141)
   129B C0 87 021A             757         B     PRINT
   129F 81                129F 758         DC    XL1'81'
   12A0 2A                12A0 759         DC    IL1'42'
   12A1 1B94              12A2 760         DC    AL2(MSG142)
   12A3 38 10 1ED3             761 CHKPRT  TBN   PRTMSG,MECM             CHECK FOR MECH               GK
   12A7 F2 90 27               762         JF    END06                      ENTRY CHRT FLAG           GK
   12AA 3B 10 1ED3             763         SBF   PRTMSG,MECM              RESET FLAG                   GK
   12AE C0 87 021A             764 SECTIM  B     PRINT                  PRINT  'CHK MECH              GK
   12B2 01                12B2 765         DC    XL1'01'                          ENTRY CHRT           GK
   12B3 1D                12B3 766         DC    IL1'29'                            PG                 GK
   12B4 211D              12B5 767         DC    AL2(FDB)                              001-AX'         GK
   12B6 38 80 1ED3             768         TBN   PRTMSG,SECM             TEST SECOND TIME MSG FLAG    GK
   12BA F2 90 14               769         JF    END06                    IF NO, SKIP MSG PRINT       GK
   12BD 3B 80 1ED3             770         SBF   PRTMSG,SECM                ELSE, RESET FLAG          GK
   12C1 3C F7 211D             771         MVI   FDB,X'F7'                  AND CHG PG NO.              GK
   12C5 C0 87 021A             772         B     PRINT                  PRINT                        GK
   12C9 01                12C9 773         DC    XL1'01'                 'OTHERWISE'                 GK
   12CA 09                12CA 774         DC    IL1'09'                                             GK
   12CB 1A73              12CC 775         DC    AL2(MSG20)                                          GK
   12CD C0 87 12AE             776         B     SECTIM                 GO PRINT 2ND MSG             GK
   12D1 35 01 1F23             777 END06   L     SAV1,XR1               RESTORE
   12D5 35 02 1F25             778         L     SAV2,XR2                REGISTERS
   12D9 0C 13 1D92 1D93        779         MVC   MSGCAB(20),MSGCAB+1
   12DF C0 87 021A             780         B     PRINT                  SPACE
   12E3 92                12E3 781         DC    XL1'92'                 2 LINES
   12E4 C0 87 12FA             782 END61   B     STATCK                 PRINT XPTD AND RCVD STATUS
   12E8 C0 87 021A             783         B     PRINT                  PRINT
   12EC 86                12EC 784         DC    XL1'86'                 DO NOT
   12ED 30                12ED 785         DC    IL1'48'                  RESET HALT
   12EE 1C43              12EF 786         DC    AL2(MSWARN)
   12F0 C0 87 0222             787         B     HALT                   ERROR
   12F4 1001              12F5 788         DC    XL2'1001'               HALT
   12F6 C0 87 0000             789 END7    B     *-*                    RETURN
                               790 *
                               791 *             STATUS RECORDER
   12FA 34 08 1475             792 STATCK  ST    ENDSTR+3,ARR
   12FE 34 01 1EE4             793         ST    R1SAV1,XR1              RETAIN CONTENTS
   1302 34 02 1EE6             794         ST    R2SAV2,XR2               OF REGISTERS
   1306 0C 00 1EE2 20E7        795         MVC   WORK,STATUS-3(1)         KEEP
   130C 0C 00 1EE1 20EB        796         MVC   WORK-1,STSHDB-3(1)        ONLY
   1312 3B C0 1EE2             797         SBF   WORK,X'C0'                 TITLT
   1316 3B C0 1EE1             798         SBF   WORK-1,X'C0'                ROTATE
   131A 0C 18 1CDA 1CDB        799         MVC   MSGTR1-1(25),MSGTR1          CODE
   1320 0C 01 1342 1EDC        800         MVC   COR+3(2),AMSTR1          SET UP MESSAGE AREA
   1326 3C 00 1EE7             801         MVI   SWITCH,X'00'             CLEAR SWITCH
   132A C2 01 1EE2             802         LA    WORK,XR1                 RECEIVED TILT ROTATE CODES
   132E 3C 01 133A             803 DOER1   MVI   TSTR+1,X'01'             SET UP BIT CHECKER
   1332 C2 02 1EA0             804         LA    TABLE7-4,XR2             TABLE FOR PRINTOUTS
   1336 E2 02 04               805 DOER    LA    4(,XR2),XR2              INCREMENT TABLE
   1339 78 00 00               806 TSTR    TBN   0(,XR1),*-*              CHECK FOR BIT ON
   133C F2 90 0B               807         JF    INCR
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   133F 2C 03 0000 00          808 COR     MVC   *-*(4),0(,XR2)       IF ON, MOVE TLT-ROTATE
   1344 0E 01 1342 1EDA        809         ALC   COR+3(2),FOUR         CODE TO PRINTOUT AREA
   134A 0E 0C 133A 133A        810 INCR    ALC   TSTR+1,TSTR+1(1)      CHECK ALL BITS
   1350 C0 20 1336             811         BNOL  DOER                   IN EACH BYTE
   1354 3D 80 1EE7             812         CLI   SWITCH,X'80'
   1358 F2 81 18               813         JE    *+27                  SET UP FOR
   1358 0C 01 1342 1EDE        814         MVC   COR+3(2),AMSTE1        PRINTING
   1361 C2 01 1EE1             815         LA    WORK-1,XR1              EXPECTED
   1365 3C 80 1EE7             816         MVI   SWITCH,X'80'             TILT-ROTATE
   1369 0C 18 1D11 1D12        817         MVC   MSGTE1-1(25),MSGTE1      CODES
   136F C0 87 132E             818         B     DOER1
   1373 C0 87 021E             819         B     UNPACK                UNPACK
   1377 01               1377  820         DC    IL1'1'                 RECEIVED
   1378 1EE2             1379  821         DC    AL2(WORK)               TILT-ROTATE
   137A 1CC1             137B  822         DC    AL2(MSGTRC-1)           CODES
   137C C0 87 021A             823         B     PRINT                 PRINT
   1380 81               1380  824         DC    XL1'81'                RECEIVED
   1381 37               1381  825 LEN1    DC    IL1'55'                 TILT-ROTATE
   1382 1CDB             1383  826         DC    AL2(MSGTR1)             MESSAGE
   1384 3C 37 1381             827         MVI   LEN1,X'37'
   1388 C0 87 021E             828         B     UNPACK                UNPACK
   138C 01               138C  829         DC    IL1'1'                 EXPECTED
   138D 1EE1             138E  830         DC    AL2(WORK-1)             TILT-ROTATE
   138F 1CF8             1390  831         DC    AL2(MSGTEX-1)           CODES
   1391 C0 87 021A             832         B     PRINT                 PRINT
   1395 82               1395  833         DC    XL1'82'                EXPECTED
   1396 3F               1396  834         DC    IL1'55'                 TILT-ROTATE
   1397 1D12             1398  835         DC    AL2(MSGTE1)             MESSAGE
   1399 C0 87 1476             836         B     MOD1            SET XPTD STATUS
   139D 3B 3F 20E7             837         SBF   STATUS-3,X'3F'
   13A1 3B 3F 20EB             838         SBF   STSHDB-3,X'3F'
   13A5 3C 00 1EE7             839         MVI   SWITCH,X'00'            CLEAR SWITCH
   13A9 C0 87 021A             840         B     PRINT                   PRINT
   13AD 82               13AD  841         DC    XL1'82'                  'STATUS
   13AE 14               13AE  842         DC    IL1'20'                   RECEIVED
   13AF 1CA3             13B0  843         DC    AL2(MSGRCV)               WAS,'
   13B1 C2 01 2CE7             844         LA    STATUS-3,XR1            SET UP RECEIVED STATUS POINTER
   13B5 F2 87 11               845         J     CHECK                    AND GO CHECK STATUS
   13B8 C0 87 021A             846 EXPSTT  B     PRINT                   PRINT
   13BC 92               13BC  847         DC    XL1'92'                  'STATUS
   13BD C0 87 021A             848         B     PRINT
   13C1 82               13C1  849         DC    XL1'82'
   13C2 14               13C2  850         DC    IL1'20'                   EXPECTED
   13C3 1C8F             13C4  851         DC    AL2(MSGEXP)               WAS,'
   13C5 C2 01 20EB             852         LA    STSHDB-3,XR1            SET EXPECTED STATUS POINTER
   13C9 C2 02 1F44             853 CHECK   LA    FIRST-1,XR2             SET FOR CORRECT COUNT
   13CD 79 C0 00               854         TBF   0(,XR1),X'C0'
   13D0 79 DE 01               855         TBF   1(,XR1),X'DE'
   13D3 79 87 02               856         TBF   2(,XR1),X'87'
   13D6 79 BF 03               857         TBF   3(,XR1),X'BF'
   13D9 F2 90 08               858         JF    CHECK1                   BITS ON
   13DC C0 87 021A             859         B     PRINT                     PRINT
   13E0 81               13E0  860         DC    XL1'81'                    'NONE'
   13E1 05               13E1  861         DC    IL1'5'
   13E2 20DD             13E3  862         DC    AL2(NONE)
   13E4 3C 01 1407             863 CHECK1  MVI   TSTBTO+1,X'01'          SET
   13E8 2C 00 1411 00          864 DOIT    MVC   LENGTH,0(,XR2)            UP
   13ED 0E 00 1411 1ED6        865         ALC   LENGTH,ONE                 FOR
   13F3 2C 00 13FA 00          866         MVC   INCADR+2(1),0(,XR2)         STATUS
   13F8 E2 02 00               867 INCADR  LA    *-*(,XR2),XR2               PRINT
   13FB 34 02 1413             868         ST    ADRMSG,XR2                  OUT
   13FF E2 02 01               869         LA    1(,XR2),XR2
   1402 34 02 1F1E             870         ST    KEEP1,XR2               SAVE XR2
   1406 78 00 00               871 TSTBTO  TBN   0(,XR1),*-*              BYPASS PRINTING IF
   1409 F2 90 08               872         JF    INCBTO                    STATUS BIT NOT ON
   140C C0 87 021A             873         B     PRINT                   PRINT
   1410 81               1410  874         DC    XL1'81'                  STATUS
   1411 00               1411  875 LENGTH  DC    IL1'0'                    IF BIT
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   1412 0000             1413  876 ADRMSG  DC    AL2(0)                    ON
   1414 C0 87 1435             877 INCBTO  B     INCB2
   1418 0C 00 1F20 13FA        878 INCB1   MVC   KEEP2(1),INCADR+2
   141E 0F 01 1413 1F20        879         SLC   ADRMSG(2),KEEP2           ADJUST ADRESS TO BEGINNING
   1424 35 02 1413             880         L     ADRMSG,XR2                 OF MESSAGE FIELD
   1428 BD 01 00               881         CLI   0(,XR2),X'01'
   142B F2 81 03               882         JE    *+6
   142E BC 40 01               883         MVI   1(,XR2),X'40'
   1431 35 02 1F1E             884         L     KEEP1,XR2
   1435 0E 00 1407 1407        885 INCB2   ALC   TSTBTO+1,TSTBTO+1(1)  TEST ALL BITS
   143B C0 20 13E8             886         BNOL  DOIT                     OF EACH BYTE
   143F D2 01 01               887         LA    1(,XR1),XR1             INCREMENT BYTE COUNTER
   1442 8D 04 00 20D9          888         CLC   0(5,XR2),NONE-4         LAST BYTE
   1447 C0 01 13E4             889         BNE   CHECK1                  NO--CONTINUE CHECKING
   144B 0C 01 1417 1F1A        890         MVC   INCBTO+3(2),AINCB1
   1451 0E 00 1EE7 1F21        891         ALC   SWITCH,HEX80            PRINT EXPECTED STATUS
   1457 C0 20 13B8             892         BNOL  EXPSTT                   IF NOT ALREADY PRINTED
   145B C0 87 021A             893         B     PRINT                   SPACE SIX
   145F 93               145F  894         DC    XL1'93'                  LINES
   1460 0C 01 1417 1F1C        895         MVC   INCBTO+3(2),AINCB2
   1466 3B FF 1ED2             896         SBF   MARK,X'FF'              RESET FLAGS
   146A 35 01 1EE4             897         L     R1SAV1,XR1              RESTORE
   146E 35 02 1EE6             898         L     R2SAV2,XR2               REGISTERS
   1472 C0 87 0000             899 ENDSTR  B     *-*                     RETURN
                               900 *
                               901 *       MOD1 SUBROUTINE:
                               902 *       SETS RESERVED STATUS BITS TO ZERO.
                               903 *
   1476 34 08 1489             904 MOD1    ST    ENDM+3,ARR
   147A 3B 40 20EA             905         SBF   STATUS,X'40'            SET
   147E 3B 78 20E9             906         SBF   STATUS-1,X'78'           RESERVED
   1482 3B 21 20E8             907         SBF   STATUS-2,X'21'            BITS OFF
   1486 C0 87 0000             908 ENDM    B     *-*                     RETURN
                               909 ************************************************************
                               910 *                                                          *
                               911 *                CARRIER RETURN SUBROUTINE                 *
                               912 *                                                          *
                               913 ************************************************************
   148A 34 08 16FC             914 RETURN  ST    ENDPRT+3,ARR
   148E F3 18 40               915         SIO   X'40',PRNT              ISSUE RETURN COMMAND
   1491 30 1B 20E8             916         SNS   STATUS-2,X'1B'          SAVE
   1495 30 19 20EA             917         SNS   STATUS,X'19'             STATUS
   1499 3A 10 20EE             918         SBN   STSHDB,X'10'
   149D 38 10 20EA             919         TBN   STATUS,X'10'            CHECK FOR
   14A1 F2 10 12               920         JT    RET1                     PRINTER BUSY
   14A4 3C 5C 2096             921         MVI   MBUSY,C'*'
   14A8 C0 87 12FA             922         B     STATCK
   14AC C0 87 17F5             923         B     BBC1                    PRINT RETRY MESSAGE
   14B0 C0 87 0222             924         B     HALT
   14B4 1007             1485  925         DC    XL2'1007'
   14B6 0C 01 20E3 1EF9        926 RET1    MVC   WORK3(2),CD05
   14BC 3A 1E 20EC             927         SBN   STSHDB-2,X'1E'          WAIT FOR
   14C0 38 18 20E8             928 SYNCC   TBN   STATUS-2,X'18'            FEEDBACK
   14C4 F2 10 28               929         JT    ADTRE1                     AND SAMPLED
   14C7 30 1B 20E8             930         SNS   STATUS-2,X'1B'               FUNCTION SWITCH
   14CB 0E 01 20E3 1ED6        931         ALC   WORK3(2),ONE
   14D1 C0 20 14C0             932         BNOL  SYNCC
   14D5 38 10 20E8             933         TBN   STATUS-2,X'10'          CHECK FOR FEEDBACK SWITCH
   14D9 F2 10 04               934         JT    *+7
   14DC 3C 5C 1FC5             935         MVI   MFD,C'*'
   14E0 38 08 20E8             936         TBN   STATUS-2,X'08'          CHECK FOR FEEDBACK SAMPLED
   14E4 F2 10 04               937         JT    *+7
   14E7 3C 5C 1FAC             938         MVI   MFDS,C'*'
   14EB C0 87 0C52             939         B     RET3                    PRINT CARRIER DID NOT RETURN
   14EF 0C 02 20E3 1EFF        940 ADTRE1  MVC   WORK3(3),CD100
   14F5 30 1B 20E8             941 ADTRE2  SNS   STATUS-2,X'1B'
   14F9 38 06 20E8             942         TBN   STATUS-2,X'06'
   14FD F2 10 6B               943         JT    RET99
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1500 39 04 20E8            944        TBF   STATUS-2,X'04'
   1504 F2 10 04              945        JT    CR1
   1507 3A 04 1ED2            946        SBN   MARK,MARK5
   150B 39 02 20E8            947 CR1    TBF   STATUS-2,X'02'
   150F F2 10 04              948        JT    ADONEA
   1512 3A 02 1ED2            949        SBN   MARK,MARK6
   1516 0E 02 20E3 1ED6       950 ADONEA ALC   WORK3(3),ONE
   151C C0 20 14F5            951        BNOL  ADTRE2
   1520 39 06 1ED2            952        TBF   MARK,X'06'
   1524 F2 90 1F              953        JF    RET33
   1527 3C 5C 1F96            954        MVI   MLFN,C'*'
   152B 3C 5C 1F78            955        MVI   MLFNS,C'*'
   152F 3B 06 1ED2            956        SBF   MARK,X'06'          RESET FLAGS
   1533 3C F1 211D            957        MVI   FDB,X'F1'           MOVE IN PG NUMBER                GK
   1537 3A 10 1ED3            958        SBN   PRTMSG,MECM         FLAG MECH ENTRY CHRT MSG         GK
   153B 3A 80 1ED3            959        SBN   PRTMSG,SECM         FLAG SECOND MSG                  GK
   153F C0 87 113B            960        B     REPLCE              REPLACE
   1543 040040          1545  961        DC    XL3'040040'          B2S2, CABLE(GC553)          GK
   1546 38 04 1ED2            962 RET33  TBN   MARK,MARK5
   154A F2 90 0F              963        JF    RET9
   154D 3C 5C 1F78            964        MVI   MLFNS,C'*'
   1551 3B 06 1ED2            965        SBF   MARK,X'06'
   1555 C0 87 113B            966        B     REPLCE              REPLACE
   1559 080000          155B  967        DC    XL3'080000'          B2R2
   155C 3B 06 1ED2            968 RET9   SBF   MARK,X'06'          RESET FLAGS
   1560 3C 5C 1F96            969        MVI   MLFN,C'*'
   1564 C0 67 113B            970        B     REPLCE              REPLACE
   1568 200000          156A  971        DC    XL3'200000'          B2N2
   156B 3B 06 1ED2            972 RET99  SBF   MARK,X'06'
   156F 38 01 20EA            973        TBN   STATUS,X'01'        CHECK FOR
   1573 38 01 20E9            974        TBN   STATUS-1,X'01'       CYCLE TOO LONG
   1577 F2 90 0F              975        JF    ADTRE
   157A 3C 5C 204D            976        MVI   MMAL,C'*'
   157E 3C 5C 2004            977        MVI   MCTL,C'*'
   1582 C0 87 113B            978        B     REPLCE              REPLACE
   1586 040000          1588  979        DC    XL3'040000'          B2S2
   1589 0C 02 20E3 1EFC       980 ADTRE  MVC   WORK3(3),CD1SEC
   158F 3B 06 1ED2            981        SBF   MARK,X'06'
   1593 3B 1E 20EC            982        SBF   STSHDB-2,X'1E'
   1597 39 1E 20E8            983 SYNCC2 TBF   STATUS-2,X'1E'      WAIT ONE
   159B C0 10 16D3            984        BT    ADTW04               SECOND FOR
   159F 30 1B 20E8            985        SNS   STATUS-2,X'1B'        LONG FUNCTION
   15A3 0D 05 1EE2 1EE2       986        CLC   WORK(6),WORK           AND LONG
   15A9 30 19 20EA            987        SNS   STATUS,X'19'            FUNCTION
   15AD 39 01 20EA            988        TBF   STATUS,X'01'             SAMPLED
   15B1 F2 10 20              989        JT    RET8                      TO DROP
   15B4 3C 5C 204D            990        MVI   MMAL,C'*'
   15B8 C0 87 12FA            991        B     STATCK
   15BC 3C F7 211D            992        MVI   FDB,X'F7'           MOVE IN PG NUMBER                GK
   15C0 C0 87 021A            993        B     PRINT               PRINT                            GK
   15C4 C1              15C4  994        DC    XL1'C1'                  'CHK MECH                   GK
   15C5 1D              15C5  995        DC    IL1'29'                        ENTRY CHRT            GK
   15C6 211D            15C7  996        DC    AL2(FDB)                             PG 001-A7'      GK
   15C8 1004            15C9  997        DC    XL2'1004'                                            GK
   15CA C0 87 17F5            998        B     BBC1                PRINT RETRY MESSAGE
   15CE C0 87 0222            999        B     HALT
   15D2 1004            15D3 1000        DC    XL2'1004'
   15D4 0E 02 20E3 1ED6      1001 RET8   ALC   WORK3(3),ONE         CONTINUE
   15DA C0 20 1597           1002        BNOL  SYNCC2               FOR ONE SECOND
   15DE C0 87 12FA           1003        B     STATCK
   15E2 C0 87 17F5           1004        B     BBC1                PRINT RETRY MESSAGE
   15E6 C0 87 0222           1005        B     HALT
   15EA 1005            15EB 1006        DC    XL2'1005'
                             1007 ********************************************************************
                             1008 *                                                                  *
                             1009 *                          PRINT SUBROUTINE                        *
                             1010 *                                                                  *
                             1011 ********************************************************************
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   15EC 34 08 16FC           1012 PRINTS ST    ENDPRT+3,ARR        SAVE RETURN ADDRESS
   15F0 F3 18 80             1013        SIO   X'80',PRNT          ISSUE PRINT COMMAND
   15F3 30 1B 20E8           1014        SNS   STATUS-2,X'1B'      SAVE
   15F7 30 19 20EA           1015        SNS   STATUS,X'19'         STATUS
   15FB 3A 10 20EE           1016 ADTW03 SBN   STSHDB,X'10'
   15FF 38 10 20EA           1017        TBN   STATUS,X'10'        CHECK BUSY ON
   1603 F2 10 12             1018        JT    PR1
   1606 3C 5C 2096           1019        MVI   MBUSY,C'*'
   160A C0 87 12FA           1020        B     STATCK              PRINT STATUS
   160E C0 87 17F5           1021        B     BBC1                PRINT RETRY MESSAGE
   1612 C0 87 0222           1022        B     HALT
   1616 1006            1617 1023        DC    XL2'1006'
   1618 0C 01 20E3 1EF9      1024 PR1    MVC   WORK3(2),CD05       WAIT 05
   161E 3A 18 20EC           1025        SBN   STSHDB-2,X'18'       MILLISECONDS
   1622 38 18 20E8           1026 SYNCP  TBN   STATUS-2,X'18'        FOR FEEDBACK
   1626 F2 10 30             1027        JT    ADONE1                 AND FEEDBACK
   1629 30 1B 20E8           1028        SNS   STATUS-2,X'1B'          SAMPLED TO COME UP
   162D 0E 01 20E3 1ED6      1029        ALC   WORK3(2),ONE
   1633 C0 20 1622           1030        BNOL  SYNCP
   1637 38 10 20E8           1031        TBN   STATUS-2,X'10'      CHECK FOR FEEDBACK SWITCH
   163B F2 10 04             1032        JT    *+7
   163E 3C 5C 1FC5           1033        MVI   MFD,C'*'
   1642 38 08 20E8           1034        TBN   STATUS-2,X'08'      CHECK FOR FEEDBACK SAMPLED
   1646 F2 10 04             1035        JT    *+7
   1649 3C 5C 1FAC           1036        MVI   MFDS,C'*'
   164D 3D 08 0A03           1037        CLI   CRTNO,X'08'         CHECK FOR
   1651 C0 81 0F29           1038        BE    TYPBL                ROUTINE 8
   1655 C0 87 0DE6           1039        B     GGG
   1659 0C 02 20E3 1EFF      1040 ADONE1 MVC   WORK3(3),CD100
   165F 3B 18 20EC           1041        SBF   STSHDB-2,X'18'
   1663 39 18 20E8           1042 SYNCP1 TBF   STATUS 2,X'18'      WAIT 100
   1667 F2 10 47             1043        JT    ADTW01                MILLISECONDS
   166A 30 1B 20E8           1044        SNS   STATUS-2,X'1B'        FOR FEEDBACK
   166E 0D 05 1EE2 1EE2      1045        CLC   WORK(6),WORK            AND FEEDBACK
   1674 30 19 20EA           1046        SNS   STATUS,X'19'              SAMPLED TO DROP
   1678 39 01 20EA           1047        TBF   STATUS,X'01'
   167C F2 10 12             1048        JT    PR2
   167F 3C 5C 204D           1049        MVI   MMAL,C'*'
   1683 C0 87 12FA           1050        B     STATCK              PRINT STATUS
   1687 C0 87 17F5           1051        B     BBC1                PRINT RETRY MESSAGE
   168B C0 87 0222           1052        B     HALT
   168F 1008            1690 1053        DC    XL2'1008'
   1691 0E 02 20E3 1ED6      1054 PR2    ALC   WORK3(3),ONE        CONTINUE
   1697 C0 20 1663           1055        BNOL  SYNCP1               WAITING
   169B 3C 5C 1FC5           1056        MVI   MFD,C'*'
   169F 3C 5C 1FAC           1057        MVI   MFDS,C'*'
   16A3 C0 87 12FA           1058        B     STATCK
   16A7 C0 87 17F5           1059        B     BBC1                PRINT RETRY MESSAGE
   16AB C0 87 0222           1060        B     HALT
   16AF 1009            1680 1061        DC    XL2'1009'
   16B1 39 10 20EA           1062 ADTW01 TBF   STATUS,X'10'
   16B5 F2 10 1B             1063        JT    ADTW04
   16B8 38 01 1ED2           1064        TBN   MARK,MARK7          CHECK
   16BC F2 10 08             1065        JT    *+11                 FOR SHIFT
   16BF 3A 01 1ED2           1066        SBN   MARK,MARK7             CYCLE
   16C3 C0 87 15FB           1067        B     ADTW03
   16C7 3B 01 1ED2           1068        SBF   MARK,MARK7
   16CB C0 87 1109           1069        B     DEL100
   16CF 30 19 20EA           1070        SNS   STATUS,X'19'
   16D3 3B 10 20EE           1071 ADTW04 SBF   STSHDB,X'10'       CHECK BUSY
   16D7 3A 80 20EE           1072        SBN   STSHDB,X'80'         DROPPED AND
   16DB 39 10 20EA           1073        TBF   STATUS,X'10'          INTRPT PEND
   16DF 38 80 20EA           1074        TBN   STATUS,X'80'            CAME ON
   16E3 F2 10 0F             1075        JT    PR3
   16E6 3C 5C 20BF           1076        MVI   MPEND,C'*'
   16EA 3C 5C 2096           1077        MVI   MBUSY,C'*'
   16EE C0 87 113B           1078        B     REPLCE              REPLACE
   16F2 482000          16F4 1079        DC    XL3'482000'          B2M2, B2R2, SLT
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   16F5 C0 87 16FD           1080 PR3    B     SIORT              GO ENABLE INTERRUPTS
   16F9 C0 87 0000           1081 ENDPRT B     *-*
                             1082 ********************************************************************************
                             1083 *                                                                              *
                             1084 *            SUBROUTINE TO ENABLE PRINTER                                      *
                             1085 *                                                                              *
                             1086 ********************************************************************************
   16FD 34 08 1748           1087 SIORT  ST    ENDG+3,ARR
   1701 34 01 1EE4           1088        ST    R1SAV1,XR1         SAVE
   1705 34 02 1EE6           1089        ST    R2SAV2,XR2          REGISTERS
   1709 3A 80 1ED2           1090        SBN   MARK,MARK0         EXPECT INTERRUPT FLAG
   170D 3A 80 20ED           1091        SBN   STSHDB-1,X'80'     SET
   1711 3B 80 20EE           1092        SBF   STSHDB,X'80'        STATUS
   1715 0C 02 1EF7 1EF4      1093        MVC   TIM(3),DLAY        SET TIMER
   1718 35 C0 1F18           1094        L     ITLV1,X'C0'        LOAD INT LEVEL 1
   171F 34 C0 1F18           1095        ST    ITLV1,X'C0'        SAVE INT LEVEL IAR
   1723 F3 18 04             1096 SIO4   SIO   X'04',PRNT         ENABLE PRINTER
   1726 38 40 1ED2           1097        TBN   MARK,MARK1
   172A C0 10 1745           1098        BT    ENDG               WAIT
   172E 0F 02 1EF7 1ED6      1099        SLC   TIM(3),ONE          FOR
   1734 C0 01 1726           1100        BNZ   SIO4+3               INTERRUPT
   1738 0C 0E 1D8E 1D6D      1101        MVC   MSGCAB-4(15),INTPL
   173E C0 87 113B           1102        B     REPLCE             REPLACE B2N2,
   1742 21C020          1744 1103        DC    XL3'21C020'         B3L2, B3S2, B3P2, CABLE(KD141)
   1745 C0 87 0000           1104 ENDG   B     *-*
                             1105 ********************************************************************************
                             1106 *                                                                              *
                             1107 *                    INTERRUPT HANDLING SUBROUTINE                             *
                             1108 *                                                                              *
                             1109 ********************************************************************************
   1749 34 04 1F12           1110 CONSLE ST    SAVPSR,PSR         SAVE PSR
   174D 34 20 17F4           1111        ST    ENDZ+3,P1IAR       SAVE P1-IAR
   1751 30 1B 20E8           1112        SNS   STATUS-2,X'1B'     SAVE
   1755 30 19 20EA           1113        SNS   STATUS,X'19'        STATUS
   1759 35 20 1F16           1114        L     ADRSER,X'20'       CHECK
   175D C0 80 17A5           1115        BC    NOTRES-3,X'80'      IAR/ARR
   1761 C0 FF 1768           1116        BC    NEXT,X'FF'           SELECTION
   1765 F2 87 3D             1117        J     NOTRES-3
   1768 35 01 17F4           1118 NEXT   L     ENDZ+3,XR1
   176C 7D 04 02             1119        CLI   2(,XR1),X'04'
   176F F2 01 06             1120        JNE   *+9
   1772 0E 01 17F4 1ED8      1121        ALC   ENDZ+3(2),THREE
   1778 3A 40 1ED2           1122        SBN   MARK,MARK1
   177C 38 80 1ED2           1123        TBN   MARK,MARK0         CHECK
   1780 F2 10 0F             1124        JT    *+18                FOR XPTD
   1783 3A 10 1ED2           1125 N2L2   SBN   MARK,MARK3
   1787 C0 87 113B           1126        B     REPLCE             REPLACE
   178B A00000          178D 1127        DC    XL3'A00000'         B2N2, B2L2
   178E C0 87 1783           1128        B     N2L2
   1792 38 80 20E9           1129        TBN   STATUS-1,X'80'     CHECK FOR
   1796 C0 90 1783           1130        BF    N2L2
   179A 35 20 1F10           1131        L     TEM1,P1IAR         DISABLE
   179E F3 18 00             1132        SIO   X'00',PRNT          INTERRUPTS
   17A1 35 20 1F14           1133        L     TEMPAR,P1IAR
   17A5 F3 18 01             1134        SIO   X'01',PRNT         RESET INTERRUPTS
   17A8 C0 87 021A           1135 NOTRES B     PRINT              PRINT
   17AC C6              17AC 1136        DC    XL1'C6'             INTERRUPT
   17AD 13              17AD 1137        DC    IL1'19'              NOT
   17AE 1C56            17AF 1138        DC    AL2(MSG017)           RESET
   1780 1022            1781 1139        DC    XL2'1022'
   1782 C0 87 0222           1140        B     HALT
   1786 1022            17B7 1141        DC    XL2'1022'
   1788 C0 87 113B           1142        B     REPLCE             REPLACE
   178C A00000          178E 1143        DC    XL3'A00000'         A-B2N2, B2L2
   178F C0 87 17A5           1144        B     NOTRES-3
   17C3 C0 87 113B           1145 SELECT B     REPLCE             REPLACE
   17C7 010000          17C9 1146        DC    XL3'010000'         B3L2
   17CA F2 87 10             1147        J     RESET
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   17CD C0 87 021A           1148 NOTRE1 B     PRINT              PRINT
   17D1 C6                   1149        DC    XL1'C6'             INTERRUPT
   17D2 31                   1150        DC    IL1'49'              RESET
   17D3 1C13                 1151        DC    AL2(MSGINT)           BY A
   17D5 1023                 1152        DC    XL2'1023'              DISABLE
   17D7 C0 87 0222           1153        B     HALT                    COMMAND
   17DB 1023                 1154        DC    XL2'1023'
   17DD 35 01 1EE4           1155 RESET  L     R1SAV1,XR1         RESTORE
   17E1 35 02 1EE6           1156        L     R2SAV2,XR2          REGISTERS
   17E5 3B 80 20ED           1157        SBF   STSHDB-1,X'80'
   17E9 35 C0 1F18           1158        L     ITLV1,X'C0'        LOAD INTERRUPT LEVEL 1
   17ED 35 04 1F12           1159        L     SAVPSR,PSR
   17F1 C0 87 0000           1160 ENDZ   B     *-*                RETURN
                             1161
                             1161
                             1162 *      THIS SUBROUTINE PRINTS THE 'RETRY' MESSAGE
                             1163 *
   17F5 34 08 1804           1164 BBC1   ST    BBC+3,ARR          SAVE RETURN ADDRESS
   17F9 C0 87 021A           1165        B     PRINT              PRINT
   17FD 86                   1166        DC    XL1'86'             RETRY
   17FE 11                   1167        DC    IL1'17'              101 AND 102
   17FF 19C3                 1168        DC    AL2(MRETRY)
   1801 C0 87 0000           1169 BBC    B     *-*                RETURN
                             1170 *
                             1171 *      SENSOR SUBROUTINE:
                             1172 *      SAVES KEYBOARD STATUS
   1805 34 08 1818           1173 SENSOR ST    ENDS+3,ARR
   1809 30 1B 20E8           1174        SNS   STATUS-2,X'1B'     SAVE
   180D 30 19 20EA           1175        SNS   STATUS,X'19'        STATUS
   1811 C0 87 1476           1176        B     MOD1               SET RESERVED BITS OFF
   1815 C0 87 0000           1177 ENDS   B     *-*                RETURN
                             1178 *
                             1179 *      MESSAGES
                             1180 *
   1819 C9C640D5D640E2D7 1844 1181 MSG10  DC    CL44'IF NO SPACE IS TAKEN AND/OR CHAR ARE PRINTED'
   1821 C1C3C540C9E240E3      1181
   1829 C1D2C5D540C1D5C4      1181
   1831 61D6D940C3C8C1D9      1181
   1839 40C1D9C540D7D9C9      1181
   1841 D5E3C5C4              1181
   1845 D9C5D7D3C1C3C540 185D 1182 REP    DC    CL25'REPLACE FOLLOWING CARD/S:'
   184D C6D6D3D3D6E3C9D5      1182
   1855 C740C3C1D9C461E2      1182
   185D 7A                    1182
   185E C160             185F 1183        DC    CL2'A-'
   1860 E7E7E7E7         1863 1184 CARD   DC    CL4'XXXX'
   1864 C2F3D3F2         1867 1185 CARDS  DC    CL4'B3L2'
   1868 C2F2E4F2         186B 1186        DC    CL4'B2U2'
   186C C2F2E2F2         186F 1187        DC    CL4'B2S2'
   1870 C2F2D9F2         1873 1188        DC    CL4'B2R2'
   1874 C2F2D7F2         1877 1189        DC    CL4'B2P2'
   1878 C2F2D5F2         187B 1190        DC    CL4'B2N2'
   187C C2F2D4F2         187F 1191        DC    CL4'B2M2'
   1880 C2F2D3F2         1883 1192        DC    CL4'B2L2'
   1884                  189B 1193        DS    CL24
   189C C2F3E2F2         189F 1194        DC    CL4'B3S2'
   18A0 C2F3D7F2         18A3 1195        DC    CL4'B3P2'
   18A4 E2D7C1C3C540E3C5 18C2 1196 MSG07  DC    CL31'SPACE TEST WITH NO CHAR PRINTED'
   18AC E2E340E6C9E3C840      1196
   18B4 D5D640C3C8C1D940      1196
   18BC D7D9C9D5E3C5C4        1196
   18C3 C6C9D9E2E340D6D5 18DA 1197 MSG08  DC    CL24'FIRST ONE SPACE IS TAKEN'
   18CB C540E2D7C1C3C540      1197
   18D3 C9E240E3C1D2C5D5      1197
   18DB C9C640D5D640C5D9 190E 1198 MSG09  DC    CL52'IF NO ERRORS DETECTED, CARRIER SPACED TO END OF LINE'
   18E3 D9D6D9E240C4C5E3      1198
   18EB C5C3E3C5C46B40C3      1198
   18F3 C1D9D9C9C5D940E2      1198
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   18FB D7C1C3C5C440E3D6      1198
   1903 40C5D5C440D6C640      1198
   190B D3C9D5C5              1198
   190F C9C640D6D5D3E840 1928 1199 MSG11  DC    CL26'IF ONLY ONE SPACE IS TAKEN'
   1917 D6D5C540E2D7C1C3      1199
   191F C540C9E240E3C1D2      1199
   1927 C5D5                  1199
   1929 60C160C2F2E4F240 1948 1200 MSG12  DC    CL35'-A-B2U2 MAY BE SWAPPED WITH A-A3A3-'
   1931 D4C1E840C2C540E2      1200
   1939 E6C1D7D7C5C440E6      1200
   1941 C9E3C840C160C1F3      1200
   1949 C1F360                1200
   194C C3C1D9D9C9C5D940 196B 1201 MSG13  DC    CL32'CARRIER RETURN AND PLATTEN INDEX'
   1954 D9C5E3E4D9D540C1      1201
   195C D5C440D7D3C1E3E3      1201
   1964 C5D540C9D5C4C5E7      1201
   196C C9C640C3C1D9D9C9 1991 1202 MSG14  DC    CL38'IF CARRIER DOES NOT RETURN OR NO INDEX'
   1974 C5D940C4D6C5E240      1202
   197C D5D6E340D9C5E3E4      1202
   1984 D9D540D6D940D5D6      1202
   198C 40C9D5C4C5E7          1202
   1992 C9C640D5D640C3C1 19B2 1203 MSG15  DC    CL33'IF NO CARRIER RETURN AND NO INDEX'
   199A D9D9C9C5D940D9C5      1203
   19A2 E3E4D9D540C1D5C4      1203
   19AA 40D5D640C9D5C4C5      1203
   19B2 E7                    1203
   19B3 D9C5E3D9E840F1F0 19C3 1204 MRETRY DC    CL17'RETRY 101 AND 102'
   19BB F140C1D5C440F1F0      1204
   19C3 F2                    1204
   19C4 D3D6E6C5D9       19C8 1205 MSG161 DC    CL5'LOWER'
   19C9 40C3C1E2C540C3C8 19EF 1206         DC    CL39' CASE CHAR ARE PRINTED AND SHOULD MATCH'
   19D1 C1D940C1D9C540D7      1206
   19D9 D9C9D5E3C5C440C1      1206
   19E1 D5C440E2C8D6E4D3      1206
   19E9 C440D4C1E3C3C8        1206
   19F0 40D2C5E8C2D6C1D9 1A15 1207 MSG16  DC    CL38' KEYBOARD LEFT TO RIGHT, TOP TO BOTTOM'
   19F8 C440D3C5C6E340E3      1207
   1A00 D640D9C9C7C8E36B      1207
   1A08 40E3D6D740E3D640      1207
   1A10 C2D6E3E3D6D4          1207
   1A16 C3C8C5C3D240C6D6 1A2C 1208 MSGCKP DC    CL23'CHECK FOR CORRECT XXXXX'
   1A1E D940C3D6D9D9C5C3      1208
   1A26 E340E7E7E7E7E7E7      1208
   1A2D 40C3C1E2C540D7C1 1A39 1209         DC    CL13' CASE PATTERN'
   1A35 E3E3C5D9D5            1209
   1A3A C9C640D6D5D3E840 1A6A 1210 MSG19  DC    CL49'IF ONLY 1 CHAR PRINTED AND TYPEBALL IN LOWER CASE'
   1A42 F140C3C8C1D940D7      1210
   1A4A D9C9D5E3C5C440C1      1210
   1A52 D5C440E3E8D7C5C2      1210
   1A5A C1D3D340C9D540D3      1210
   1A62 D6E6C5D940C3C1E2      1210
   1A6A C5                    1210
   1A6B D6E3C8C5D9E6C9E2 1A73 1211 MSG20  DC    CL9'OTHERWISE'
   1A73 C5                    1211
   1A74 C1E2E3C5D9C9E2D2 1AA3 1212 MSG21  DC    CL48'ASTERISK PRINTED WHERE UPPER CASE DOES NOT EXIST'
   1A7C 40D7D9C9D5E3C5C4      1212
   1A84 40E6C8C5D9C540E4      1212
   1A8C D7D7C5D940C3C1E2      1212
   1A94 C540C4D6C5E240D5      1212
   1A9C D6E340C5E7C9E2E3      1212
   1AA4 C9C640C3D6D5E3C9 1AB6 1213 MSG22  DC    CL19'IF CONTINUOUS INDEX'
   1AAC D5E4D6E4E240C9D5      1213
   1AB4 C4C5E7                1213
   1AB7 C9C640E3E8D7C5C2 1AD3 1214 MSG23  DC    CL29'IF TYPEBALL NOT IN UPPER CASE'
   1ABF C1D3D340D5D6E340      1214
   1AC7 C9D540E4D7D7C5D9      1214
   1ACF 40C3C1E2C5            1214
   1AD4 C6D3C9D740C6D6D9 1AF1 1215 MSG24  DC    CL30'FLIP FORMS LOAD LEVER          '
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1ADC D4E240D3D6C1C440      1215
   1AE4 D3C5E5C5D9404040      1215
   1AEC 404040404040          1215
   1AF2 C6D6D9E6C1D9C4   1AF8 1216 FOR    DC    CL7'FORWARD'
   1AF9 C2C1C3D2E6C1D9C4 1B00 1217 BCK    DC    CL8'BACKWARD'
   1B01 C9C640C9D5C3D6D9 1B0C 1218 MSG30  DC    CL12'IF INCORRECT'
   1B09 D9C5C3E3              1218
   1B0D E2C8C9C6E340C3E8 1B1D 1219 MSG41  DC    CL17'SHIFT CYCLE TESTS'
   1B15 C3D3C540E3C5E2E3      1219
   1B1D E2                    1219
   1B1E C9C640C1D5E840D6 1B47 1220         DC    CL42'IF ANY OTHER INTERRUPTING DEVICES ATTACHED'
   1B26 E3C8C5D940C9D5E3      1220
   1B2E C5D9D9E4D7E3C9D5      1220
   1B36 C740C4C5E5C9C3C5      1220
   1B3E E240C1E3E3C1C3C8      1220
   1B46 C5C4                  1220
   1B48 40E3D640E2E8E2E3 1B6A 1221 MSG141 DC    CL35' TO SYSTEM ARE OPERATING CORRECTLY,'
   1B50 C5D440C1D9C540D6      1221
   1B58 D7C5D9C1E3C9D5C7      1221
   1B60 40C3D6D9D9C5C3E3      1221
   1B68 D3E86B                1221
   1B6B D6D4C9E340C3C8C5 1B94 1222 MSG142 DC    CL42'OMIT CHECKING B3S2, B3P2, AND CABLE(KD141)'
   1B73 C3D2C9D5C740C2F3      1222
   1B7B E2F26B40C2F3D7F2      1222
   1B83 6B40C1D5C440C3C1      1222
   1B8B C2D3C54DD2C4F1F4      1222
   1B93 F15D                  1222
   1B95 C1D5C440E3E8D7C5 1BAE 1223 MSGTPB DC    CL26'AND TYPEBALL IN UPPER CASE'
   1B9D C2C1D3D340C9D540      1223
   1BA5 E4D7D7C5D940C3C1      1223
   1BAD E2C5                  1223
   1BAF C9C640C1D5E840C3 1BC1 1224 MSGACP DC    CL19'IF ANY CHAR PRINTED'
   1BB7 C8C1D940D7D9C9D5      1224
   1BBF E3C5C4                1224
   1BC2 E2D3E340C3C1D9C4 1BC9 1225 MSGSLT DC    CL8'SLT CARD'
   1BCA 000000           1BCC 1226 MVE    DC    XL3'00'
   1BCD 40E2D7C1C3C540C3 1BE2 1227 MSGSPC DC    CL22' SPACE COMMANDS ISSUED'
   1BD5 D6D4D4C1D5C4E240      1227
   1BDD C9E2E2E4C5C4          1227
   1BE3 C9D5E3C5D9D9E4D7 1C13 1228 MSGINT DC    CL49'INTERRUPT RESET BY DISABLE--REPLACE A-B2L2,A-B2N2'
   1BEB E340D9C5E2C5E340      1228
   1BF3 C2E840C4C9E2C1C2      1228
   1BFB D3C5606DD9C5D7D3      1228
   1C03 C1C3C540C160C2F2      1228
   1C0B D3F26BC160C2F2D5      1228
   1C13 F2                    1228
   1C14 E6C1D9D5C9D5C760 1C43 1229 MSWARN DC    CL48'WARNING-RESETTING THIS ERROR HALT MAY BE INVALID'
   1C1C D9C5E2C5E3C3C9D5      1229
   1C24 C740E3C8C9E240C5      1229
   1C2C D9D9D6D940C8C1D3      1229
   1C34 E340D4C1E840C2C5      1229
   1C3C 40C9D5E5C1D3C9C4      1229
   1C44 C9D5E3C5D9D9E4D7 1C56 1230 MSG017 DC    CL19'INTERRUPT NOT RESET'
   1C4C E340D5D6E340D9C5      1230
   1C54 E2C5E3                1230
   1C57 C3C1D9D9C9C5D940 1C7B 1231 MSGXTM DC    CL37'CARRIER RETURN COMMAND ISSUED 5 TIMES'
   1C5F D9C5E3E4D9D540C3      1231
   1C67 D6D4D4C1D5C440C9      1231
   1C6F E2E2E4C5C4,0F540      1231
   1C77 E3C9D4C5E2            1231
   1C7C E2E3C1E3E4E240C5 1C8F 1232 MSGEXP DC    CL20'STATUS EXPECTED WAS,'
   1C84 E7D7C5C3E3C5C440      1232
   1C8C E6C1E26B              1232
   1C90 E2E3C1E3E4E240D9 1CA3 1233 MSGRCV DC    CL20'STATUS RECEIVED WAS,'
   1C98 C5C3C5C9E5C5C440      1233
   1CA0 E6C1E26B              1233
   1CA4 5C               1CA4 1234         DC    CL1'*'
   1CA5 E3C9D3E340D9D6E3 1CC2 1235 MSGTRC DC    CL30'TILT ROTATE CODE RECEIVED -  -'
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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

    1CAD C1E3C540C3D6C4C5       1235
    1CB5 40D9C5C3C5C9E5C5       1235
    1CBD C44060404060           1235
    1CC3 4040404040404040 1CDB  1236 MSGTR1 DC    CL25'                     '
    1CCB 4040404040404040       1236
    1CD3 4040404040404040       1236
    1CDB 40                     1236
    1CDC E3C9D3E340D9D6E3 1CF9  1237 MSGTEX DC    CL30'TILT ROTATE CODE EXPECTED -  -'
    1CE4 C1E3C540C3D6C4C5       1237
    1CEC 40C5E7D7C5C3E3C5       1237
    1CF4 C44060404060           1237
    1CFA 4040404040404040 1D12  1238 MSGTE1 DC    CL25'                     '
    1D02 4040404040404040       1238
    1D0A 4040404040404040       1238
    1D12 40                     1238
    1D13 D9C5E2C5E340E3C8 1D20  1239 MSGRES DC    CL14'RESET THE HALT'
    1D1B C540C8C1D3E3           1239
    1D21 D3D6E6C5D9       1D25  1240 LWR    DC    CL5'LOWER'
    1D26 E4D7D7C5D9       1D2A  1241 UPR    DC    CL5'UPPER'
    1D28 C7C3F0F9F5       1D2F  1242 GC095  DC    CL5'GC095'
    1D30 D7D940E4C340D9C5 1D3D  1243 PDSW   DC    CL14'PR UC REED SW)'
    1D38 C5C440E2E65D           1243
    1D3E E2C8C9C6E340D4C1 1D47  1244 SHIFT  DC    CL10'SHIFT MAG)'
    1D46 C75D                   1244
    1D48 C5D6C640E2E65D   1D4E  1245 EOF    DC    CL7'EOF SW)'
    1D4F C3E8C34B40C3D3E4 1D5A  1246        DC    CL12'CYC. CLUTCH,'
    1D57 E3C3C86B               1246
    1D58 E361D95D         1D5E  1247 TOR    DC    CL4'T/R)'
    1D5F C9D5E3C5D9D9E4D7 1D6D  1248 INTPL  DC    CL15'INTERRUPT POLL)'
    1D67 E340D7D6D3D35D         1248
    1D6E C3C8C5C3D240C3C1 1D79  1249        DC    CL12'CHECK CABLE('
    1D76 C2D3C54D               1249
    1D7A E7E7E7E7E7       1D7E  1250 CABL   DC    CL5'XXXXX'
    1D7F 4040404040404040 1D92  1251 MSGCAB DC    20XL1'40'
    1D87 4040404040404040       1251
    1D8F 40404040               1251
    1D93 40               1D93  1252        DC    XL1'40'
    1D94                  1D98  1253 CABLE  DS    CL5
    1D99                  1DAC  1254        DS    CL20
    1DAD D2C4F1F4F1       1DB1  1255        DC    CL5'KD141'
    1DB2 C7C3F5F5F3       1DB6  1256 GC553  DC    CL5'GC553'
    1DB7 C7C3F5F5F2       1DBB  1257 GC552  DC    CL5'GC552'
    1DBC D5D640D7D9E35D   1DC2  1258 NOPRT  DC    CL7'NO PRT)'
    1DC3 C6C5C5C4C2C1C3D2 1DD2  1259 FDSW   DC    CL16'FEEDBACK SWITCH)'
    1DC8 40E2E6C9E3C3C85D       1259
    1DD3 C5D6D340E2E65D   1DD9  1260 EOL    DC    CL7'EOL SW)'
    1DDA C3D940D4C1C7D5C5 1DEC  1261 MAG    DC    CL19'CR MAGNET OR INDEX)'
    1DE2 E340D6D940C9D5C4       1261
    1DEA C5E75D                 1261
                                1262 *
                                1263 *       TABLE FOR LOWER CASE
                                1264 *
                          1DED  1265 TBL1   EQU   *
    1DED F1F2F3F4F5F6F7F8 1DF7  1266        DC    XL11'F1F2F3F4F5F6F7F8F9F060'
    1DF5 F9F060                 1266
    1DF8 50D8E6C5D9E3E8E4 1E02  1267        DC    XL11'50D8E6C5D9E3E8E4C9D6D7'
    1E00 C9D6D7                 1267
    1E03 7CC1E2C4C6C7C8D1 1E0D  1268        DC    XL11'7CC1E2C4C6C7C8D1D2D35B'
    1E0B D2D35B                 1268
    1E0E 7BE9E7C3E5C2D5D4 1E18  1269        DC    XL11'7BE9E7C3E5C2D5D46B4B61'
    1E16 6B4B61                 1269
    1E19 FF               1E19  1270        DC    XL1'FF'
                                1271 *
                                1272 *       TABLE FOR UPPER CASE
                          1E1A  1273 TBL2   EQU   *
    1E1A 7E4C5E7A6C7D6E5C 1E24  1274        DC    XL11'7E4C5E7A6C7D6E5C4D5D6D'
    1E22 4D5D6D                 1274
    1E25 4E5C5C5C5C5C5C5C 1E2F  1275        DC    XL11'4E5C5C5C5C5C5C5C5C5C5C'
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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

    1E2D 5C5C5C                 1275
    1E30 4A5C5C5C5C5C5C5C 1E3A  1276        DC    XL11'4A5C5C5C5C5C5C5C5C5C5A'
    1E38 5C5C5A                 1276
    1E3B 7F5C5C5C5C5C5C5C 1E45  1277        DC    XL11'7F5C5C5C5C5C5C5C4F5F6F'
    1E43 4F5F6F                 1277
    1E46 FF               1E46  1278        DC    XL1'FF'
                                1279 *
                                1280 *       LOWER CASE TILT ROTATE CODES
                                1281 *
    1E47 3F               1E47  1282 TBLE3  DC    XL1'3F'
    1E48 363E353D343C     1E4D  1283        DC    XL6'363E353D343C'
    1E4E 3931             1E4F  1284        DC    XL2'3931'
    1E50 37               1E50  1285        DC    XL1'37'
    1E51 17               1E51  1286        DC    XL1'17'
    1E52 07               1E52  1287        DC    XL1'07'
    1E53 19               1E53  1288        DC    XL1'19'
    1E54 240D112E2925     1E59  1289        DC    XL6'240D112E2925'
    1E5A 01141C           1E5C  1290        DC    XL3'01141C'
    1E5D 27               1E5D  1291        DC    XL1'27'
    1E5E 0F26             1E5F  1292        DC    XL2'0F26'
    1E60 05040C091F16     1E65  1293        DC    XL6'05040C091F16'
    1E66 1E1030212C0E     1E6B  1294        DC    XL6'1E1030212C0E'
    1E6C 2D061D152000     1E71  1295        DC    XL6'2D061D152000'
    1E72 2FFF             1E73  1296        DC    XL2'2FFF'
                                1297 *
                                1298 *
                                1299 *       UPPER CASE TILT ROTATE CODES
                                1300 *
    1E74 BF               1E74  1301 TBLE4  DC    XL1'BF'
    1E75 B6BEB5BDB4BC     1E7A  1302        DC    XL6'B6BEB5BDB4BC'
    1E7B B9B1             1E7C  1303        DC    XL2'B9B1'
    1E7D B7               1E7D  1304        DC    XL1'B7'
    1E7E 97               1E7E  1305        DC    XL1'97'
    1E7F 87               1E7F  1306        DC    XL1'87'
    1E80 B9               1E80  1307        DC    XL1'B9'
    1E81 B9B9B9B9B9B9     1E86  1308        DC    XL6'B9B9B9B9B9B9'
    1E87 B9B9B9           1E89  1309        DC    XL3'B9B9B9'
    1E8A A7               1E8A  1310        DC    XL1'A7'
    1E8B B9               1E8B  1311        DC    XL1'B9'
    1E8C B9B9B9B9B9B9     1E91  1312        DC    XL6'B9B9B9B9B9B9'
    1E92 B9B990B0B9B9     1E97  1313        DC    XL6'B9B990B0B9B9'
    1E98 B9B9B9B9B9A0     1E9D  1314        DC    XL6'B9B9B9B9B9A0'
    1E9E B0AFFF           1EA0  1315        DC    XL3'B0AFFF'
                                1316 *
    1EA1 40D9F140         1EA4  1317 TABLE7 DC    CL4' R1 '
    1EA5 6BD9F2406BD9F2C1 1EB8  1318        DC    CL20',R2 ,R2A,R5 ,T1 ,T2 '
    1EAD 6BD9F5406BE3F140       1318
    1EB5 6BE3F240               1318
    1EB9 F1               1EB9  1319 TABLE9 DC    XL1'F1'
    1EBA F2F3F4F5FF       1EBE  1320        DC    XL5'F2F3F4F5FF'
    1EBF F1               1EBF  1321 TABLEA DC    XL1'F1'
    1EC0 F2F3F4F5F6F7F8F9 1EC7  1322        DC    XL8'F2F3F4F5F6F7F8F9'
    1EC8 F060507C5B7B6B4B 1ECF  1323        DC    XL8'F060507C5B7B6B4B'
    1ED0 61FF             1ED1  1324        DC    XL2'61FF'
                                1325 *
                                1326 *                        *********
                                1327 *                        * FLAGS *
                                1328 *                        *********
    1ED2 00               1ED2  1329 MARK   DC    XL1'00'
                          0080  1330 MARK0  EQU   X'80'          EXPECT AN INTERRUPT
                          0040  1331 MARK1  EQU   X'40'          INTERRUPT RECEIVED
                          0020  1332 MARK2  EQU   X'20'          PROGRAM INITIALIZED
                          0010  1333 MARK3  EQU   X'10'          NON-ERROR PRINTOUT
                          0008  1334 MARK4  EQU   X'08'          SLT CARD PRINTOUT
                          0004  1335 MARK5  EQU   X'04'          2.62 MILLISECOND BIT
                          0002  1336 MARK6  EQU   X'02'          1.34 SECOND BIT
                          0001  1337 MARK7  EQU   X'01'          SHIFT CYCLE
    1ED3 00               1ED3  1338 PRTMSG DC    XL1'00'       PTR REED SW FLAG          GK
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1339 *       CONSTANTS AND STORAGE AREAS
                         1340 *
   1ED4 00               1ED4 1341           DC    XL1'00'
   1ED5 0001             1ED6 1342 ONE       DC    XL2'0001'
   1ED7 0003             1ED8 1343 THREE     DC    XL2'0003'
   1ED9 0004             1EDA 1344 FOUR      DC    XL2'0004'
   1EDB 1CC6             1EDC 1345 AMSTR1    DC    AL2(MSGTR1-21)
   1EDD 1CFD             1EDE 1346 AMSTE1    DC    AL2(MSGTE1-21)
   1EDF 00000000         1EE2 1347 WORK      DC    XL4'00'
   1EE3 00C0             1EE4 1348 R1SAV1    DC    XL2'00'
   1EE5 0000             1EE6 1349 R2SAV2    DC    XL2'00'
   1EE7 00               1EE7 1350 SWITCH    DC    XL1'00'
   1EE8 00               1EE8 1351 SWIT1     DC    XL1'00'
   1EE9 000147           1EE8 1352 CDEL05    DC    XL3'000147'
   1EEC 000335           1EEE 1353 CDEL23    DC    XL3'000335'
   1EEF 00100D           1EF1 1354 CDEL10    DC    XL3'00100D'
   1EF2 00186A           1EF4 1355 DLAY      DC    XL3'00186A'
   1EF5 00186A           1EF7 1356 TIM       DC    XL3'00186A'
   1EF8 FA00             1EF9 1357 CD05      DC    XL2'FA00'
   1EFA FFC821           1EFC 1358 CD1SEC    DC    XL3'FFC821'
   1EFD FFFA28           1EFF 1359 CD1C0     DC    XL3'FFFA28'
   1F00 00800000         1F03 1360 STRT07    DC    XL4'00800000'
   1F04 00400000         1F07 1361 STRT08    DC    XL4'00400000'
   1F08 00000004         1F0B 1362 STAT09    DC    XL4'00000004'
   1F0C 080211           1F0E 1363 XCST1     DC    XL3'080211'
   1F0F 17CD             1F10 1364 TEM1      DC    AL2(NOTRE1)
   1F11 0000             1F12 1365 SAVPSR    DC    XL2'00'
   1F13 17DD             1F14 1366 TEMPAR    DC    AL2(RESET)
   1F15 17C3             1F16 1367 ADRSER    DC    AL2(SELECT)
   1F17 1749             1F18 1368 ITLV1     DC    AL2(CONSLE)
   1F19 1418             1F1A 1369 AINCB1    DC    AL2(INCB1)
   1F1B 1435             1F1C 1370 AINCB2    DC    AL2(INCB2)
   1F1D 0000             1F1E 1371 KEEP1     DC    XL2'0000'
   1F1F 0000             1F20 1372 KEEP2     DC    XL2'0000'
   1F21 80               1F21 1373 HEX80     DC    XL1'80'
   1F22 0000             1F23 1374 SAV1      DC    XL2'00'
   1F24 0000             1F25 1375 SAV2      DC    XL2'00'
   1F26 0000             1F27 1376           DC    XL2'00'
   1F28 0000             1F29 1377 ZERO      DC    XL2'00'
   1F2A F1F1             1F2B 1378 LOWER     DC    CL2'11'
   1F2C 6C6C             1F2D 1379 UPPER     DC    CL2'%%'
   1F2E 4040             1F2F 1380 SPACE     DC    XL2'4040'
   1F30 78000000         1F33 1381 STATSP    DC    XL4'78000000'
   1F34 000000           1F36 1382 COUNT     DC    XL3'000000'
   1F37 F0F0F0           1F39 1383 ZONE1     DC    XL3'F0F0F0'
   1F3A F1               1F3A 1384 F1        DC    XL1'F1'
   1F3B F1F2F6           1F3D 1385 F126      DC    XL3'F1F2F6'
   1F3E 12F6             1F3F 1386 END7A     DC    AL2(END7)
   1F40 12FA             1F41 1387 STATCA    DC    AL2(STATCK)
   1F42 FFFF             1F43 1388 HEXFF     DC    XL2'FFFF'
                         1389 *
                         1390 *       STATUS MESSAGES
                         1391 *
   1F44 01               1F44 1392           DC    IL1'01'
   1F45 01               1F45 1393 FIRST     DC    IL1'01'
   1F46 0101010101010101 1F4D 1394           DC    XL8'0101010101010101'
   1F4E 0101             1F4F 1395           DC    XL2'0101'
   1F50 09               1F50 1396           DC    IL1'09'
   1F51 40               1F51 1397           DC    XL1'40'
   1F52 D5D640D7D9C9D5E3 1F59 1398           DC    CL8'NO PRINT'
   1F5A 1A               1F5A 1399           DC    IL1'26'
   1F5B 40               1F5B 1400           DC    XL1'40'
   1F5C D7D9C9D5E3C5D940 1F74 1401           DC    CL25'PRINTER SHIFT MODE SWITCH'
   1F64 E2C8C9C6E340D4D6      1401
   1F6C C4C540E2E6C9E3C3      1401
   1F74 C8                    1401
   1F75 0101             1F76 1402           DC    XL2'0101'
   1F77 1D               1F77 1403           DC    IL1'29'
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1F78 40               1F78 1404 MLFNS     DC    XL1'40'
   1F79 D3D6D5C740C6E4D5 1F94 1405           DC    CL28'LONG FUNCTION SWITCH SAMPLED'
   1F81 C3E3C9D6D540E2E6      1405
   1F89 C9E3C3C840E2C1D4      1405
   1F91 D7D3C5C4              1405
   1F95 15               1F95 1406           DC    IL1'21'
   1F96 40               1F96 1407 MLFN      DC    XL1'40'
   1F97 D3D6D5C740C6E4D5 1FAA 1408           DC    CL20'LONG FUNCTION SWITCH'
   1F9F C3E3C9D6D540E2E6      1408
   1FA7 C9E3C3C8              1408
   1FAB 18               1FAB 1409           DC    IL1'24'
   1FAC 40               1FAC 1410 MFDS      DC    XL1'40'
   1FAD C6C5C5C4C2C1C3D2 1FC3 1411           DC    CL23'FEEDBACK SWITCH SAMPLED'
   1FB5 40E2E6C9E3C3C840      1411
   1FBD E2C1D4D7D3C5C4        1411
   1FC4 10               1FC4 1412           DC    IL1'16'
   1FC5 40               1FC5 1413 MFD       DC    XL1'40'
   1FC6 C6C5C5C4C2C1C3D2 1FD4 1414           DC    CL15'FEEDBACK SWITCH'
   1FCE 40E2E6C9E3C3C8        1414
   1FD5 0101             1FD6 1415           DC    XL2'0101'
   1FD7 15               1FD7 1416           DC    IL1'21'
   1FD8 40               1FD8 1417           DC    XL1'40'
   1FD9 E4D7D7C5D940E2C8 1FEC 1418           DC    CL20'UPPER SHIFT REQUIRED'
   1FE1 C9C6E340D9C5D8E4      1418
   1FE9 C9D9C5C4              1418
   1FED 15               1FED 1419           DC    IL1'21'
   1FEE 40               1FEE 1420           DC    XL1'40'
   1FEF D3D6E6C5D940E2C8 2002 1421           DC    CL20'LOWER SHIFT REQUIRED'
   1FF7 C9C6E340D9C5D8E4      1421
   1FFF C9D9C5C4              1421
   2003 0F               2003 1422           DC    IL1'15'
   2004 40               2004 1423 MCTL      DC    XL1'40'
   2005 C3E8C3D3C540E3D6 2012 1424           DC    CL14'CYCLE TOO LONG'
   200D D640D3D6D5C7          1424
   2013 0C               2013 1425           DC    IL1'12'
   2014 40               2014 1426 MXTRA     DC    XL1'40'
   2015 C5E7E3D9C140C3E8 201F 1427           DC    CL11'EXTRA CYCLE'
   201D C3D3C5                1427
   2020 12               2020 1428           DC    IL1'18'
   2021 40               2021 1429 MF2L      DC    XL1'40'
   2022 C6C5C5C4C2C1C3D2 2032 1430           DC    CL17'FEEDBACK TOO LATE'
   202A 40E3D6D640D3C1E3      1430
   2032 C5                    1430
   2033 0101010101010101 203A 1431           DC    XL8'0101010101010101'
   2038 10               2038 1432           DC    IL1'16'
   203C 40               203C 1433           DC    XL1'40'
   203D D7D9C9D5E3C5D940 204B 1434           DC    CL15'PRINTER ENABLED'
   2045 C5D5C1C2D3C5C4        1434
   204C 14               204C 1435           DC    IL1'20'
   204D 40               204D 1436 MMAL      DC    XL1'40'
   204E D7D9C9D5E3C5D940 2060 1437           DC    CL19'PRINTER MALFUNCTION'
   2056 D4C1D3C6E4D5C3E3      1437
   205E C9D6D5                1437
   2061 19               2061 1438           DC    IL1'25'
   2062 40               2062 1439 MXLAT     DC    XL1'40'
   2063 D7D9C9D5E3C5D940 207A 1440           DC    CL24'PRINTER TRANSLATOR CHECK'
   206B E3D9C1D5E2D3C1E3      1440
   2073 D6D940C3C8C5C3D2      1440
   207B 0C               207B 1441           DC    IL1'12'
   207C 40               207C 1442 MEOF      DC    XL1'40'
   207D C5D5C440D6C640C6 2087 1443           DC    CL11'END OF FORM'
   2085 D6D9D4                1443
   2088 0C               2088 1444           DC    IL1'12'
   2089 40               2089 1445 MEOL      DC    XL1'40'
   208A C5D5C440D6C640D3 2094 1446           DC    CL11'END OF LINE'
   2092 C9D5C5                1446
   2095 0D               2095 1447           DC    IL1'13'
   2096 40               2096 1448 MBUSY     DC    XL1'40'
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   2097 D7D9C9D5E3C5D940 20A2 1449         DC    CL12'PRINTER BUSY'
   209F C2E4E2E8              1449
   20A3 18               20A3 1450         DC    IL1'24'
   20A4 40               20A4 1451         DC    XL1'40'
   20A5 D5D6D560D7D9C9D5 20BB 1452         DC    CL23'NON-PRINTABLE CHARACTER'
   20AD E3C1C2D3C540C3C8      1452
   20B5 C1D9C1C3E3C5D9        1452
   20BC 0101             20BD 1453         DC    XL2'0101'
   20BE 1A               20BE 1454         DC    IL1'26'
   20BF 40               20BF 1455 MPEND   DC    XL1'40'
   20C0 D7D9C9D5E3C5D940 20D8 1456         DC    CL25'PRINTER INTERRUPT PENDING'
   20C8 C9D5E3C5D9D9E4D7      1456
   20D0 E340D7C5D5C4C9D5      1456
   20D8 C7                    1456
   20D9 40D5D6D5C5       20DD 1457 NONE    DC    CL5' NONE'
   20DE                  20DF 1458 WORK1   DS    CL2
   20E0                  20E1 1459         DS    CL2
   20E2                  20E3 1460 WORK3   DS    CL2
   20E4                  20E6 1461 WORK4   DS    CL3
   20E7                  20EA 1462 STATUS  DS    CL4
   20EB                  20EE 1463 STSHDB  DS    CL4
   20EF C9C640D9C5E3E4D9 2100 1464         DC    CL18'IF RETURN FAILURE '                    GK
   20F7 D540C6C1C9D3E4D9      1464
   20FF C540                  1464
   2101 C3C8D240D4C5C3C8 211D 1465 FDB     DC    CL29'CHK MECH ENTRY CHRT PG 001-A '         GK
   2109 40C5D5E3D9E840C3      1465
   2111 C8D9E340D7C740F0      1465
   2119 F0F160C140            1465
   211E C3C8D240D7E3D940 213D 1466 PRNTRD DC    CL32'CHK PTR RD SW WIRING GC552-GC553'      GK
   2126 D9C440E2E640E6C9      1466
   212E D9C9D5C740C7C3F5      1466
   2136 F5F260C7C3F5F5F3      1466
   213E D7D9E340C6C4C2D2 214E 1467 FDBRSW DC    CL17'PRT FDBK REED SW)'                     GK
   2146 40D9C5C5C440E2E6      1467
   214E 5D                    1467
                              1468 *
                              1469 *       EQUATES
                              1470 *
                        0001  1471 XR1     EQU   X'01'
                        0002  1472 XR2     EQU   X'02'
                        0008  1473 ARR     EQU   X'08'
                        021A  1474 PRINT   EQU   X'21A'
                        021E  1475 UNPACK  EQU   X'21E'
                        0216  1476 LINK    EQU   X'216'
                        022A  1477 LOAD    EQU   X'022A'
                        0222  1478 HALT    EQU   X'222'
                        0020  1479 P1IAR   EQU   X'20'
                        0004  1480 PSR     EQU   X'04'
                        0018  1481 PRNT    EQU   X'18'
                        0001  1482 RDSWM   EQU   X'01'          REED SW WIRING MSG FLAG     GK
                        0010  1483 MECM    EQU   X'10'          MECH ENTRY CHRT MSG FLAG    GK
                        0008  1484 FDBCBM  EQU   X'08'          FDBK REED SW CABLE MSG FLAG GK
                        0080  1485 SECM    EQU   X'80'          SECOND MSG FLAG             GK
                        FFFF  1486         END
```


CROSS-REFERENCE

```
SYMBOL   T LEN VALUE DEFN  REFERENCES
ADONEA   A 006  1516 0950  0948
ADONE1   A 006  1659 1040  0148  1027
ADRMSG   A 002  1413 0876  0868* 0879* 0880
ADRSER   A 002  1F16 1367  1114
ADTRE    A 006  1589 0980  0975
ADTRE1   A 006  14EF 0940  0929
ADTRE2   A 004  14F5 0941  0951
ADTWO1   A 004  1681 1062  1043
ADTWO3   A 004  15FB 1016  1067
ADTWO4   A 004  16D3 1071  0984  1063
AINCB1   A 002  1F1A 1369  0890
AINCB2   A 002  1F1C 1370  0895
AMSTE1   A 002  1EDE 1346  0814
AMSTR1   A 002  1EDC 1345  0800
ARR      C 001  0008 1473  0111  0626  0629  0632  0650  0652  0792  0904  0914  1012  1087  1164
                           1173
BBC      A 004  1801 1169  1164*
BBC1     A 004  17F5 1164  0119  0923  0998  1004  1021  1051  1059
BCK      A 008  1B00 1217  0545
CABL     A 005  1D7E 1250  0693* 0704*
CABLE    A 005  1D98 1253  0689
CAB552   A 005  11F2 0702  0698
CARD     A 004  1863 1184  0723* 0727
CARDS    A 004  1867 1185  0712
CDEL05   A 003  1EEB 1352  0633
CDEL10   A 003  1EF1 1354  0627
CDEL23   A 003  1EEE 1353  0630
CD05     A 002  1EF9 1357  0122  0926  1024
CD1SEC   A 003  1EFC 1358  0980
CD100    A 003  1EFF 1359  0940  1040
CHECK    A 004  13C9 0853  0845
CHECK1   A 004  13E4 0863  0858  0889
CHKPRT   A 004  12A3 0761  0752
COMP1    A 003  0D12 0285  0292
COMP2    A 004  0D2D 0293  0286
COMP3    A 004  0D31 0294  0290
COMP4    A 003  0D26 0291  0288
CONSLE   A 004  1749 1110  1368
CON1     A 004  1219 0713  0741
CON11    A 004  11A0 0677  0664
COR      A 005  133F 0808  0800* 0809* 0814*
COUNT    A 003  1F36 1382  0069* 0079  0085* 0086
CO1      A 003  11BE 0687  0676
CRTNO    A 001  0A03 0022  1037
CR1      A 004  150B 0947  0945
DEL05    A 004  1123 0632  0591  0608  0610
DEL100   A 004  1109 0626  0072  0586  0603  0606  1069
DEL23    A 004  1116 0629  0589
DLAY     A 003  1EF4 1355  1093
DOER     A 003  1336 0805  0811
DOER1    A 004  132E 0803  0818
DOIT     A 005  13E8 0864  0886
D73      A 003  0DA0 0333  0298
D74      A 003  0ECD 0435  0413
ENDDEL   A 004  1137 0636  0626* 0629* 0632*
ENDG     A 004  1745 1104  1087* 1098
ENDM     A 004  1486 0908  0904*
ENDPRT   A 004  16F9 1081  0111* 0914* 1012*
ENDS     A 004  1815 1177  1173*
ENDSTR   A 004  1472 0899  0792*
ENDZ     A 004  17F1 1160  1111* 1118  1121*
END05    A 004  0B0A 0110  0103
END06    A 004  12D1 0777  0762  0769
END6     A 003  128D 0751  0744
END61    A 004  12E4 0782  0403* 0651* 0674*
END66    A 004  1215 0712  0688
```

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
END7	A	004	12F6	0789	0650* 0653* 1386
END7A	A	002	1F3F	1386	0674
EOF	A	007	1D4E	1245	0537 0562
EOL	A	007	1DD9	1260	0104
EXPSTT	A	004	13B8	0846	0892
FDB	A	029	211D	1465	0057* 0106* 0158* 0169* 0194* 0198 0225* 0233 0236* 0244 0250* 0322* 0364* 0471* 0767 0771* 0957* 0992* 0996
FDBCBM	C	001	0008	1484	
FDBRSW	A	017	214E	1467	0160
FDSW	A	016	1DD2	1259	0168
FIRST	A	001	1F45	1393	0853
FOR	A	007	1AF8	1216	0518
FOUR	A	002	1EDA	1344	0809
F1	A	001	1F3A	1384	0085
F126	A	003	1F3D	1385	0086
F2	A	004	0C3E	0208	0210
GC095	A	005	1D2F	1242	0704
GC552	A	005	1DBB	1257	0702
GC553	A	005	1DB6	1256	
GGG	A	004	0DE6	0349	1039
G1	A	004	0DC3	0342	0338
G2	A	006	0D04	0282	0347 0371
HALT	C	001	0222	1478	0065 0120 0176 0203 0255 0277 0330 0369 0404 0432 0476 0505 0528 0555 0787 0924 0999 1005 1022 1052 1060 1140 1153
HEXFF	A	002	1F43	1388	0073 0209 0742
HEX80	A	001	1F21	1373	0740 0891
H1	A	006	0E7F	0409	0455 0478
H2	A	004	0F06	0450	0441
H3	A	004	0EFB	0447	0443
H4	A	006	0F71	0480	0487
H41	A	004	0F6D	0479	0507
H5	A	004	0F90	0488	0434
INC	A	003	1259	0736	0715 0722 0729 0731
INCADR	A	003	13F8	0867	0866* 0878
INCBTO	A	004	1414	0877	0872 0890* 0895*
INCB1	A	C06	1418	0878	1369
INCB2	A	006	1435	0885	0877 1370
INCR	A	006	134A	0810	0807
INC2	A	003	1208	0709	0692 0703
INTPL	A	015	1D6D	1248	1101
ITLV1	A	002	1F18	1368	1094 1095* 1158
I1	A	004	1013	0540	0533
I2	A	006	1025	0545	0541
I3	A	004	106D	0567	0560
JMP	A	003	11DF	0698	0155* 0699*
KEEP1	A	002	1F1E	1371	0870* 0884
KEEP2	A	002	1F20	1372	0878* 0879
K1	A	006	10C4	0600	0595
K2	A	004	1104	0617	0613
LENGTH	A	001	1411	0875	0864* 0865*
LEN1	A	001	1381	0825	0348* 0456* 0827*
LINK	C	001	0216	1476	0110 0212 0332 0485 0567
LOAD	C	001	022A	1477	0617
LOWER	A	002	1F2B	1378	0584 0601
LWR	A	005	1D25	1240	0267 0299
MAG	A	019	1DEC	1261	0223 0494
MARK	A	001	1ED2	1329	0052* 0128* 0131* 0135 0137 0140* 0143* 0147* 0157* 0167* 0218* 0222* 0313* 0320* 0354* 0363* 0382* 0424* 0462* 0466* 0493* 0657* 0662* 0663 0675* 0743 0749* 0896* 0946* 0949* 0952 0956* 0962 0965* 0968* 0972* 0981* 1064 1066* 1068* 1090* 1097 1122* 1123 1125*
MARK0	C	001	0080	1330	1090 1123
MARK1	C	001	0040	1331	1097 1122
MARK2	C	001	0020	1332	
MARK3	C	001	0010	1333	0052 0157 0167 0218 0222 0313 0320 0354 0363 0382 0424 0462 0466 0493 0663 0675 1125
MARK4	C	001	0008	1334	0657 0662 0743 0749

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
MARK5	C	001	0004	1335	0128 0137 0946 0962
MARK6	C	001	0002	1336	0131 0949
MARK7	C	001	0001	1337	1064 1066 1068
MBUSY	A	001	2096	1448	0118* 0614* 0921* 1019* 1077*
MCTL	A	001	2004	1423	0977*
MECM	C	001	0010	1483	0058 0107 0159 0170 0251 0323 0365 0472 0761 0763 0958
MEOF	A	001	207C	1442	0534* 0561*
MEOL	A	001	2089	1445	0105*
MFCU	A	003	0A0C	0026	0730
MFD	A	001	1FC5	1413	0144* 0173* 0935* 1033* 1056*
MFDS	A	001	1FAC	1410	0139* 0174* 0938* 1036* 1057*
MF2L	A	001	2021	1429	0542*
MLFN	A	001	1F96	1407	0954* 0969*
MLFNS	A	001	1F78	1404	0955* 0964*
MMAL	A	001	204D	1436	0444* 0596* 0976* 0990* 1049*
MOD1	A	004	1476	0904	0093 0836 1176
MOD2	A	001	123F	0725	0670* 0683*
MOD3	A	001	1255	0733	0671* 0684*
MOD4	A	001	1204	0706	0672* 0685*
MOD5	A	001	11DB	0695	0669* 0682*
MOD6	A	005	11D2	0693	
MOD7	A	001	1282	0746	0673* 0686*
MPEND	A	001	208F	1455	1076*
MRETRY	A	017	19C3	1204	1168
MSGACP	A	019	1BC1	1224	0056
MSGCAB	A	001	1D92	1251	0051* 0104* 0160* 0168* 0223* 0321* 0355* 0358* 0425* 0465* 0494* 0537* 0562* 0697 0700 0700* 0701* 0708 0779 C779* 1101*
MSGCKP	A	023	1A2C	1208	0299* 0303 0414* 0418
MSGEXP	A	020	1C8F	1232	0851
MSGINT	A	049	1C13	1228	1151
MSGNON	A	006	0BA0	0149	0084 0136
MSGRCV	A	020	1CA3	1233	0843
MSGRES	A	014	1D20	1239	0064 0202 0276 0329 0402 0431 0504 0527 0554
MSGSLT	A	008	1BC9	1225	0748
MSGSPC	A	022	1BE2	1227	0083
MSGTEX	A	030	1CF9	1237	0831
MSGTE1	A	025	1D12	1238	0817 0817* 0835 1346
MSGTPB	A	026	1BAE	1223	0312
MSGTRC	A	030	1CC2	1235	0822
MSGTR1	A	025	1CDB	1236	0799 0799* 0826 1345
MSGXTM	A	037	1C7B	1231	0491
MSG017	A	019	1C56	1230	1138
MSG07	A	031	18C2	1196	0041
MSG08	A	024	18DA	1197	0046
MSG09	A	052	190E	1198	0050
MSG10	A	044	1844	1181	0153
MSG11	A	026	1928	1199	0166
MSG12	A	035	194B	1200	0735
MSG13	A	032	196B	1201	0192
MSG14	A	038	1991	1202	0224 0234 0235* 0245* 0498
MSG141	A	035	1B6A	1221	0756
MSG142	A	042	1B94	1222	0760
MSG15	A	033	19B2	1203	0216 0224* 0229 0234* 0240 0245
MSG16	A	038	1A15	1207	0271 0387
MSG161	A	005	19C8	1205	0267* 0383*
MSG19	A	049	1A6A	1210	0352
MSG20	A	009	1A7?	1211	0249 0319 0362 0470 0775
MSG21	A	048	1AA3	1212	0392
MSG22	A	019	1AB6	1213	0396
MSG23	A	029	1AD3	1214	0460
MSG24	A	030	1AF1	1215	0518* 0522 0545* 0549
MSG30	A	012	1B0C	1218	0308 0423
MSG41	A	017	1B1D	1219	0580
MSWARN	A	048	1C43	1229	0786
MVE	A	003	1BCC	1226	0079*
MXLAT	A	001	2062	1439	0339* 0447*

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
MXTRA	A	001	2014	1426	0597*
NEXT	A	004	1768	1118	1116
NONE	A	005	20DD	1457	0862 0888
NOPRT	A	007	1DC2	1258	0051 0701
NOTRES	A	004	17A8	1135	1115 1117 1144
NOTRE1	A	004	17CD	1148	1364
N2L2	A	004	1783	1125	1128 1130
ONE	A	002	1ED6	1342	0153 0634 0865 0931 0950 1001 1029 1054 1099
PRINT	C	001	021A	1474	0038 0043 0047 0053 0061 0080 0150 0163 0189 0195 0199 0213
					0226 0230 0237 0241 0246 0268 0273 0300 0305 0309 0316 0326
					0349 0359 0384 0389 0393 0399 0415 0420 0428 0457 0467 0488
					0495 0501 0519 0524 0546 0551 0577 0665 0677 0694 0705 0717
					0724 0732 0745 0753 0757 0764 0772 0780 0783 0823 0832 0840
					0846 0848 0859 0873 0893 0993 1135 1148 1165
PRINTS	A	004	15EC	1012	0208 0342 0450 0483
PRINT1	A	004	0B0E	0111	0071 0099
PRINT2	A	006	0B36	0122	0117
PRINT3	A	004	0B98	0147	0125
PRINT4	A	004	0B52	0127	0127
PRINT5	A	004	0B5D	0132	0130
PRINT6	A	004	0B40	0124	0134
PRINT8	A	004	0B89	0143	0138
PRNT	C	001	0018	1481	0112 0206* 0333* 0435* 0481* 0584* 0585 0587* 0588 0590 0601* 0602
					0604* 0605 0607 0609 0915 1013 1096 1132 1134
PRNTRD	A	032	213D	1466	0720
PRTMSG	A	001	1ED3	1338	0058* 0107* 0156* 0159* 0170* 0219* 0251* 0323* 0365* 0472* 0714 0716*
					0761 0763* 0768 0770* 0958* 0959*
PR1	A	006	1618	1024	1018
PR2	A	006	1691	1054	1048
PR3	A	004	16F5	1080	1075
PSR	C	001	0004	1480	1110 1159*
P1IAR	C	001	0020	1479	1111 1131* 1133*
RDSW	A	014	1D3D	1243	0355 0465
RDSWM	C	001	0001	1482	0156 0219 0714 0716
REP	A	025	185D	1182	0668 0680
REPLCE	A	004	113B	0650	0C59 0108 0141 0145 0161 0171 0220 0252 0314 0324 0340 0356
					0366 0397 0426 0445 0448 0463 0473 0499 0538 0543 0565 0598
					0615 0960 0966 0970 0978 1078 1102 1126 1142 1145
REP15	A	006	0AA2	0085	0078 0100
REP25	A	004	0AE6	0101	0087 0089
REP35	A	006	0A90	0079	0098
REP555	A	004	0A75	0072	0074
RESET	A	004	17DD	1155	1147 1366
RETURN	A	004	148A	0914	0205 0211 0279 0406 0482
RET1	A	006	14B6	0926	0920
RET3	A	004	0C52	0213	0939
RET33	A	004	1546	0962	0953
RET8	A	006	15D4	1001	0989
RET9	A	004	155C	0968	0963
RET99	A	004	15EB	0972	0943
RTN01	A	001	0A10	0034	0024
RTN02	A	001	0C04	0184	0036
RTN03	A	001	0CD6	0263	0186
RTN04	A	001	0E30	0378	0265
RTN05	A	001	0FC5	0514	0380
RTN06	A	001	1071	0573	0516
R1SAV1	A	002	1EE4	1348	0793* 0897 1088* 1155
R2SAV2	A	002	1EE6	1349	0794* 0898 1089* 1156
SAVPSR	A	002	1F12	1365	1110* 1159
SAV1	A	002	1F23	1374	0655* 0777
SAV2	A	002	1F25	1375	0283* 0294 0656* 0778
SECM	C	001	0080	1485	0768 0770 0959
SECTIM	A	004	12AE	0764	0776
SELECT	A	004	17C3	1145	1367
SENSOR	A	004	18G5	1173	0334 0436 0531 0558 0592 0611
SHIFT	A	010	1D47	1244	0358

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
SIORT	A	004	16FD	1087	1080
SIO4	A	003	1723	1096	1100
SPACE	A	002	1F2F	1380	0068 0090 0206 0235
STATCA	A	002	1F41	1387	0403 0651
STATCK	A	004	12FA	0792	0175 0254 0368 0475 0782 0922 0991 1003 1020 1050 1058 1387
STATSP	A	004	1F33	1381	0067 0149 0188
STATUS	A	004	20EA	1462	0075* 0076 0077 0088 0091* 0092* 0094* 0095* 0096* 0097 0102 0113*
					0114* 0116 0124 0126 0129 0132* 0335* 0336* 0337 0343* 0346 0437*
					0438* 0440 0442 0451* 0454 0532 0535* 0536* 0540 0559 0563* 0564*
					0593 0594 0612 0795 0837* 0844 0905* 0906* 0907* 0916* 0917* 0919
					0928 0930* 0933 0936 0941* 0942 0944 0947 0973 0974 0983 0985*
					0987* 0988 1014* 1015* 1017 1026 1028* 1031 1034 1042 1044* 1046*
					1047 1062 1070* 1073 1074 1112* 1113* 1129 1174* 1175*
STAT09	A	004	1F08	1362	0530
STRT07	A	004	1F03	1360	0282 0480
STRT08	A	004	1F07	1361	0409
STSHDB	A	004	20EE	1463	0067* 0097 0101* 0115* 0123* 0149* 0188* 0282* 0289* 0293* 0337 0344*
					0345* 0346 0409* 0439* 0440 0452* 0453* 0454 0480* 0530* 0557* 0582*
					0583* 0600* 0796 0838* 0852 0918* 0927* 0982* 1016* 1025* 1041* 1071*
					1072* 1091* 1092* 1157*
SUB	A	006	112D	0634	0628 0631 0635
SWITCH	A	001	1EE7	1350	0654* 0740* 0801* 0812 0816* 0839* 0891*
SWIT1	A	001	1EE8	1351	
SYNCC	A	004	14C0	0928	0932
SYNCC2	A	004	1597	0983	1002
SYNCP	A	004	1622	1026	1030
SYNCP1	A	004	1663	1042	1055
TABLEA	A	001	1EBF	1321	0284
TABLE7	A	004	1EA4	1317	0804
TABLE9	A	001	1EB9	1319	0479
TBLE3	A	001	1E47	1282	0281
TBLE4	A	001	1E74	1301	0408
TBL1	A	001	1DED	1265	0280
TBL2	A	001	1E1A	1273	0407
TEMPAR	A	002	1F14	1366	1133
TEM1	A	002	1F10	1364	1131
THREE	A	002	1ED8	1343	0653 1121
TIM	A	003	1EF7	1356	1093* 1099*
TOR	A	004	1D5E	1247	0321 0425
TST	A	003	1230	0721	0713* 0728 0737 0737* 0738
TSTBTO	A	003	1406	0871	0863* 0885* 0885*
TSTR	A	003	1339	0806	0803* 0810 0810*
TST2	A	003	11CC	0691	0690* 0710 0710* 0711
TYPBL	A	004	0F29	0457	1038
UNPACK	C	001	021E	1475	0819 0828
UPPER	A	002	1F2D	1379	0587 0604
UPR	A	005	1D2A	1241	0383 0414
UVWXYZ	A	001	0A00	0005	
WORK	A	004	1EE2	1347	0795* 0796* 0797* 0798* 0802 0815 0821 0830 0986 0986 1045 1045
WORK1	A	002	20DF	1458	0652* 0658
WORK3	A	002	20E3	1460	0122* 0133* 0926* 0931* 0940* 0950* 0980* 1001* 1024* 1029* 1040* 1054*
WORK4	A	003	20E6	1461	0627* 0630* 0633* 0634*
XCST1	A	003	1F0E	1363	0582
XR1	C	001	0001	1471	0207* 0209* 0280* 0287 0295 0295* 0333 0407* 0410 0410* 0435 0655
					0658* 0659 0661 0687 0691 0721 0739 0739* 0742* 0750 0751 0777*
					0793 0802* 0806 0815* 0844* 0852* 0854 0855 0856 0857 0871 0887
					0887* 0897* 1088 1118* 1119 1155*
XR2	C	001	0002	1472	0070* 0073* 0281* 0283 0284* 0285 0287 0291 0291* 0294* 0296 0296*
					0297 0345 0408* 0411 0411* 0412 0453 0479* 0481 0484 0486 0486*
					0656 0689* 0693 0702 0709 0709* 0712* 0723 0736 0736* 0778* 0794
					0804* 0805 0805* 0808 0853* 0864 0866 0867 0867* 0868 0869 0869*
					0870 0880* 0881 0883 0884* 0888 0898* 1089 1156*
ZERO	A	002	1F29	1377	0343 0344 0451 0452 0536 0564 0600
ZONE1	A	003	1F39	1383	0069

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES

OBJECT CARD LISTING

THE CHARACTER ° INDICATES A BLANK COLUMN AND THE CHARACTERS D̄ Ē H̄ 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	48245°EC°827805°	PRINTER/KEYBOARD	°°°°°°°°°°MOD 12	84@@84@@°°°°°°°°	°°°°°°°°10210000
T+-Y:DBD°°°°°B/°	°°|°°°AA&°°D°C°L	°/OHĒ&/@QO/CSOH*	BF-DQF(,°/OHĒ°T&	RC-OFGQQ)OTY&G_.°	°/OH°)K010210001
T+-Z5F-DLF@D@'KD	)+/°;4@BGDL_BHHC	°/OHĒA-8)H<BG°SH	&8-OCH+8¬<3DQG2@	<°/@6G3XB°-°;OH*	.C%°°:D̄410210002
T+-D̄O/1DI(-H¬&@°	ABXMOFKCD̄+&D-:TU	GH+X2DAH<°/?<G3$	°/OHĒ°JU$8%BGB:°	FHA@6G3Y(°/@6G37	2-LM°7:410210003
T+-,,+°--:?H&.TD	QG2@OF2CY<AU-:%B	GEGQ#-BCX+0&-:T%	FH+-(°2CD̄H+#°°&D	&OH*.C%BGBD̄H:BBC	>+°-°@H̄%10210004
T+-%WH+,2DAU<A/6	FG)U@PBBI||D/GLY	&G_|°/1D#.°A°OH*	BET&HE?33FH°OF2C	Y<AU-:TY&H+88DBC	D@/°°6AY10210005
T+-_/CT1*HI$°/1¬	5OH*BH/°FC°D-81#	9+/--#C-QH+T2DED	9DBCY@/°D+-&;4TU	HH+T2D°&:°/#K<A%	-:°8°O/Q10210006
T+->*°KCTG_$°H°_	°+&Q;4%°&B:°8AA#	K@Z°||EO¬,C%FG_.	°/1D#B°°°+0Q;4T1	*G@P°/1D#H°°°+0Q	;4%°°6BM10210007
T+-?P/1RRC°<-#/@	3OH*BF%D%FD&&BT2	°D;°:°J#L+/°;4T3	5HJ4:DA#LCA°)U8E	+OH*J+=H-O<BG°/Y	AF/U°O1M10210008
T+-OKH̄CY&G_H<C16	|G)H@'2D)+/°;4@B	GDL%D°°°@PA*E|EO	¬,<BGD?,°/OHSD°Y	B°°3OC°<-#/@3OH*	BFUH°POM10210009
T+-1(HAV,D+<@'2D	)OH*BF-Q?HJ7°/OH	Ē A-8)H<BG°SH&8@B	GEHY1FA@?O-D°K@B	GE;O6°J'CO°D<|%B	GEHY°82-10210010
T+-2HOH*BE%BG°/,	AHJW2D°O:DA#K+-D	;4@BGDL_H°°°:DA#	KCAH)U/7%C°DR,AW	L||H/G*BG°/D̄AHJW	2OH*°MLD10210011
T+-3C°/D̄AGKD)C°D	R,AWOC°DRV/@?||<	/G*BG°/D̄AHJW2OH*	BFYD)HJ4<°JWOFĒ3	°/OHĒ°&UĒ*337HJ4	:DA8°@2H10210012
T+-3=4@BGDL%BHHC	°/1.:OH*BH/°<°O°	+<°ODF*-)I*BG°/Z	AM/YND+L°/OHĒA-8	)H<BG°SH&9<BGEH,	B°J4°)Q&10210013
T+-49#*HBGUQ<°2C	>GO<4°/@VO-H;?#7	"°|H̄AER4°°°C2°&*	:-BC%@Y*.8-HAOH*	(DT>°H+O5°/@V4-D	A8-H°49H10210014
T+-54°$7"°<°ACĒ°	<AAY%GKP°/OHĒ&K&	Ē+JC1OH*BF-D<FO3	°/OHĒ°/Y$,TY&G_.	°/1D#J°°°OH*BF-D	IFX<°8J<10210015
T+-6?+/°;4-OCGQ<	)PT35HJ4:DA#LOH*	J+@H--<BG°/YFC/4	-OH*BH/C1OH*BEXD	Q°<BGF°M#ASCY+O&	-:-4°5QQ10210016
T+-7D̄°SCD̄H+#2-&%	@PBASOH*J+4-°°<B	GE;O<°SCD̄G2U<°SC	>G2U%°BC,°°4°H+*	-:@BAC&&@+A+AOH*	BF%H°KQY10217017
T+-8V<JZD̄D°H:DA#	KC°4)TJ4'OH*J+2&	°&°OIGQU)J@BG°/Y	8BJZ3+/°;4T34HJ4	:DA#LOH*J+4Y--<B	GD?Y°6BQ10218018
T+-9-OH*BH/°BOH*	(A°&°C@M:DA#KC°&	R2A4D̄OH*BFUEKF/M	&9*BG°/YB<AD̄TOH*	BF-DLF,$°/1D#&°°	°OH*°5O<10210019
T+-:$°/YFC/4-C°D	K91'AOH*BH/CVOH*	MS%HAG/,B°/93C°<	-#/@G4-DA8-HA?¬@	°O°D+3&ODFSO)H̄%B	G°/Y°9Ē*10210020

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+-#O&K&E+JC2OH*  BF-H<FOO:DA#KC <  )-15;OH*J+@H--<B  G /YFC/4-OH*BH/C  2OH*|UGDQ <BGF M  #AS 2E&10210021
T+-@J:C%DH+Y:-BC  ,C&H-:SC>@YD)+ D  -:?H&B31*HD7 /1D  #A |EO-Q%BGDL_  H C /1P%C H-:/@  ZC H P-<10210022
T+-'<H+8¬HKO H+%  C& -:2CXOHD+¬30  8D8G /OHEO/4E41  C+/ ;4%BGDL_H  <CJ6(GL4:DA#KOH*  BF-H ¬2810210023
T+-=GBJZ3||&/GLY  &G_| /1D#I A OH*  K=%BG SH& @BGCX"  B /::C <-#/@C%J-  OH*MS%BGE;2'"OC  -&H 3.010210024
T+-"B&>HB *BGC7G  /OHE&KM*;1CY+/  ;4-OKGRH)#<BG /Y  AI/WJOH*J+OH -<B  G /YFC/4-OH*BH/C  YOH* 8BU10210025
T+-"'C64E-AA1C Q  E@A,8OH*BFUD)F?  &:*BG /YFC/4-OH*  BH/CZC <-#/@.OH*  QAL-DH+,2DA%@PBA  @+"% Q$810210026
T+/ 8H+Y< SCZG2U  <A/6FGM# /1D#I A  +&&-:¬H&B31*HBG  /1D#H C *E@J%  OH*BFUD;F?D&:%B  G /Y Q2 10210027
T+/A3A-8)H<BG SH  &:T%DH+# /1-E+&&  -:?H&F31*HGO<A/6  FGM8#=2CDC H-:J@  ZOH*J+2& &<BG /Q  F |@ = Q10210028
T+/B>"@BG /ZFDJ%  )D<D< SC>G08#"2C  ,<J-¬H"<Q-%BGD&U  1FA@_@1SB0H*JE?<  QH%BGDK| /1-E+ D  -:T- ¬8D10210029
T+/CZ SCZ@/ ||EO  -LL1*HAL /1D#A C <-#/@Z<J-¬H"<  Q-%BGD&U1FA@_@1S  B0H*JB¬<QH%BGDK|  3F H $3-10210030
T+/DUOH*JH@BGF M  9DBCD@/ .|EO-V%B  GDL_ C /OHD C&  HDLY< SCWG?G2/1*  4BAD:C H-9/#>@Y*  H( - 1/810210031
T+/E¬DLY< SCWG>%  | SCWG_$ JD_OH*  C&HD?U< J.XG4D  4BBC¬C-DK=J#Q|  ;93&AG2<4 /@V+O-  ;4TM 8R@10210032
T+/FE KC¬;B A@Z  G;2 A+--;4TU&G_.  2DBX /OHE /UQPLO  AD)%@ JH"| DKNLO  AD-&@ JHBC DK91@  "+1 )1H10210033
T+/GNG_.2/1# /OH  EO/UQPJ A|HDJ632  ADT@@-JIN|HDKAC2  ADYI' .2-NGB /6  Q| DJ3P- ?H&(SO  DGP8 49D10210034
T+/H& <BG /YAIJ6  K@Y*&|H*J8 OLGRH  )UOOFGCC)OS4DG$%  @-D+C &)¬/4?OH*  BF-DVGR.S -M+ AG  (D*4 'QQ10210035
T+/I.OB J3<HBFF*  @ JH1+ D;4"H&(L%  AG_| /OHE-K /|P-  |H&H2OCFF< OH*  BF-DFFF<' /H1@-D  |+8 3H 10210036
T+/HFB-72U T /OH  E K<RK=HBA 8 DTD  K<* -DTCK &D+ A#  XG2G HAHR(-D¬&3-  HG_.2U " /OHE &-  $2L% 3B<10210037
T+/.ABA#K;S ;B  A@Z &OH*BFYE(F6,  /OHE-KY$VC-&G_|  2UB*#DA#LOH*BF-D  )HJ48-A#L@Z M+8  ;430 @J@10210038
T+/.@'2D)OH*BF-D  I5X| /1H>(&D¬H3M  BG2M<D16KGR| /OH  EU%BGD?, /OHE/T  *&@BG SH& *BG  4BA& $BQ10210039
T+/<7)L&AG>&4 /#  WC ;8SCXC ;8KC  ,+@ ;8T? G>D<FA3  EG(%< J(BG_O@ A#  XO-D;8TOAD3,8 /:  -8-H 4C810210040
T+/(2AG- |H&B2O  C C-DL&/#EC-  L+/<:OB L(T6 G>¬  2-J-< J(BG_#B J#  /|H ;9OOQGJD)D%B  GD28 E/D10210041
T+/+_OH*BG-D;8/3  AOH*BFYD7G(%@(1+  AOH*8G-D;8J38OH*  BFYH7GJ. /)6+3@  -93%"H+%@ A#XOH*  8FYH POD10210042
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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

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T+/|YEA2TO-D-9"H  GD*BG /DKOH*BFYH  MGH"B KC,O-H¬JGX  GX; PWG XW" "H  &B<BG /DAAKC)| D  MA2O PT*10210043
T+/&T A&J 8 EAD  ;5SO D"Y 8-H ( H  MD=HB L&BG198 C  2U T /OHE-& <B  GEC%< A@-D"Y| J&  LG2 KJM10210044
T+/J;(&HMD#4A |H  A #1 LMBG18+ A&  GE ¬ HA|Y4-DAT&&  H(X J|UC DME1@  EC- ;91@/OB L><B  G /Y *Z010210045
T+/KRUOOAEA*¬GC?  "G_H5 J#U(&H;9%B  G 4BAKI+4 -:T_  8H+U#HKCYOH* C&  HE?33FD OF2CY<AU  -:TY KBU10210046
T+/LMDBC>+A -:?H  &DT1*HI$ /1.:OH*  P'*BG SH&AOOAH+<  ;=LY;H+O8FBCY@/  Y<A%-: 8AH+<;5%  -E< Q&<10210047
T+/M|+A -:|H&AC1  *G@M8BBCY@/ D|EO  ¬,<BGCEH< SCTG?@  OF2CY+ Q-:|H&E3U  DH+T2D &:AA#K+&H  -:|H P,Y10210048
T+/NHD &: /#KC-H  -81#OOB M'LUFG_.  2UA@@PA=O|EO¬;C%  FG_H@@KD)+/ ;43D  G_| /1D#A A + &  ;4?H LC@10210049
T+/OEU @@PA'8+OQ  ;4%BGDL%H #A/#  K|EO¬V%BGDL%-  #A/#K+ D-:T-AH+X  2U @@PBA(|EO-A<B  GDL% E.Q10210050
T+/P A C H-81#  @+OQ;4T%;H+O9GSC  YOA O43 $H+-(AJ#  SG>HOFKCD+&D-:?H  &HC1*HD7 /1.:||*  /G* ;L810210051
T+/P#/OHEOJ4/GJ  DOH*P'*BG SH&A 8  BH+<;5% -ER¬ /1.  :OH*P'*BG SH&AL&  HE?33FH OF2CY<AU  -:TY 61Q10210052
T+/Q6DBC>+A -:?H  &DT1*HI$ /1.:OH*  P'*BG SH&A-OAH+<  ;=LYQH+O8FBCY@/  O<A%-: 8AH+<;5%  -ESH 8Y&10210053
T+/R1+A -:|H&AC1  *G@M8BBCY@/ D|EO  ¬,C4HB-| -&@ZOH*  (9-OBH+<;"3%QH+O  9FBCY@/AG<A%-: 4  EG>H ;ZH10210054
T+/E%G>HOFKCD+&D  -:?H&DT1*HD7 /1.  :OH*P'*BG SH&B 8  BH+<;5% -EW<@PA"  E|EO¬,<BGD?, /1¬  5OH* L9-10210055
T+/$X SH&8LU&H+,  2DA%8 J#K@/ H+-D  ;4%BGE¬%# J#KOH*  JB RH+Y#DBC>+Y  -#TU&H+Y8-BCD@/  ||EO *&Q10210056
T+/*SH.@@PBBOOH*  J+4-- <BGE?7 /O  ( -PKC&AG>&4 /#  W+Y ;4TD H+4#-BC  >C H;'1#4(* ¬FCL  G1- @DH10210057
T+/))@1-D+D ;4%  &E4M| /#7G_$ J*  WC 8)T/5_OH*J+2G  H<BG 4AA@K(B  P'C $H+-OFKCD(K  ¬E% ;#O10210058
T+/;Q-A;VO|@PE|H  G|LMAE"J'A .2 &Q  + J¬4G_-:&A#K+H  ;4?H&C3Y&G_. /1D  #Y OH*P-3S H+X  UA* ;9M10210059
T+/¬L-3M-G1C3F  5HA@M@1-AOH*BF%Q  LGEQ&H%&G SH&H%B  GDL>- C /1;VOH*  J+OD |HGD<BG /,  F<JO " 10210060
T+/-+D1 TOH*BH/  T(&D;9CMBG>Q#-BC  _(* ¬FCMDG1. /O  ( -QA<BG /DFDJX  COH* C&HFA-OF2C  Y<AU $ 810210061
T+//IH+, /1J6OH*  <XF&(PO&+.PO*|  E&<XS&+|A4%PN&<G  N]FGD6MCC2<GR&<G  R1MCP6*XN8@PD6*P  P4@D P$*10210062
T+JSCO@N 1_$L4'$  W2)PG&<|A6*J/8X,  AQ+¬X9=¬B@'|2O?.  U@%.28?.B@_X2O?.  P@%.25¬.B@_L2O?.  L@- 9HO10210063
T+/TO:?|S@%.35".  S5@GC1MCT1:.T&+$  I8@/ 5)R O@TA6MC  P6*XN8@PD1%XR8>(  5_PE&+.PO*|E&<X  S&+< M&O10210064
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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+/UJO).E5*XF&(P	O&<PR6)$R8UCD1;|	EO=|E1F_ 0@GR6*X	E6MCS5@GC1*J 8'R	1)PD&($F&(|I5*P	I1U E8410210065
T+/V<5_PL:DCO5*N	8_¬A0@N 2;I 8@G	K1)N-OOCB@>L2&(L	A:DC81MCS9%GP5@P	D&+$I8@/ OOCA@@G	3Q<< ¬,<10210066
T+/WGO)XR2*PR&(X	E8=LR5MCA5*J 5'|	A8=|E5MCI5*LE9@X	F&<|A6)XI1)V 1($	E8UCN5>(6*PT9(X	N&(Q 99M10210067
T+/XB6MCN5UCI5*L	E9@XF&(PO&<|A6)X	I1)V 6*PT9(XN&<G	N1DCN5UCI5*LE9'X	E8'XY&|GO@MCA5*J	@¬ K,410210068
T+/X'@_|O9%PR&<|	A8%N O@TA6MCA6*M	5'XI5;|E1DCA5*J	8%TO9(|D&(LA8@|	H&(.E:<.OO)XD&(|	E1>< @L<10210069
T+/Y8&+|O&(XI1@T	TE4CT5_) 8'R O_$	T8'$MO@TEO'I 1_$	R&<|O6)XEO=(9=¬	X9=) O@GS1MCPO;|	T1)U K9%10210070
T+/Z35*XF&($N4=/	@MCC2<GR&(¬R2)P	T1*J O)PD&+|Y5@P	BO)|L&<XN&(|O9%P	R&<|A8%PO8@TE6;$	I8%M *8H10210071
T+/D>O;.T1)XI8_I	5'XI5;|E1DCW2<P	R1MCU5'¬E6MCCO;.	E&<LO1;I 5)$T&<P	X2;.T2*R O'$N8@X	N9(Q LC410210072
T+/,Z9+I 2)PD1;¬	I1UCT:(¬EO%GL44C	N5>(2)N 9(¬P1)V	O@GS1*$L2)) 1_$	R5+I 4'$A1DCL1;P	E6M 6 @10210073
T+/%U&DA &DA &DC	F5_XWO)XDO%GC4>$	A6*LI1UCI5*|O6)X	EO=|S2<XF84CC:<|	L1MCT1;.T8%XF&<G	N:D OO%10210074
T+/_¬5>|H1)V 2)P	T1)XR9(¬T2)PG&<L	E9*XC1;I O;|TO*|	H1*J 8'R 8>TS8@P	M&<GR1MCO5@PRO;|	I5** @L-10210075
T+/>E&<|G6)XEO=|	L:F?O5<XT&<|H1*|	K2)PG&<.38?I,&<.	35"I,&<GN1DCCO*.	L1M7K1|G4@N7A5*J	8=- 5-D10210076
T+/?N5@PBO)|L&<X	N&+LP5@PR&<|A8%P	I1UCA5;/ O@TA6MC	P6*XN8@PD8_|T&<|	A6*& A 8_¬A0@N	O'Q : *10210077
T+/O&5(LA5*LS&<X	S8>LE1<XN8@PR6;L	P84CR1;.E84CB:DC	D2;.AO_|EQFCR1)¬	LO*|E&<E-O?.L@W?	AQ<H MAM10210078
T+/1.@_P29%GR5*X	N16CR1;.E8=|I5*)	8@TI8UCE6)XO6MC	HO)|T&(LA:DC81MC	I5;PA4@XD2)PT1)X	R9(* K#<10210079
T+/2F84CN5>(6*P	S1;|CO)XR2*PR&(X	E8=LR5MCC5_LMO)P	D&<XS8>LE1DC5&+|	I5<PS8>|A8=LS&<P	X5@M O9J10210080
T+/3AO=|E1DCWO;I	,8>|A8=LS&(XEO@P	I9*PD&+$A8W_*8@X	L84CR5>|A8@N O'$	D1MCR1*|E2;PE1DA	-&D O8&10210081
T+/3@QDA &DA &DA	&DA &DA &DA &DA	&DA &DCT2)|T&(X	O8@GT1MCC5%LE&<P	X5@PC8@PD&FA &FA	&D "/810210082
T+/47&DA &DA &DA	&DA &DA &DA &DA	&(XE8%PT&+|H1MC	HO)|T4'$W1)XU5'¬	E6*¬C@|X55'V 9<(	6*M K8&10210083
T+/521*J 8>R)8%T	I1)(5<GGP*PO1UC	S9V7C:<(.&<|L9+|	C2F?TQ)V)2)PT1)X	R9(¬T&(¬O4'()O@T	EO'H RK 10210084
THA6L&<|AO_|EL;¬	X9=¬X&DA &DA &DA	&DA &DA &DA &DA			;2D10210085
T+/7X4%L1'|GGO"P	5@@¬C'¬P25)R 5'X	TP*$E1*LBO*|K&+.	W2;|C2E7E5_(8>R	)O'V 5<GG5*PT&($	R&<U M2H10210086

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+/8S5*LE9571@?|	4'¬$7=|XOQECQ9%P	R8=TU2)$P¬<GS1<$	G2(GK45_#:;¬C9*.	N5F_.Q¬'=LE9:$G5	>PD4 7 10210087
T+/9)PO5+PE1*PE1	*PE1*PDZ*PE1*PE1	*PE1E¬51*PE1*PE1	|P6""|3Q=(L44|CU	1(1*GFK&(DK8ZI&D	MGB* #&0102;0088
T+/:QC2QEA OIG1Q	;DC /. 8_A/4NH	?"#=6?,O'_.29%$;	P/#W9>$W9>$W9>$W	X>$W9>$W9>$W9U.B	9>$U 1.410210089
T+/#L>$W9>EB ,"'	6¬E E'X2&F?R@%F	,6¬N E=|1&F?T@UC	1@?|4'¬"1@?|4'¬$	7=|XOQEA@D7_,K6G	" 8$H10210090
T+/@+ A < AA3	FG|4 EG <5 A (A/	D A/D=-C"2BG"=S-	- D &	H /D 7I&10210091
T+/'IE@4 A¬)E@<	PKJ&QECM -	@¬E%$DA ; |CO@|G	1@?QK'/.:""@A &D	A &D ## 10210092
T+/=D &DA &DABMC	N5UCP6*XN81Z 5'X	I5;|E6MCS2<XF84C	M5%LE&+.W2;|C2 D	AGMCL5_PG&<$U5*|	T2)Q L#410210093
T+/="5MCS9%XTO@/	8%GM5'|E1AN 4'$	N14CF9(PC8@XG5MC	S9%XTO@-Q&<$E1*L	BO*|K&+.W2;|C2DC	SO)& 19-10210094
T+/":5'|E1AA 1%P	E1<.AO'I 8>$I8@|	H &DN&+LP5@PR&+.	H2*$T&(XE6+LI6*P	DEMCL5>$E6MCS2<X	F84 */Y10210095
T+S 56*PQ9<XR1*&	|&<|YO'|E&+|O5UC	L5_PGCDCE9=|ROMC	C:<|L1JI 1%PE1<.	AO'I 8'$O&(|A8@M	A &D 2&M10210096
T+SAO &DA &D&&(¬	R2)PT1)V 1)PAQ_|	E1AJ 5'XI5;|E6MC	MO)|F9(PC8@XO5JV	5'XI5;|E6MCT6*G	N8_< NJM10210097
T+SB,O;|O6MCC2<P	C4-1 1)PD&($F&<$	O6)&<&<PN1DCO1UC	L2)PECMCP6*XN8@P	R&<.U8>-Q&(PO5OC	P6*U O/<10210098
T<KC)5;|AO_|E&<|	HO)XAO=|E6&DAFUC	P6*XN8@PR&<XN8@P	R6;LP84CP1)PD2)P	G&(PO5*M $/@10210099
T+SDZ2*R 6*PT9(X	N&<$A2)|U6*N O@T	K&(LEO@/ 1)PT6;/	O@TR84CP14CO@|E	-OMCC2(I 5=|R&(X	D&+H 5QM10210100
TIBE+9UCW2)XI5*)	1@|5'¬I-1@|5'¬|	P6;(I%LB4UCR1*P	D&+.WP& -10210101
E""'*E7*=¬DC"PH$	="7M&F| | C F% ASC R A	SO Q	21320630751	107750.U10210102

LAST PAGE

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                            2 *                                          LAST CHG :09:08 75
                            3         DECK   4
                            4         SEQ    0
  0A00                      5 UVWXYZ  START  X'0A00'
                            6         TREP
                            7
                            8 ********************************************************************
                            9 *                                                                  *
                           10 *                5471 PRINTER KEYBOARD DIAGNOSTIC TESTS            *
                           11 *                                                                  *
                           12 *                     SECTION 3--KEYBOARD TESTS                    *
                           13 *                                                                  *
                           14 ********************************************************************
                           15 ****                                                              ****
                           16 ****                      SECTION PREFACE                         ****
                           17 ****                                                              ****
                           18 ********************************************************************
                           19
                           19
  0A00 1031          0A01  20         DC    XL2'1031'          PROGRAM ID AND REVISION LEVEL
  0A02 00            0A02  21         DC    XL1'00'            SECTION FLAGS
  0A03 00            0A03  22         DC    XL1'00'            CURRENT ROUTINE NUMBER
  0A04 0000          0A05  23         DC    XL2'00'            RESERVED
  0A06 0A0D          0A07  24         DC    AL2(RTN01)         ADDRESS OF FIRST ROUTINE
  0A08 0000          0A09  25         DC    XL2'00'            RESERVED
  0A0A 105000        0A0C  26         DC    XL3'105000'        PRINTER KEYBOARD SPUT ENTRY
                           27
                           27
                           28 *
                           29 *********                                                 *********
                           30 * RTN01 *                    START I/O TEST               * RTN01 *
                           31 *********                                                 *********
                           32 *
                           33 *                             ROUTINE PREFIX
                                                                 ROUTINE NUMBER
  0A0D 01            0A0D  34 RTN01   DC    XL1'01'            NO INTERVENTION REQUIRED
  0A0E 00            0A0E  35         DC    XL1'00'            ADDRESS OF NEXT ROUTINE
  0A0F 0AB2          0A10  36         DC    AL2(RTN02)
                           37
                           37
  0A11 3A 10 12D2          38         SBN   MARK,MARK3
  0A15 35 C0 19E1          39         L     ITLV1,X'C0'        LOAD INT LEVEL 1 IAR
  0A19 C0 87 021A          40         B     PRINT              PRINT
  0A1D 41            0A1D  41         DC    XL1'41'             'START I/O
  0A1E 41            0A1E  42         DC    IL1'65'               TEST'
  0A1F 1395          0A20  43         DC    AL2(MSG04)
  0A21 10E1          0A22  44         DC    XL2'10E1'
  0A23 C0 87 021A          45         B     PRINT
  0A27 02            0A27  46         DC    XL1'02'
  0A28 20            0A28  47         DC    IL1'32'
  0A29 13B5          0A2A  48         DC    AL2(MSGEAR)
  0A2B C0 87 021A          49         B     PRINT              PRINT
  0A2F 02            0A2F  50         DC    XL1'02'             'CHECK
  0A30 0B            0A30  51         DC    IL1'11'               BULBS'
  0A31 1354          0A32  52         DC    AL2(MSG02)
  0A33 0C 12 13E8 1349     53         MVC   MSGCAB(19),POR     PUT LINE NAME INTO PRINTOUT
  0A39 C0 87 0E3D          54         B     REPLCE             REPLACE
  0A3D 010408        0A3F  55         DC    XL3'010408'         B2L2, B2U3, CABLE(GC461)
  0A40 C0 87 021A          56         B     PRINT              PRINT
  0A44 01            0A44  57         DC    XL1'01'             'BOTH
  0A45 32            0A45  58         DC    IL1'50'               INDICATORS
  0A46 1395          0A47  59         DC    AL2(MSG04)              SHOULD BE OFF'
  0A48 C0 87 021A          60         B     PRINT              PRINT
  0A4C 06            0A4C  61         DC    XL1'06'             RESET
  0A4D 0E            0A4D  62         DC    IL1'14'               THE
  0A4E 13C3          0A4F  63         DC    AL2(MSGRES)             HALT
  0A50 F3 10 00            64         SIO   X'00',KYBD         ISSUE COMMAND
  0A53 C0 87 0222          65         B     HALT               HALT
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
  0A57 10E1          0A58  66         DC    XL2'10E1'           OF -E1-
  0A59 C0 87 021A          67         B     PRINT              PRINT
  0A5D 41            0A5D  68         DC    XL1'41'             'PROCEED
  0A5E 21            0A5E  69         DC    IL1'33'               SHUD BE ON
  0A5F 143F          0A60  70         DC    AL2(MSG06)              REQ PEND OFF'
  0A61 10E2          0A62  71         DC    XL2'10E2'
  0A63 C0 87 021A          72         B     PRINT              PRINT
  0A67 06            0A67  73         DC    XL1'06'             'RESET
  0A68 0E            0A68  74         DC    IL1'14'               THE
  0A69 13C3          0A6A  75         DC    AL2(MSGRES)             HALT'
  0A6B F3 10 10            76         SIO   X'10',KYBD         TURN PROCEED ON
  0A6E C0 87 0222          77         B     HALT               HALT
  0A72 10E2          0A73  78         DC    XL2'10E2'           OF -E2-
  0A74 C0 87 021A          79         B     PRINT              PRINT
  0A78 41            0A78  80         DC    XL1'41'             'REQ PEND
  0A79 21            0A79  81         DC    IL1'33'               SHUD BE ON
  0A7A 141E          0A7B  82         DC    AL2(MSG05)              PROCEED OFF'
  0A7C 10E3          0A7D  83         DC    XL2'10E3'
  0A7E C0 87 021A          84         B     PRINT              PRINT
  0A82 06            0A82  85         DC    XL1'06'             'RESET
  0A83 0E            0A83  86         DC    IL1'14'               THE
  0A84 13C3          0A85  87         DC    AL2(MSGRES)             HALT'
  0A86 F3 10 20            88         SIO   X'20',KYBD         TURN REQ PEND ON
  0A89 C0 87 0222          89         B     HALT               HALT
  0A8D 10E3          0A8E  90         DC    XL2'10E3'           OF -E3-
  0A8F C0 87 021A          91         B     PRINT              PRINT
  0A93 41            0A93  92         DC    XL1'41'             'BOTH
  0A94 32            0A94  93         DC    IL1'50'               INDICATORS
  0A95 1395          0A96  94         DC    AL2(MSG04)              SHUD BE OFF'
  0A97 10E4          0A98  95         DC    XL2'10E4'
  0A99 C0 87 021A          96         B     PRINT              PRINT
  0A9D 06            0A9D  97         DC    XL1'06'             'RESET
  0A9E 0E            0A9E  98         DC    IL1'14'               THE
  0A9F 13C3          0AA0  99         DC    AL2(MSGRES)             HALT'
  0AA1 F3 10 00           100         SIO   X'00',KYBD         TURN BOTH INDICATORS OFF
  0AA4 3D FF 19D3         101         CLI   HEXFF,X'FF'
  0AA8 C0 87 0222         102         B     HALT               HALT
  0AAC 10E4          0AAD 103         DC    XL2'10E4'           OF -E4-
  0AAE C0 87 0216         104         B     LINK               GO TO NEXT ROUTINE
                          105 *
                          106 *********                                                 *********
                          107 * RTN02 *                    SENSE I/O TEST               * RTN02 *
                          108 *********                                                 *********
                          109 *
                          110 *                            ROUTINE PREFIX
                                                                ROUTINE NUMBER
  0AB2 02            0AB2 111 RTN02   DC    XL1'02'            INTERVENTION REQUIRED
  0AB3 80            0AB3 112         DC    XL1'80'            ADDRESS OF NEXT ROUTINE
  0AB4 0DDC          0AB5 113         DC    AL2(RTN03)
                          114
                          114
  0AB6 0C 03 19D9 1A03    115         MVC   STSHDB(4),STAT     SET XPTD STATUS
  0ABC 3A 10 12D2         116         SBN   MARK,MARK3
  0AC0 C0 87 021A         117         B     PRINT              PRINT
  0AC4 41            0AC4 118         DC    XL1'41'             'SENSE
  0AC5 0E            0AC5 119         DC    IL1'14'               I/O
  0AC6 144D          0AC7 120         DC    AL2(MSG07)              TEST'
  0AC8 10E5          0AC9 121         DC    XL2'10E5'
  0ACA C0 87 021A         122         B     PRINT              PRINT
  0ACE 01            0ACE 123         DC    XL1'01'             'IF TIGHT
  0ACF 1A            0ACF 124         DC    IL1'26'               LOOP
  0AD0 1492          0AD1 125         DC    AL2(MSG09)              OCCURS'
  0AD2 C0 87 0E3D         126         B     REPLCE             REPLACE
  0AD6 0C0000        0AD8 127         DC    XL3'0C0000'         B2N2, B2P2
  0AD9 C0 87 021A         128         B     PRINT              PRINT
  0ADD 02            0ADD 129         DC    XL1'02'             'RESET
  0ADE 0E            0ADE 130         DC    IL1'14'               THE
  0ADF 13C3          0AE0 131         DC    AL2(MSGRES)             HALT'
  0AE1 C0 87 021A         132         B     PRINT              PRINT
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0AE5 06               0AE5  133        DC    XL1'06'           'PRESS
   0AE6 28               0AE6  134        DC    IL1'43'             AND RELEASE
   0AE7 1478             0AE8  135        DC    AL2(MSG08)          SPACE BAR'
   0AE9 C0 87 0222             136        B     HALT              HALT
   0AED 10E5             0AEE  137        DC    XL2'10E5'          OF -E5-
   0AEF 3B 20 12D2             138        SBF   MARK,MARK2        SETUP FOR WAIT LOOP
   0AF3 30 13 19B3             139 B2     SNS   STATUS-2,X'13'    WAIT
   0AF7 30 11 19B5             140        SNS   STATUS,X'11'       ONE MINUTE
   0AFB 38 20 19B3             141        TBN   STATUS-2,X'20'      FOR STATUS
   0AFF F2 10 56               142        JT    B111                CHANGE
   0B02 38 10 19B3             143        TBN   STATUS-2,X'10'    CHECK SAMPLED ON
   0B06 F2 90 04               144        JF    *+7
   0B09 3A 01 12D3             145        SBN   FLAG,X'01'
   0B0D C0 87 1291             146        B     DELAY
   0B11 C0 87 0AF3             147        B     B2
   0B15 38 01 19B3             148        TBN   STATUS-2,X'01'    CHECK RESERVED BIT ON
   0B19 F2 10 15               149        JT    *+24
   0B1C 0C 01 180E 141E        150        MVC   RESMSG(2),MSG05
   0B22 3C 14 10F2             151        MVI   LEN3,X'14'
   0B26 3A 01 12D2             152        SBN   MARK,MARK7
   0B2A C0 87 0E3D             153        B     REPLCE            REPLACE
   0B2E 040000           0B30  154        DC    XL3'040000'        B2N2
   0B31 38 01 12D3             155        TBN   FLAG,X'01'       CHECK FOR SAMPLED ON
   0B35 F2 10 11               156        JT    B3
   0B38 3C 5C 1885             157        MVI   MSTRBS,C'*'
   0B3C 0C 09 13DF 17E0        158        MVC   MSGCAB-9(10),STRBE
   0B42 C0 87 0E3D             159        B     REPLCE            REPLACE
   0B46 200002           0B48  160        DC    XL3'200002'            S2, CABLE(GC553)
   0B49 3B 01 12D3             161 B3     SBF   FLAG,X'01'
   0B4D 3C 5C 189C             162        MVI   MSTRB,C'*'
   0B51 C0 87 0E3D             163        B     REPLCE            REPLACE
   0B55 040000           0B57  164        DC    XL3'040000'        B2N2
   0B58 3B 01 12D3             165 B111   SBF   FLAG,X'01'
   0B5C 0D FE 01F4 01F4        166        CLC   500(255),500      WAIT
   0B62 0D FE 01F4 01F4        167        CLC   500(255),500        2.1
   0B68 0D FE 01F4 01F4        168        CLC   500(255),500          MILLISECONDS
   0B6E C0 87 1279             169        B     SENSOR            SAVE STATUS
   0B72 38 10 19B3             170        TBN   STATUS-2,X'10'    CHECK FOR SAMPLED
   0B76 F2 10 21               171        JT    B1
   0B79 3C 5C 1885             172        MVI   MSTRBS,C'*'
   0B7D 3C 5C 1920             173        MVI   MDATP,C'*'
   0B81 38 08 1985             174        TBN   STATUS,X'08'      CHECK DATA KEY INTERRUPT PEND ON
   0B85 F2 90 07               175        JF    *+10
   0B88 C0 87 0E3D             176        B     REPLCE            REPLACE
   0B8C 040000           0B8E  177        DC    XL3'040000'        B2N2
   0B8F 3A 10 12D3             178        SBN   FLAG,FLAG3
   0B93 C0 87 0E3D             179        B     REPLCE            REPLACE
   0B97 0C0000           0B99  180        DC    XL3'0C0000'        B2N2, B2P2
   0B9A 3C 40 180E             181 B1     MVI   RESMSG,C' '       SETUP PRINT
   0B9E 3C D5 180D             182        MVI   RESMSG-1,C'N'      MESSAGE
   0BA2 38 01 19B3             183        TBN   STATUS-2,X'01'    CHECK FOR
   0BA6 F2 10 0C               184        JT    B5                  RESERVED BIT ON
   0BA9 3C 14 10F2             185        MVI   LEN3,X'14'
   0BAD 3C C6 180E             186        MVI   RESMSG,C'F'
   0BB1 3C C6 180D             187        MVI   RESMSG-1,C'F'
   0BB5 3A 01 12D2             188 B5     SBN   MARK,MARK7        SET PRINT FLAG ON
   0BB9 39 FF 19B4             189        TBF   STATUS-1,X'FF'    CHECK FOR CHAR
   0BBD 39 20 19B3             190        TBF   STATUS-2,X'20'      ALL ZERO AND STROBE OFF
   0BC1 F2 90 0F               191        JF    B6
   0BC4 3C 20 101D             192        MVI   LEN1,X'20'
   0BC8 3C 5C 189C             193        MVI   MSTRB,C'*'
   0BCC C0 87 0E3D             194        B     REPLCE            REPLACE
   0BD0 040000           0BD2  195        DC    XL3'040000'        A-B2N2
   0BD3 3B 30 1985             196 B6     SBF   STATUS,X'30'      SET END AND CANCEL OFF
   0BD7 3B 01 19B3             197        SBF   STATUS-2,X'01'    SET CE SNS BIT OFF
   0BDB 3B 80 19B2             198        SBF   STATUS-3,X'80'    SET UPPR CASE MODE SW OFF
   0BDF 0D 03 1985 19B9        199        CLC   STATUS(4),STSHDB  CHECK FOR
   0BE5 C0 81 0DD8             200        BE    ENDSNS              CORRECT STATUS
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0BE9 C2 01 19B2             201        LA    STATUS-3,XR1
   0BED 78 01 03               202        TBN   3(,XR1),X'01'     CHECK FOR
   0BF0 F2 90 5D               203        JF    B7                  DATA CHECK ON
   0BF3 3C 5C 18E8             204        MVI   MDATCK,C'*'
   0BF7 7D 40 02               205        CLI   2(,XR1),X'40'     CHECK FOR
   0BFA F2 01 2D               206        JNE   B8                  CORRECT CHAR
   0BFD 7D 40 00               207        CLI   0(,XR1),X'40'     CHECK FOR
   0C00 F2 01 18               208        JNE   B9                  CORRECT REED SW
   0C03 78 02 03               209        TBN   3(,XR1),X'02'     CHECK FOR XLATOR CHECK
   0C06 F2 90 08               210        JF    *+14
   0C09 3C 5C 18FD             211        MVI   MXLAT,C'*'
   0C0D C0 87 0E3D             212        B     REPLCE            REPLACE
   0C11 080000           0C13  213        DC    XL3'080000'        B2P2
   0C14 C0 87 0E3D             214        B     REPLCE            REPLACE
   0C18 0C0000           0C1A  215        DC    XL3'0C0000'        B2N2, B2P2
   0C1B 3C 2D 10AC             216 B9     MVI   LEN2,X'2D'
   0C1F 3A 01 12D4             217        SBN   XMTBLK,X'01'      SET XMIT BLK FLAG                    GK
   0C23 C0 87 0E3D             218        B     REPLCE            REPLACE
   0C27 200002           0C29  219        DC    XL3'200002'        A-B2S2, CABLE(GC553)                GK
   0C2A 3C 20 101D             220 B8     MVI   LEN1,X'20'
   0C2E 7D 40 00               221        CLI   0(,XR1),X'40'     CHECK FOR
   0C31 F2 01 07               222        JNE   B10                 CORRECT READ SW
   0C34 C0 87 0E3D             223        B     REPLCE            REPLACE
   0C38 080000           0C3A  224        DC    XL3'080000'        B2P2
   0C3B 0C 07 13DD 17E8        225 B10    MVC   MSGCAB-11(8),REED
   0C41 3C 2D 10AC             226        MVI   LEN2,X'2D'
   0C45 3A 01 12D4             227        SBN   XMTBLK,X'01'      SET XMIT BLK FLAG                    GK
   0C49 C0 87 0E3D             228        B     REPLCE            REPLACE
   0C4D 200002           0C4F  229        DC    XL3'200002'        B2S2, CABLE(GC553)
   0C50 78 02 03               230 B7     TBN   3(,XR1),X'02'     CHECK FOR
   0C53 F2 90 33               231        JF    B11                 XLATOR CHECK ON
   0C56 3C 5C 18FD             232        MVI   MXLAT,C'*'
   0C5A 7D 40 02               233        CLI   2(,XR1),X'40'     CHECK FOR
   0C5D F2 01 07               234        JNE   B12                 CORRECT CHARACTER
   0C60 C0 87 0E3D             235        B     REPLCE            REPLACE
   0C64 0C0000           0C66  236        DC    XL3'0C0000'        B2N2, B2P2
   0C67 7D 40 00               237 B12    CLI   0(,XR1),X'40'     CHECK FOR
   0C6A F2 01 0B               238        JNE   B13                 CORRECT REED SW
   0C6D 3C 20 101D             239        MVI   LEN1,X'20'
   0C71 C0 87 0E3D             240        B     REPLCE            REPLACE
   0C75 080000           0C77  241        DC    XL3'080000'        A-B2P2
   0C78 0C 07 13DD 17E8        242 B13    MVC   MSGCAB-11(8),REED
   0C7E 3C 2D 10AC             243        MVI   LEN2,X'2D'
   0C82 C0 87 0E3D             244        B     REPLCE            REPLACE
   0C86 200002           0C88  245        DC    XL3'200002'        B2S2, CABLE(GC553)
   0C89 7D 00 02               246 B11    CLI   2(,XR1),X'00'     CHECK DATA
   0C8C F2 01 0B               247        JNE   B14                 CHAR ALL ZERO
   0C8F 3C 20 101D             248        MVI   LEN1,X'20'
   0C93 C0 87 0E3D             249        B     REPLCE            REPLACE
   0C97 010000           0C99  250        DC    XL3'010000'        A-B2L2
   0C9A 7D 00 00               251 B14    CLI   0(,XR1),X'00'     CHECK REED
   0C9D F2 01 0B               252        JNE   B15                 SWITCHES ALL ZERO
   0CA0 3C 2D 10AC             253        MVI   LEN2,X'2D'
   0CA4 C0 87 0E3D             254        B     REPLCE            REPLACE
   0CA8 040000           0CAA  255        DC    XL3'040000'        A-B2N2
   0CAB 78 04 03               256 B15    TBN   3(,XR1),X'04'     CHECK RETURN KEY ON
   0CAE F2 90 0B               257        JF    B161
   0CB1 3C 5C 1914             258        MVI   MRET,C'*'
   0CB5 C0 87 0E3D             259        B     REPLCE            REPLACE
   0CB9 0C0000           0CBB  260        DC    XL3'0C0000'        B2N2, B2P2
   0CBC 78 0C 01               261 B161   TBN   1(,XR1),X'0C'     CHECK R OR E OR CAN AND SAMP ON
   0CBF F2 90 2C               262        JF    B16
   0CC2 3C 5C 1868             263        MVI   MREC,C'*'
   0CC6 3C 5C 1849             264        MVI   MRECS,C'*'
   0CCA 78 80 03               265        TBN   3(,XR1),X'80'     CHECK REQ KEY INT PEND ON
   0CCD F2 90 0D               266        JF    B162
   0CD0 3A 80 12D3             267        SBN   FLAG,FLAG0
   0CD4 0C 07 13DD 1650        268        MVC   MSGCAB-11(8),REQCAB
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0CDA F2 87 0A              269        J     B163
   0CDD 3A 02 12D2            270 B162   SBN   MARK,MARK6
   0CE1 0C 0A 13E0 17D6       271        MVC   MSGCAB-8(11),MEOC
   0CE7 C0 87 0E3D            272 B163   B     REPLCE                 REPLACE
   0CEB 080408          0CED  273        DC    XL3'080408'             B2P2, B2U3, CABLE(461)
   0CEE 78 08 01              274 B16    TBN   1(,XR1),X'08'          CHECK REQ OR END
   0CF1 F2 90 0B              275        JF    B17                     OR CANCEL ON
   0CF4 3C 5C 186B            276        MVI   MREC,C'*'
   0CF8 C0 87 0E3D            277        B     REPLCE                 REPLACE
   0CFC 0C0000          0CFE  278        DC    XL3'0C0000'             B2N2, B2P2
   0CFF 78 04 01              279 B17    TBN   1(,XR1),X'04'          CHECK REQ OR END OR
   0D02 F2 90 0B              280        JF    B19                     CANCEL SAMPLED ON
   0D05 3C 5C 1849            281        MVI   MRECS,C'*'
   0D09 C0 87 0E3D            282        B     REPLCE                 REPLACE
   0D0D 0C0000          0D0F  283        DC    XL3'0C0000'             B2N2, B2P2
   0D10 78 80 00              284 B19    TBN   0(,XR1),X'80'          CHECK UPPR CASE
   0D13 F2 90 11              285        JF    B20                     REED SWITCH ON
   0D16 3C 5C 181E            286        MVI   MUCM,C'*'
   0D1A 0C 11 13E7 17FA       287        MVC   MSGCAB-1(18),UCREED
   0D20 C0 87 0E3D            288        B     REPLCE                 REPLACE
   0D24 240002          0D26  289        DC    XL3'240002'             B2N2, B2S2, CABLE(GC553)
   0D27 78 02 01              290 B20    TBN   1(,XR1),X'02'          CHECK KEYBOARD
   0D2A F2 90 0F              291        JF    B21                     SHIFTING ON
   0D2D 3C 5C 1836            292        MVI   MSHIFT,C'*'
   0D31 3A 01 12D4            293        SBN   XMTBLK,X'01'           SET XMIT BLK FLAG                GK
   0D35 C0 87 0E3D            294        B     REPLCE                 REPLACE
   0D39 0C0002          0D3B  295        DC    XL3'0C0002'             B2N2, B2P2, CABLE(GC553)        GK
   0D3C 78 40 01              296 B21    TBN   1(,XR1),X'40'          CHECK DATA KEYS
   0D3F F2 90 0B              297        JF    B22                     ENABLED ON
   0D42 3C 5C 18AB            298        MVI   MDATE,C'*'
   0D46 C0 87 0E3D            299        B     REPLCE                 REPLACE
   0D4A 050000          0D4C  300        DC    XL3'050000'             B2L2, B2N2
   0D4D 78 80 01              301 B22    TBN   1(,XR1),X'80'          CHECK REQUEST
   0D50 F2 90 0B              302        JF    B231                    KEY ENABLED ON
   0D53 3C 5C 18C7            303        MVI   MREQE,C'*'
   0D57 C0 87 0E3D            304        B     REPLCE                 REPLACE
   0D5B 050000          0D5D  305        DC    XL3'050000'             B2L2, B2N2
   0D5E 7D 40 02              306 B231   CLI   2(,XR1),X'40'          CHECK CHAR ENCODE
   0D61 F2 81 48              307        JE    B23
   0D64 3C 20 101D            308        MVI   LEN1,X'20'
   0D68 C2 02 12E5            309        LA    TABLEA,XR2
   0D6C 6D 00 02 00           310 B247   CLC   2(1,XR1),0(,XR2)
   0D70 C0 81 0D85            311        BE    B246
   0D74 E2 02 01              312        LA    1(,XR2),XR2
   0D77 BD FF 00              313        CLI   0(,XR2),X'FF'
   0D7A C0 01 0D6C            314        BNE   B247
   0D7E C0 87 0E3D            315        B     REPLCE                 REPLACE
   0D82 080000          0D84  316        DC    XL3'080000'             B2P2
   0D85 C0 87 021A            317 B246   B     PRINT                  PRINT
   0D89 C1              0D89  318        DC    XL1'C1'                 'RE-SEAT
   0D8A 0A              0D8A  319        DC    IL1'10'                  P2'
   0D8B 1683            0D8C  320        DC    AL2(MSGP2)
   0D8D 1001            0D8E  321        DC    XL2'1001'
   0D8F C0 87 021A            322        B     PRINT                  PRINT
   0D93 02              0D93  323        DC    XL1'02'                 'SUSPECT
   0D94 29              0D94  324        DC    IL1'41'                  OPEN
   0D95 1679            0D96  325        DC    AL2(MSGSUS)               PINS'
   0D97 3A 10 12D2            326        SBN   MARK,MARK3
   0D9B C0 87 0E3D            327        B     REPLCE                 REPLACE
   0D9F 040000          0DA1  328        DC    XL3'040000'             B2N2
   0DA2 C0 87 0FFD            329        B     STATCK                 PRINT STATUS
   0DA6 C0 87 0222            330        B     HALT
   0DAA 1001            0DAB  331        DC    XL2'1001'
   0DAC 7D 40 00              332 B23    CLI   0(,XR1),X'40'          CHECK REED SWITCHES
   0DAF F2 81 0B              333        JE    *+14
   0DB2 3C 2D 10AC            334        MVI   LEN2,X'2D'
   0DB6 C0 87 0E3D            335        B     REPLCE                 REPLACE
   0DBA 040000          0DBC  336        DC    XL3'040000'             B2M2
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0DBD 3C 5C 1920            337        MVI   MDATP,C'*'
   0DC1 3C 5C 195B            338        MVI   MEOCP,C'*'
   0DC5 3C 5C 197C            339        MVI   MREQP,C'*'
   0DC9 3C 5C 194F            340        MVI   MCAN,C'*'
   0DCD 3C 5C 1946            341        MVI   MEND,C'*'
   0DD1 C0 87 0E3D            342        B     REPLCE                 REPLACE
   0DD5 0D0000          0DD7  343        DC    XL3'0D0000'             B2N2, B2P2
   0DD8 C0 87 0216            344 ENDSNS B     LINK                   GO TO NEXT ROUTINE
                              345 *
                              346 *********                                          *********
                              347 * RTN03 *          TESTS TO ENABLE REQUEST KEY     * RTN03 *
                              348 *********          AND KEYBCARD DATA KEYS          *********
                              349 *
                              350 *                      ROUTINE PREFIX
   0DDC 03              0DDC  351 RTN03  DC    XL1'03'                 ROUTINE NUMBER
   0DDD 00              0DDD  352        DC    XL1'00'                 NO INTERVENTION REQUIRED
   0DDE FFFF            0DDF  353        DC    XL2'FFFF'               LAST ROUTINE
                              354
                              354
   0DE0 C0 87 021A            355        B     PRINT                  PRINT
   0DE4 46              0DE4  356        DC    XL1'46'                 'ENABLE
   0DE5 16              0DE5  357        DC    IL1'22'                   INTERRUPTS
   0DE6 14A8            0DE7  358        DC    AL2(MSG11)                 TEST'
   0DE8 10C1            0DE9  359        DC    XL2'10C1'
   0DEA 0C 03 19B9 19BD       360        MVC   STSHDB(4),ZERO         CLEAR STATUS
   0DF0 35 C0 19E1            361        L     ITLV1,X'C0'            LOAD INTRPT IAR
   0DF4 F3 10 01              362        SIO   X'01',KYBD             RESET INTERRUPTS
   0DF7 F3 10 02              363        SIO   X'02',KYBD             ENABLE DATA KEYS
   0DFA 3C 40 19B7            364        MVI   STSHDB-2,X'40'         SET STATUS
   0DFE C0 87 1279            365        B     SENSOR
   0E02 38 40 19B3            366        TBN   STATUS-2,X'40'         CHECK FOR
   0E06 39 80 19B3            367        TBF   STATUS-2,X'80'         CHECK DATA KEYS ENABLED OFF
   0E0A F2 90 19              368        JF    C1                      DATA KEYS ENABLED ON
   0E0D F3 10 01              369        SIO   X'01',KYBD             RESET KEYBOARD
   0E10 3C 80 19B7            370        MVI   STSHDB-2,X'80'         SET REQ ENABLED ON
   0E14 F3 10 04              371        SIO   X'04',KYBD             ENABLE REQ KEY
   0E17 C0 87 1279            372        B     SENSOR
   0E1B 38 80 19B3            373        TBN   STATUS-2,X'80'         CHECK REQ ENABLE ON
   0E1F 39 40 19B3            374        TBF   STATUS-2,X'40'         CHECK DATA KEY ENABLED OFF
   0E23 F2 10 0F              375        JT    C2
   0E26 3C 5C 18C7            376 C1     MVI   MREQE,C'*'
   0E2A 3C 5C 18AB            377        MVI   MDATE,C'*'
   0E2E C0 87 0E3D            378        B     REPLCE                 REPLACE
   0E32 050000          0E34  379        DC    XL3'050000'             B2L2, B2N2
   0E35 F3 10 01              380 C2     SIO   X'01',KYBD              RESET KEYBOARD
   0E38 C0 87 022A            381        B     LOAD                   GO TO NEXT SECTION
   0E3C 00              0E3C  382        DC    XL1'00'
                              383 *
                              384 ************************************************************************
                              385 * REPLCE *                                                  * REPLCE *
                              386 **********   THIS SUBROUTINE IS USED TO PRINT CARD CALLOUTS  **********
                              387 *            WHICH HAVE BEEN ISOLATED AS FAILING UNITS.              *
                              388 *            LINKAGE IS VIA                                          *
                              389 *                                                                    *
                              390 *                B     REPLCE                                        *
                              391 *                DC    XL3'XXXXXX'                                   *
                              392 *                                                                    *
                              393 *            WHERE -XXXXXX- REPRESENTS THE CARDS AND/OR CABLES       *
                              394 *            TO BE CHECKED.                                          *
                              395 *                                                                    *
                              396 ************************************************************************
                              397
                              397
   0E3D 34 08 0FFC            398 REPLCE ST    END7+3,ARR             SAVE RETURN ADDRESS
   0E41 0C 01 0FEA 19D9       399        MVC   END61+3(2),STATCA
   0E47 34 08 19D1            400        ST    WORK1,ARR              MODIFY
   0E4B 0E 01 0FFC 19C3       401        ALC   END7+3,THREE(2)         RETURN
   0E51 3C 00 19D4            402        MVI   SWITCH,X'00'
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    0E55 34 01 19C7           403        ST    SAV1,XR1          SAVE
    0E59 34 02 19C9           404        ST    SAV2,XR2           REGISTERS
    0E5D 35 01 19D1           405        L     WORK1,XR1
    0E61 39 10 12D2           406        TBF   MARK,MARK3
    0E65 F2 10 21             407        JT    CON11
    0E68 C0 87 021A           408        B     PRINT             PRINT
    0E6C 02             0E6C  409        DC    XL1'02'            NON-ERROR
    0E6D 19             0E6D  410        DC    IL1'25'             REPLACE
    0E6E 1304           0E6F  411        DC    AL2(REP)              MESSAGE
    0E70 3C 01 0EC0           412        MVI   MOD1,X'01'
    0E74 3C 01 0EE8           413        MVI   MOD2,X'01'
    0E78 3C 01 0EFC           414        MVI   MOD3,X'01'
    0E7C 3C 01 0F0D           415        MVI   MOD4,X'01'
    0E80 0C 01 0FEA 19D8      416        MVC   END61+3(2),END7A
    0E86 F2 87 1A             417        J     C01
    0E89 C0 87 021A           418 CON11  B     PRINT             PRINT
    0E8D C2             0E8D  419        DC    XL1'C2'            ERROR
    0E8E 19             0E8E  420        DC    IL1'25'             REPLACE
    0E8F 1304           0E90  421        DC    AL2(REP)              MESSAGE
    0E91 1001           0E92  422        DC    XL2'1001'
    0E93 3C 81 0EC0           423        MVI   MOD1,X'81'
    0E97 3C 81 0EE8           424        MVI   MOD2,X'81'
    0E9B 3C 81 0EFC           425        MVI   MOD3,X'81'
    0E9F 3C 81 0F0D           426        MVI   MOD4,X'81'
    0EA3 7D 00 02             427 C01    CLI   2(,XR1),X'00'
    0EA6 F2 81 2B             428        JE    END66
    0EA9 C2 02 13EE           429        LA    CABLE,XR2         SETUP FOR
    0EAD 3C 01 0EB2           430        MVI   TST2+1,X'01'       CABLE PRINTOUT
    0EB1 78 00 02             431 TST2   TBN   2(,XR1),*-*       CHECK FOR
    0EB4 F2 90 10             432        JF    INC2                BITS ON
    0EB7 2C 04 13D4 00        433        MVC   CABL(5),0(,XR2)    MOVE LOGIC PAGE # INTO PRINTOUT
    0EBC C0 87 021A           434        B     PRINT             PRINT
    0EC0 01             0EC0  435 MOD1   DC    XL1'01'            'CHECK
    0EC1 25             0EC1  436        DC    IL1'37'              CABLE
    0EC2 13E8           0EC3  437        DC    AL2(MSGCAB)           XXXXX'
    0EC4 F2 87 0D             438        J     END66
    0EC7 E2 02 05             439 INC2   LA    5(,XR2),XR2
    0ECA 0E 00 0EB2 0EB2      440        ALC   TST2+1(1),TST2+1   INCREMENT
    0ED0 C0 20 0EB1           441        BNOL  TST2                MESSAGE POINTER
    0ED4 C2 02 130E           442 END66  LA    CARDS,XR2         SET CARD POINTER
    0ED8 3C 01 0EDD           443 CON1   MVI   TST+1,X'01'
    0EDC 78 00 00             444 TST    TBN   0(,XR1),*-*       CHECK FOR
    0EDF F2 90 2F             445        JF    INC                 CARD PRINTING
    0EE2 2C 03 130A 00        446        MVC   CARD(4),0(,XR2)
    0EE7 C0 87 021A           447        B     PRINT             PRINT
    0EEB 01             0EEB  448 MOD2   DC    XL1'01'            EACH
    0EEC 06             0EEC  449        DC    IL1'06'              CARD
    0EED 130A           0EEE  450        DC    AL2(CARD)
    0EEF 0D 03 130A 19F1      451        CLC   CARD(4),B2U2       CHECK FOR B2U2
    0EF5 F2 01 08             452        JNE   INCZ                CARD PRINTOUT
    0EF8 C0 87 021A           453        B     PRINT             PRINT
    0EFC 01             0EFC  454 MOD3   DC    XL1'01'            B2U2
    0EFD 23             0EFD  455        DC    IL1'35'              SWAPABLE
    0EFE 157F           0EFF  456        DC    AL2(MSG19)            WITH A-A3A3
    0F00 0D 03 130A 19ED      457 INCZ   CLC   CARD(4),B2U3
    0F06 F2 01 08             458        JNE   INC
    0F09 C0 87 021A           459        B     PRINT             PRINT
    0F0D 01             0F0D  460 MOD4   DC    XL1'01'            A-B2U3
    0F0E 54             0F0E  461        DC    IL1'84'              SWAPPABLE
    0F0F 15D3           0F10  462        DC    AL2(MSG20)            WITH A-B2U5
    0F11 E2 02 04             463 INC    LA    4(,XR2),XR2       CHECK
    0F14 0E 00 0EDD 0EDD      464        ALC   TST+1(1),TST+1     ALL BITS
    0F1A C0 20 0EDC           465        BNOL  TST                 PER BYTE
    0F1E D2 01 01             466        LA    1(,XR1),XR1
    0F21 0E 00 19D4 19D5      467        ALC   SWITCH,HEX80      CHECK
    0F27 C0 20 0ED8           468        BNOL  CON1                BOTH BYTES
    0F2B 38 08 12D2           469        TBN   MARK,MARK4        CHECK
    0F2F F2 90 08             470        JF    END091              END SW
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    0F32 C0 87 021A           471        B     PRINT             PRINT
    0F36 81             0F36  472        DC    XL1'81'            END
    0F37 0A             0F37  473        DC    IL1'10'              SWITCH
    0F38 15DD           0F39  474        DC    AL2(ENDSW)
    0F3A 38 80 12D3           475 END091 TBN   FLAG,FLAG0
    0F3E F2 90 08             476        JF    ENDX1
    0F41 C0 87 021A           477        B     PRINT             PRINT
    0F45 81             0F45  478        DC    XL1'81'            REQ
    0F46 0E             0F46  479        DC    IL1'14'              SWITCH
    0F47 15FB           0F48  480        DC    AL2(MSGRSW)
    0F49 38 40 12D3           481 ENDX1  TBN   FLAG,FLAG1
    0F4D F2 90 08             482        JF    ENDX2
    0F50 C0 87 021A           483        B     PRINT             PRINT
    0F54 81             0F54  484        DC    XL1'81'            KEY
    0F55 1C             0F55  485        DC    IL1'28'              HIT
    0F56 163B           0F57  486        DC    AL2(MSGDAT)           OUT OF ORDER
    0F58 38 20 12D3           487 ENDX2  TBN   FLAG,FLAG2
    0F5C F2 90 08             488        JF    ENDX3
    0F5F C0 87 021A           489        B     PRINT             PRINT
    0F63 81             0F63  490        DC    XL1'81'            KEY
    0F64 10             0F64  491        DC    IL1'16'              HELD
    0F65 15ED           0F66  492        DC    AL2(MSGKY)            DOWN
    0F67 38 10 12D3           493 ENDX3  TBN   FLAG,FLAG3
    0F6B F2 90 08             494        JF    END09
    0F6E C0 87 021A           495        B     PRINT             PRINT
    0F72 81             0F72  496        DC    XL1'81'            RE-SEAT L2
    0F73 24             0F73  497        DC    IL1'36'
    0F74 161F           0F75  498        DC    AL2(MSGL2)
    0F76 31 04 12D2           499 END09  TBN   MARK,MARK5
    0F7A F2 90 08             500        JF    END07
    0F7D C0 87 021A           501        B     PRINT             PRINT
    0F81 81             0F81  502        DC    XL1'81'            CANCEL
    0F82 0D             0F82  503        DC    IL1'13'              SWITCH
    0F83 1648           0F84  504        DC    AL2(CANSW)
    0F85 38 02 12D2           505 END07  TBN   MARK,MARK6
    0F89 F2 90 08             506        JF    END072
    0F8C C0 87 021A           507        B     PRINT             PRINT
    0F90 81             0F90  508        DC    XL1'81'            'END
    0F91 11             0F91  509        DC    IL1'17'              OR CAN
    0F92 1694           0F93  510        DC    AL2(EOCSW)            SWITCH
    0F94 38 08 12D3           511 END072 TBN   FLAG,FLAG4         CHECK FOR
    0F98 F2 90 08             512        JF    END071              SHIFT KEY
    0F9B C0 87 021A           513        B     PRINT               MESSAGE
    0F9F 81             0F9F  514        DC    XL1'81'
    0FA0 0C             0FA0  515        DC    IL1'12'
    0FA1 14B4           0FA2  516        DC    AL2(MSGSHF)
    0FA3 78 01 00             517 END071 TBN   0(,XR1),X'01'
    0FA6 F2 90 10             518        JF    CHKPRT                                        GK
    0FA9 C0 87 021A           519        B     PRINT             PRINT
    0FAD 81             0FAD  520        DC    XL1'81'            INTERRUPT
    0FAE 4D             0FAE  521        DC    IL1'77'              MESSAGE
    0FAF 17A1           0FB0  522        DC    AL2(MSG141)
    0FB1 C0 87 021A           523        B     PRINT
    0FB5 81             0FB5  524        DC    XL1'81'
    0FB6 2A             0FB6  525        DC    IL1'42'
    0FB7 17CB           0FB8  526        DC    AL2(MSG142)
    0FB9 38 01 12D4           527 CHKPRT TBN   XMTBLK,X'01'      CHK FOR XMIT BLK FLAG         GK
    0FBD F2 90 0C             528        JF    END06                                         GK
    0FC0 3B 01 12D4           529        SBF   XMTBLK,X'01'      RESET XMIT BLK FLAG           GK
    0FC4 C0 87 021A           530        B     PRINT             PRINT                       GK
    0FC8 81             0FC8  531        DC    XL1'81'            'TRANSMIT                  GK
    0FC9 17             0FC9  532        DC    IL1'23'              BLOCK                    GK
    0FCA 19B1           0FCB  533        DC    AL2(XMTMSG)           ASSEMBLY'               GK
    0FCC 35 01 19C7           534 END06  L     SAV1,XR1          RESTORE
    0FD0 35 02 19C9           535        L     SAV2,XR2           REGISTERS
    0FD4 3B 1F 12D2           536        SBF   MARK,X'1F'        RESET FLAGS
    0FD8 3B FF 12D3           537        SBF   FLAG,X'FF'        RESET PROGRAM FLAGS
    0FDC 0C 13 13E8 13E9      538        MVC   MSGCAB(20),MSGCAB+1
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   OFE2 C0 87 021A            539        B     PRINT               SPACE
   OFE6 92                OFE6 540        DC    XL1'92'              TWO LINES
   OFE7 C0 87 OFFD            541 END61   B     STATCK              PRINT STATUS
   OFEB C0 87 021A            542         B     PRINT               PRINT
   OFEF 86                OFEF 543        DC    XL1'86'              DO NOT
   OFF0 30                OFF0 544        DC    IL1'48'               RESET ERROR HALT
   OFF1 155C              OFF2 545        DC    AL2(MSWARN)
   OFF3 C0 87 0222            546         B     HALT                HALT
   OFF7 1001              OFF8 547        DC    XL2'1001'            OF -01-
   OFF9 C0 87 0000            548 END7    B     *-*
                              549 ********************************************************************
                              550 *                                                                  *
                              551 *          THIS SUBROUTINE IS USED TO PRINT THE EXPECTED           *
                              552 *          AND RECEIVED STATUS, REED SWITCH COMBINATION,           *
                              553 *          AND DATA CHARACTER ENCODED.                             *
                              554 *                                                                  *
                              555 ********************************************************************
   OFFD 34 08 11C6            556 STATCK  ST    ENDSTR+3,ARR
   1001 34 01 19F7            557         ST    R1SAV1,XR1          SAVE
   1005 34 02 19F9            558         ST    R2SAV2,XR2           REGISTERS
   1009 C0 87 021E            559         B     UNPACK              UNPACK
   100D 01                100D 560        DC    IL1'01'              CHARACTER
   100E 19B4              100F 561        DC    AL2(STATUS-1)         RECEIVED
   101C 16B0              1011 562        DC    AL2(MSG033-4)
   1012 0C 00 16B4 19B4       563        MVC   MSG033(1),STATUS-1
   1018 C0 87 021A            564         B     PRINT               PRINT
   101C 81                101C 565        DC    XL1'81'              CHARACTER
   101D 1F                101D 566 LEN1   DC    IL1'31'               RECEIVED
   101E 16B4              101F 567        DC    AL2(MSG033)
   1020 3C 1F 101D            568        MVI   LEN1,X'1F'
   1024 C0 87 021E            569         B     UNPACK              UNPACK
   1028 01                1028 570        DC    IL1'01'              CHARACTER
   1029 19B8              102A 571        DC    AL2(STSHDB-1)         EXPECTED
   102B 16CF              102C 572        DC    AL2(MSG034-4)
   102D 0C 00 16D3 19B8       573        MVC   MSG034(1),STSHDB-1
   1033 C0 87 021A            574         B     PRINT               PRINT
   1037 82                1037 575        DC    XL1'82'              CHARACTER
   1038 1F                1038 576        DC    IL1'31'               EXPECTED
   1039 16D3              103A 577        DC    AL2(MSG034)
   103B 0C 0F 16FF 1700       578        MVC   MSG135-1(16),MSG135  INITIALIZE
   1041 0C 01 1063 19DD       579        MVC   COR+3(2),AMSG15       FOR THE
   1047 3C 00 19D4            580        MVI   SWITCH,X'00'           BIT
   104B C2 01 19B2            581         LA    STATUS-3,XR1          CHECKER
   104F 3C 01 105B            582 DOER1   MVI   TSTR+1,X'01'
   1053 C2 02 12D4            583         LA    TABLE7-16,XR2       TABLE OF PRINTOUTS
   1057 E2 02 02              584 DOER    LA    2(,XR2),XR2         INCREMENT COUNTER
   105A 78 00 00              585 TSTR    TBN   0(,XR1),X'00'       CHECK FOR ON
   105D F2 90 08              586         JF    INCR
   1060 2C 01 16F1 00         587 COR     MVC   MSG135-15(2),0(,XR2) MOVE CHARACTER
   1065 0E 01 1063 19C1       588         ALC   COR+3(2),TWO          TO REED SW PRINTOUT
   106B 0E 00 105B 105B       589 INCR    ALC   TSTR+1(1),TSTR+1     CHECK ALL
   1071 C0 20 1057            590         BNOL  DOER                  BITS IN EACH BYTE
   1075 3D 80 19D4            591         CLI   SWITCH,X'80'
   1079 F2 81 18              592         JE    *+27
   107C 0C 01 1063 19DF       593         MVC   COR+3(2),AMSG16       INITIALIZE
   1082 C2 01 19B6            594         LA    STSHDB-3,XR1          FOR PRINTING
   1086 3C 80 19D4            595         MVI   SWITCH,X'80'           EXPECTED
   108A 0C 0F 172B 172C       596         MVC   MSG136-1(16),MSG136     REED SW CHAR
   1090 C0 87 104F            597         B     DOER1
   1094 0C 00 19CA 19B2       598         MVC   WORK-3(1),STATUS-3    SET UC MODE
   109A 3B 80 19CA            599         SBF   WORK-3,X'80'           SWITCH OFF
   109E C0 87 021E            600         B     UNPACK                UNPACK
   10A2 01                10A2 601        DC    IL1'01'              RECEIVED
   10A3 19CA              10A4 602        DC    AL2(WORK-3)           REED
   10A5 16EE              10A6 603        DC    AL2(MSG035-1)          SWITCHES
   10A7 C0 87 021A            604         B     PRINT               PRINT
   10AB 81                10AB 605        DC    XL1'81'              RECEIVED
   10AC 2C                10AC 606 LEN2   DC    IL1'44'               REED
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   10AD 1700              10AE 607        DC    AL2(MSG135)            SWITCHES
   10AF 3C 2C 10AC            608        MVI   LEN2,X'2C'
   10B3 0C 00 19CA 19B6       609        MVC   WORK-3(1),STSHDB-3   SET UC MODE
   10B9 3B 80 19CA            610        SBF   WORK-3,X'80'           SWITCH OFF
   10BD C0 87 021E            611         B     UNPACK              UNPACK
   10C1 01                10C1 612        DC    IL1'01'              EXPECTED
   10C2 19CA              10C3 613        DC    AL2(WORK-3)           REED
   10C4 171A              10C5 614        DC    AL2(MSG036-1)          SWITCHES
   10C6 C0 87 021A            615         B     PRINT               PRINT
   10CA 82                10CA 616        DC    XL1'82'              EXPECTED
   10CB 2C                10CB 617        DC    IL1'44'               REED
   10CC 172C              10CD 618        DC    AL2(MSG136)            SWITCHES
   10CE 3B FF 19B4            619        SBF   STATUS-1,X'FF'       SETUP
   10D2 3B 7F 19B2            620        SBF   STATUS-3,X'7F'        RECEIVED
   10D6 3B 01 19B3            621        SBF   STATUS-2,X'01'         STATUS
   10DA 3B FF 19B8            622        SBF   STSHDB-1,X'FF'       SETUP
   10DE 3B 7F 19B6            623        SBF   STSHDB-3,X'7F'        XPTE
   10E2 3B 01 19B7            624        SBF   STSHDB-2,X'01'         STATUS
   10E6 38 01 12D2            625        TBN   MARK,MARK7
   10EA F2 90 0C              626        JF    *+15
   10ED C0 87 021A            627         B     PRINT               PRINT
   10F1 82                10F1 628        DC    XL1'82'              RESERVED
   10F2 13                10F2 629 LEN3   DC    IL1'19'               BIT MESSAGE
   10F3 180E              10F4 630        DC    AL2(RESMSG)
   10F5 3C 13 10F2            631        MVI   LEN3,X'13'
   10F9 3C 00 19D4            632        MVI   SWITCH,X'00'         CLEAR SWITCH
   10FD C0 87 021A            633         B     PRINT               PRINT
   1101 82                1101 634        DC    XL1'82'              STATUS
   1102 14                1102 635        DC    IL1'20'               RECEIVED
   1103 1740              1104 636        DC    AL2(MSG018)            WAS
   1105 C2 01 19B2            637         LA    STATUS-3,XR1
   1109 F2 87 11              638         J     CHECK
   110C C0 87 021A            639 EXPSTT  B     PRINT               SPACE
   1110 92                1110 640        DC    XL1'92'              TWO LINES
   1111 C0 87 021A            641         B     PRINT               PRINT
   1115 82                1115 642        DC    XL1'82'              STATUS
   1116 14                1116 643        DC    IL1'20'               EXPECTED
   1117 1754              1118 644        DC    AL2(MSG019)            WAS
   1119 C2 01 19B6            645         LA    STSHDB-3,XR1
   111D C2 02 180F            646 CHECK   LA    FIRST-1,XR2
   1121 79 80 00              647         TBF   0(,XR1),X'80'       CHECK
   1124 79 FE 01              648         TBF   1(,XR1),X'FE'        FOR ANY
   1127 79 FF 03              649         TBF   3(,XR1),X'FF'         BITS ON
   112A F2 90 08              650         JF    CHECK1
   112D C0 87 021A            651         B     PRINT               IF NO
   1131 81                1131 652        DC    XL1'81'              BITS ON,
   1132 05                1132 653        DC    IL1'05'               PRINT
   1133 199A              1134 654        DC    AL2(NONE)              'NONE'
   1135 3C 01 1158            655 CHECK1  MVI   TSTBTO+1,X'01'
   1139 2C 00 1162 00         656 DOIT    MVC   LENGTH,0(,XR2)      SETUP
   113E 0E 00 1162 19BF       657         ALC   LENGTH(1),ONE         FOR
   1144 2C 00 1148 00         658         MVC   INCADR+2(1),0(,XR2)    LENGTH
   1149 E2 02 00              659 INCADR  LA    *-*(,XR2),XR2
   114C 34 02 1164            660         ST    ADRMSG,XR2
   1150 E2 02 01              661         LA    1(,XR2),XR2
   1153 34 02 19E3            662         ST    KEEP1,XR2           SAVE XR2
   1157 78 00 00              663 TSTBTO  TBN   0(,XR1),X'00'       CHECK FOR
   115A F2 90 08              664         JF    INCBTO                BIT ON
   115D C0 87 021A            665         B     PRINT               PRINT
   1161 81                1161 666        DC    XL1'81'              STATUS
   1162 00                1162 667 LENGTH DC    IL1'00'
   1163 0000              1164 668 ADRMSG DC    AL2(00)
   1165 C0 87 1186            669 INCBTO  B     INCB2
   1169 0C 00 19E5 114B       670 INCB1   MVC   KEEP2(1),INCADR+2
   116F 0F 01 1164 19E5       671         SLC   ADRMSG(2),KEEP2     ADJUST ADDRESS TO BEGINNING
   1175 35 02 1164            672         L     ADRMSG,XR2           OF MESSAGE FIELD
   1179 BD 01 00              673         CLI   0(,XR2),X'01'
   117C F2 81 03              674         JE    *+6
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   117F BC 40 01                675         MVI   1(,XR2),X'40'
   1182 35 02 19E3              676         L     KEEP1,XR2
   1186 0E 00 1158 1158         677 INCB2   ALC   TSTBTO+1(1),TSTBTO+1 TEST ALL BITS
   118C C0 20 1139              678         BNOL  DOIT                  OF EACH BYTE
   1190 D2 01 01                679         LA    1(,XR1),XR1
   1193 8D 04 00 1996           680         CLC   0(5,XR2),NONE-4       CHECK FOR
   1198 C0 01 1135              681         BNE   CHECK1                 LAST MESSAGE
   119C 0C 01 1168 19E7         682         MVC   INCBTO+3(2),AINCB1
   11A2 0E 00 19D4 19D5         683         ALC   SWITCH(1),HEX80
   11A8 C0 20 110C              684         BNOL  EXPSTT
   11AC 3B FF 12D2              685         SBF   MARK,X'FF'            RESET FALGS
   11B0 35 01 19F7              686         L     R1SAV1,XR1            RESTORE
   11B4 35 02 19F9              687         L     R2SAV2,XR2             REGISTERS
   11B8 0C 01 1168 19E9         688         MVC   INCBTO+3(2),AINCB2
   11BE C0 87 021A              689         B     PRINT                 SPACE
   11C2 93                11C2  690         DC    XL1'93'                SIX LINES
   11C3 C0 87 0000              691 ENDSTR  B     *-*                   RETURN
                                692 ********************************************************************
                                693 *                                                                  *
                                694 *                  INTERRUPT HANDLING SUBROUTINE                   *
                                695 *                                                                  *
                                696 ********************************************************************
   11C7 34 04 19D7              697 CONSLE  ST    SAVPSR,PSR
   11CB 34 20 1278              698         ST    ENDZ+3,P1IAR
   11CF 30 13 19B3              699         SNS   STATUS-2,X'13'        SAVE
   11D3 30 11 1985              700         SNS   STATUS,X'11'           STATUS
   11D7 35 20 19FB              701         L     ADRSER,X'20'          CHECK
   11DB C0 80 1229              702         BC    NOTRES-3,X'80'         IAR/ARR
   11DF C0 FF 11E6              703         BC    NEXT,X'FF'              SELECTION
   11E3 F2 87 43                704         J     NOTRES-3
   11E6 35 01 1279              705 NEXT    L     ENDZ+3,XR1
   11EA 7D 06 02                706         CLI   2(,XR1),X'06'
   11ED F2 01 06                707         JNE   NEXT1
   11F0 0E 01 1278 19C3         708         ALC   ENDZ+3(2),THREE
   11F6 3A 40 12D2              709 NEXT1   SBN   MARK,MARK1              SET INTERRUPT RECEIVED FLAG
   11FA 38 80 12D2              710         TBN   MARK,MARK0              CHECK FOR
   11FE F2 10 0B                711         JT    NEXT2                    XPTD INTERRUPT
   1201 C0 87 0E3D              712 NEXT5   B     REPLCE                  REPLACE
   1205 050000            1207  713         DC    XL3'050000'              A-B2N2, B2L2
   1208 C0 87 1201              714         B     NEXT5
   120C 38 C0 1983              715 NEXT2   TBN   STATUS-2,X'C0'          CHECK INTERRUPTS
   1210 F2 10 0B                716         JT    NEXT3                    ENABLED ON
   1213 C0 87 0E3D              717         B     REPLCE                  REPLACE
   1217 050000            1219  718         DC    XL3'050000'              B2L2, B2N2
   121A C0 87 120C              719         B     NEXT2
   121E 35 20 19FF              720 NEXT3   L     TEM1,P1IAR              DISABLE
   1222 F3 10 00                721         SIO   X'00',KYBD               INTERRUPTS
   1225 35 20 19FD              722         L     TEMPAR,P1IAR            RESET
   1229 F3 10 01                723         SIO   X'01',KYBD               INTERRUPTS
   122C C0 87 021A              724 NOTRES  B     PRINT                   PRINT
   1230 C6                1230  725         DC    XL1'C6'                  'INTERRUPT
   1231 13                1231  726         DC    IL1'19'                    NOT
   1232 14FB              1233  727         DC    AL2(MSG13)                  RESET'
   1234 1021              1235  728         DC    XL2'1021'
   1236 C0 87 0222              729         B     HALT
   123A 1021              123B  730         DC    XL2'1021'
   123C C0 87 0E3D              731         B     REPLCE                  REPLACE
   1240 050000            1242  732         DC    XL3'050000'              B2L2, B2N2
   1243 C0 87 122C              733         B     NOTRES
   1247 C0 87 0E3D              734 SELECT  B     REPLCE                  REPLACE
   124B 800000            124D  735         DC    XL3'800000'              A-B3L2
   124E F2 87 10                736         J     RESET
   1251 C0 87 021A              737 NOTRE1  B     PRINT                   PRINT
   1255 C6                1255  738         DC    XL1'C6'                  'INTERRUPT
   1256 31                1256  739         DC    IL1'49'                    RESET BY
   1257 152C              1258  740         DC    AL2(MSG14)                  DISABLE
   1259 1022              125A  741         DC    XL2'1022'                    COMMAND'
   125B C0 87 0222              742         B     HALT
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   125F 1022                1260  743         DC    XL2'1022'
   1261 35 01 19F7              744 RESET   L     R1SAV1,XR1              RESTORE
   1265 35 02 19F9              745         L     R2SAV2,XR2               REGISTERS
   1269 3B C0 19B7              746         SBF   STSHDB-2,X'C0'          RESET STATUS
   126D 35 C0 19E1              747         L     ITLV1,X'C0'
   1271 35 04 19D7              748         L     SAVPSR,PSR
   1275 C0 87 0000              749 ENDZ    B     *-*                     RETURN
                                750 *
                                751 *               STATUS RECORDER
                                752 *
   1279 34 08 1290              753 SENSOR  ST    ENDSOR+3,ARR            SAVE RETURN ADDRESS
   127D 30 13 19B3              754         SNS   STATUS-2,X'13'           STATUS
   1281 30 11 1985              755         SNS   STATUS,X'11'            SAVE
   1285 3B 01 19B3              756         SBF   STATUS-2,X'01'          SET RESERVED
   1289 3B 01 19B7              757         SBF   STSHDB-2,X'01'           BIT OFF
   128D C0 87 0000              758 ENDSOR  B     *-*                     RETURN
                                759 *
                                760 *       DELAY SUBROUTINE:
                                761 *       SUBROUTINE ALLOWS ONE MINUTE FOR
                                762 *       A CHANGE OF STATUS TO BE DETECTED.
                                763 *
   1291 34 08 12D1              764 DELAY   ST    ENDD+3,ARR
   1295 34 01 19C7              765         ST    SAV1,XR1                SAVE CONTENTS
   1299 34 02 19C9              766         ST    SAV2,XR2                 OF REGISTERS
   129D 38 20 12D2              767         TBN   MARK,MARK2              CHECK FOR
   12A1 F2 10 0A                768         JT    D11                      INITIALIZED ON
   12A4 3A 20 12D2              769         SBN   MARK,MARK2
   12A8 0C 03 19CD 19F5         770         MVC   WORK(4),DELAYC          DELAY CONSTANT
   12AE 0F 03 19CD 19BF         771 D11     SLC   WORK(4),ONE             ALLOW ONE
   12B4 C0 01 12C6              772         BNZ   D22                      MINUTE
   12B8 C0 87 021A              773         B     PRINT                   PRINT
   12BC 02                12BC  774         DC    XL1'02'                  'NO
   12BD 34                12BD  775         DC    IL1'52'                    CHANGE
   12BE 14E8              12BF  776         DC    AL2(MSG12)                  OF STATUS'
   12C0 0E 01 12D1 19C5         777         ALC   ENDD+3(2),FOUR
   12C6 35 01 19C7              778 D22     L     SAV1,XR1                RESTORE
   12CA 35 02 19C9              779         L     SAV2,XR2                 REGISTERS
   12CE C0 87 0000              780 ENDD    B     *-*                     RETURN
                                781 *                                                                  *
                                782 *                          PROGRAM FLAGS                           *
                                783 *                                                                  *
   12D2 00                12D2  784 MARK    DC    XL1'00'
                          0080  785 MARK0   EQU   X'80'                  EXPECT AN INTERRUPT
                          0040  786 MARK1   EQU   X'40'                  INTERRUPT RECEIVED
                          0020  787 MARK2   EQU   X'20'                  INITIALIZE FOR DELAY
                          0010  788 MARK3   EQU   X'10'                  NON-ERROR PRINTOUT
                          0008  789 MARK4   EQU   X'08'                  END SWITCH
                          0004  790 MARK5   EQU   X'04'                  CANCEL SWITCH
                          0002  791 MARK6   EQU   X'02'                  END OR CAN SWITCH
                          0001  792 MARK7   EQU   X'01'                  RESERVED BIT
   12D3 00                12D3  793 FLAG    DC    XL1'00'
                          0080  794 FLAG0   EQU   X'80'                  REQ SWITCH
                          0040  795 FLAG1   EQU   X'40'                  KEY HIT OUT OF ORDER
                          0020  796 FLAG2   EQU   X'20'                  KEY HELD DOWN
                          0010  797 FLAG3   EQU   X'10'                  RE-SEAT L2
                          0008  798 FLAG4   EQU   X'08'                  SHIFT KEY MESSAGE
   12D4 00                12D4  799 XMTBLK  DC    XL1'00'                                          GK
   12D5 F16BF26BF46BF86B  12E4  800 TABLE7  DC    CL16'1,2,4,8,A,B,P    '
   12DD C16BC26BD7404040        801
   12E5 F0                12E5  802 TABLEA  DC    XL1'F0'
   12E6 F2F4F860F1FF      12EB  803         DC    XL6'F2F4F860F1FF'
                                804 *
                                805 *       MESSAGES
                                806 *
   12EC D9C5D7D3C1C3C540  1304  807 REP     DC    CL25'REPLACE FOLLOWING CARD/S:'
   12F4 C6D6D3D3D6E6C9D5        808
   12FC C740C3C1D9C461E2        809
   1304 7A                      810
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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

   1305 C160              1306  807         DC    CL2'A-'
   1307 E7E7E7E7          130A  808 CARD    DC    CL4'XXXX'
   130B C2F2D3F2          130E  809 CARDS   DC    CL4'B2L2'
   130F C2F2D4F2          1312  810         DC    CL4'B2M2'
   1313 C2F2D5F2          1316  811         DC    CL4'B2N2'
   1317 C2F2D7F2          131A  812         DC    CL4'B2P2'
   131B C2F2D9F2          131E  813         DC    CL4'B2R2'
   131F C2F2E2F2          1322  814         DC    CL4'B2S2'
   1323 C2F2E4F2          1326  815         DC    CL4'B2U2'
   1327 C2F3D3F2          132A  816         DC    CL4'B3L2'
   132B C2F3D7F2          132E  817         DC    CL4'B3P2'
   132F C2F3E2F2          1332  818         DC    CL4'B3S2'
   1333 C2F2E4F3          1336  819         DC    CL4'B2U3'
   1337 D9C5D840D6D940D7  1349  820 POR     DC    CL19'REQ OR PROCEED IND)'
   133F D9D6C3C5C5C440C9        820
   1347 D5C45D                  820
   134A C3C8C5C3D240C2E4  1354  821 MSG02   DC    CL11'CHECK BULBS'
   1352 D3C2E2                  821
   1355 E2E3C1D9E340C961  1363  822         DC    CL15'START I/O TEST-'
   135D D640E3C5E2E360          822
   1364 C2D6E3C840D9C5D8  1395  823 MSG04   DC    CL50'BOTH REQ PEND AND PROCEED INDICATORS SHOULD BE OFF'
   136C 40D7C5D5C440C1D5        823
   1374 C440D7D9D6C3C5C5        823
   137C C440C9D5C4C9C3C1        823
   1384 E3D6D9E240E2C8D6        823
   138C E4D3C440C2C540D6        823
   1394 C6C6                    823
   1396 C9C640C1D5E840C5  13B5  824 MSGEAR  DC    CL32'IF ANY ERROR OCCURS IN ROUTINE 1'
   139E D9D9D6D940D6C3C3        824
   13A6 E4D9E240C9D540D9        824
   13AE D6E4E3C9D5C540F1        824
   13B6 D9C5E2C5E340E3C8  13C3  825 MSGRES  DC    CL14'RESET THE HALT'
   13BE C540C8C1D3E3            825
   13C4 C3C8C5C3D240C3C1  13CF  826         DC    CL12'CHECK CABLE('
   13CC C2D3C54D                826
   13D0 E7E7E7E7E7E7      13D4  827 CABL    DC    CL5'XXXXX'
   13D5 4040404040404040  13E8  828 MSGCAB  DC    20XL1'40'
   13DD 4040404040404040        828
   13E5 40404040                828
   13E9 40                13E9  829         DC    XL1'40'
   13EA D2C4F1F4F1        13EE  830 CABLE   DC    CL5'KD141'
   13EF C7C3F5F5F3        13F3  831         DC    CL5'GC553'
   13F4 C7C3F5F5F2        13F8  832         DC    CL5'GC552'
   13F9 C7C3F4F6F1        13FD  833         DC    CL5'GC461'
   13FE D9C5D840D7C5D5C4  141E  834 MSG05   DC    CL33'REQ PEND SHOULD BE ON,PROCEED OFF'
   1406 40E2C8D6E4D3C440        834
   140E C2C540D6D56BD7D9        834
   1416 D6C3C5C5C440D6C6        834
   141E C6                      834
   141F D7D9D6C3C5C5C440  143F  835 MSG06   DC    CL33'PROCEED SHOULD BE ON,REQ PEND OFF'
   1427 E2C8D6E4D3C440C2        835
   142F C540D6D568D9C5D8        835
   1437 40D7C5D5C440D6C6        835
   143F C6                      835
   1440 E2C5D5E2C540C961  144D  836 MSG07   DC    CL14'SENSE I/O TEST'
   1448 D640E3C5E2E3            836
   144E C9D540D3D6E6C5D9  145D  837         DC    CL16'IN LOWER SHIFT, '
   1456 40E2C8C9C6E36B40        837
   145E D7D9C5E2E240C1D5  1478  838 MSG08   DC    CL27'PRESS AND RELEASE SPACE BAR'
   1466 C440D9C5D3C5C1E2        838
   146E C540E2D7C1C3C540        838
   1476 C2C1D9                  838
   1479 C9C640D9D6E4E3C9  1492  839 MSG09   DC    CL26'IF ROUTINE RUNS OVER 2 MIN'
   1481 D5C540D9E4D5E240        839
   1489 D6E5C5D940F240D4        839
   1491 C9D5                    839
   1493 C5D5C1C2D3C540C9  14A8  840 MSG11   DC    CL22'ENABLE INTERRUPTS TEST'
   149B D5E3C5D9D9E4D7E3        840
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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

   14A3 E240E3C5E2E3            840
   14A9 D6D940E2C8C9C6E3  14B4  841 MSGSHF  DC    CL12'OR SHIFT KEY'
   14B1 40D2C5E8                841
   14B5 D5D640C3C8C1D5C7  14E8  842 MSG12   DC    CL52'NO CHANGE OF STATUS AFTER ONE MINUTE-ERROR MAY EXIST'
   14BD C540D6C640E2E3C1        842
   14C5 E3E4E240C1C6E3C5        842
   14CD D940D6D5C540D4C9        842
   14D5 D5E4E3C560C5D9D9        842
   14DD D6D940D4C1E840C5        842
   14E5 E7C9E2E3                842
   14E9 C9D5E3C5D9D9E4D7  14FB  843 MSG13   DC    CL19'INTERRUPT NOT RESET'
   14F1 E340D5D6E340D9C5        843
   14F9 E2C5E3                  843
   14FC C9D5E3C5D9D9E4D7  152C  844 MSG14   DC    CL49'INTERRUPT RESET BY DISABLE--REPLACE A-B2L2,A-B2N2'
   1504 E340D9C5E2C5E340        844
   150C C2E840C4C9E2C1C2        844
   1514 D3C56060D9C5D7D3        844
   151C C1C3C540C160C2F2        844
   1524 D3F26BC160C2F2D5        844
   152C F2                      844
   152D E6C1D9D5C9D5C760  155C  845 MSWARN  DC    CL48'WARNING-RESETTING THIS ERROR HALT MAY BE INVALID'
   1535 D9C5E2C5E3E3C9D5        845
   153D C740E3C8C9E240C5        845
   1545 D9D9D6D940C8C1D3        845
   154D E340D4C1E840C2C5        845
   1555 40C9D5E5C1D3C9C4        845
   155D 60C160C2F2E4F240  157F  846 MSG19   DC    CL35'-A-B2U2 MAY BE SWAPPED WITH A-A3A3'
   1565 D4C1E840C2C540E2        846
   156D E6C1D7D7C5C440E6        846
   1575 C9E3C840C160C1F3        846
   157D C1F340                  846
   1580 60C160C2F2E4F340  15A2  847         DC    CL35'-A-B2U3 MAY BE SWAPPED WITH A-B2U5'
   1588 D4C1E840C2C540E2        847
   1590 E6C1D7D7C5C440E6        847
   1598 C9E3C840C160C2F2        847
   15A0 E4F540                  847
   15A3 D7C1D9E3407BE240  15D3  848 MSG20   DC    CL49'PART #S MAY DIFFER, RETURN TO ORIG LOC AFTER SWAP'
   15AB D4C1E840C4C9C6C6        848
   15B3 C5D96840D9C5E3E4        848
   15BB D9D540E3D640D6D9        848
   15C3 C9C740D3D6C340C1        848
   15CB C6E3C5D940E2E6C1        848
   15D3 D7                      848
   15D4 C5D5C440E2E6C9E3  15DD  849 ENDSW   DC    CL10'END SWITCH'
   15DC C3C8                    849
   15DE D6D940D2C5E840C8  15ED  850 MSGKY   DC    CL16'OR KEY HELD DOWN'
   15E6 C5D3C440C4D6E6D5        850
   15EE D9C5D8E4C5E2E340  15FB  851 MSGRSW  DC    CL14'REQUEST SWITCH'
   15F6 E2E6C9E3C3C8            851
   15FC D9C560E2C5C1E340  161F  852 MSGL2   DC    CL36'RE-SEAT A-B2L2, SUSPECT OPEN PIN U12'
   1604 C160C2F2D3F26B40        852
   160C E2E4E2D7C5C3E340        852
   1614 D6D7C5D540D7C9D5        852
   161C 40E4F1F2                852
   1620 D6D940C4C1E3C140  163B  853 MSGDAT  DC    CL28'OR DATA KEY HIT OUT OF ORDER'
   1628 D2C5E840C8C9E340        853
   1630 D6E4E340D6C640D6        853
   1638 D9C4C5D9                853
   163C C3C1D5C3C5D340E2  1648  854 CANSW   DC    CL13'CANCEL SWITCH'
   1644 E6C9E3C3C8              854
   1649 D9C5D840D2C5E85D  1650  855 REQCAB  DC    CL8'REQ KEY)'
   1651 E2E4E2D7C5C3E340  1679  856 MSGSUS  DC    CL41'SUSPECT OPEN PINS B02,B04,D02,D03,D04,D05'
   1659 D6D7C5D540D7C9D5        856
   1661 E240C2F0F26BC2F0        856
   1669 F46BC4F0F26BC4F0        856
   1671 F36BC4F0F46BC4F0        856
   1679 F5                      856
   167A D9C560E2C5C1E340  1683  857 MSGP2   DC    CL10'RE-SEAT P2'
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    1682 D7F2                    857
    1684 C5D5C440D6D940C3 1694   858 EOCSW  DC    CL17'END OR CAN SWITCH'
    168C C1D540E2E6C9E3C3        858
    1694 C8                      858
    1695 5C               1695   859        DC    CL1'*'
    1696 C4C1E3C140C3C8C1 16B4   860 MSG033 DC    CL31'DATA CHARACTER RECEIVED -  -,  '
    169E D9C1C3E3C5D940D9        860
    16A6 C5C3C5C9E5C5C440        860
    16AE 60404060684040          860
    16B5 C4C1E3C140C3C8C1 16D3   861 MSG034 DC    CL31'DATA CHARACTER EXPECTED -  -,  '
    16BD D9C1C3E3C5D940C5        861
    16C5 E7D7C5C3E3C5C440        861
    16CD 60404060684040          861
    16D4 5C               16D4   862        DC    CL1'*'
    16D5 D9C5C5C440E2E6C9 16EF   863 MSG035 DC    CL27'REED SWITCHES RECEIVED -  -'
    16DD E3C3C8C5E240D9C5        863
    16E5 C3C5C9E5C5C44060        863
    16ED 404060                  863
    16F0 4040404040404040 1700   864 MSG135 DC    CL17'                '
    16F8 4040404040404040        864
    1700 40                      864
    1701 D9C5C5C440E2E6C9 171B   865 MSG036 DC    CL27'REED SWITCHES EXPECTED -  -'
    1709 E3C3C8C5E240C5E7        865
    1711 D7C5C3E3C5C44060        865
    1719 404060                  865
    171C 4040404040404040 172C   866 MSG136 DC    CL17'                '
    1724 4040404040404040        866
    172C 40                      866
    172D E2E3C1E3E4E240D9 1740   867 MSG018 DC    CL20'STATUS RECEIVED WAS,'
    1735 C5C3C5C9E5C5C440        867
    173D E6C1E26B                867
    1741 E2E3C1E3E4E240C5 1754   868 MSG019 DC    CL20'STATUS EXPECTED WAS,'
    1749 E7D7C5C3E3C5C440        868
    1751 E6C1E26B                868
    1755 C9C640C1D5E840D6 177E   869        DC    CL42'IF ANY OTHER INTERRUPTING DEVICES ATTACHED'
    175D E3C8C5D940C9D5E3        869
    1765 C5D9D9E4D7E3C9D5        869
    176D C740C4C5E5C9C3C5        869
    1775 E240C1E3E3C1C3C8        869
    177D C5C4                    869
    177F 40E3D640E2E8E2E3 17A1   870 MSG141 DC    CL35' TO SYSTEM ARE OPERATING CORRECTLY,'
    1787 C5D440C1D9C540D6        870
    178F D7C5D9C1E3C9D5C7        870
    1797 40C3D6D9D9C5C3E3        870
    179F D3E86B                  870
    17A2 D6D4C9E340C3C8C5 17CB   871 MSG142 DC    CL42'OMIT CHECKING B3S2, B3P2, AND CABLE(KD141)'
    17AA C3D2C9D5C740C2F3        871
    17B2 E2F26B40C2F3D7F2        871
    178A 6840C1D5C440C3C1        871
    17C2 C2D3C54DD2C4F1F4        871
    17CA F15D                    871
    17CC C5D5C440D6D940C3 17D6   872 MEOC   DC    CL11'END OR CAN)'
    17D4 C1D55D                  872
    17D7 E2E3D9D6C2C540E2 17E0   873 STRBE  DC    CL10'STROBE SW)'
    17DF E65D                    873
    17E1 D9C5C5C440E2E65D 17E8   874 REED   DC    CL8'REED SW)'
    17E9 E4D7D7D940C3C1E2 17FA   875 UCREED DC    CL18'UPPR CASE REED SW)'
    17F1 C540D9C5C5C440E2        875
    17F9 E65D                    875
    17FB 5C               17FB   876        DC    CL1'*'
    17FC D9C5E2C5D9E5C5C4 180E   877 RESMSG DC    CL19'RESERVED BIT IS ON '
    1804 40C2C9E340C9E240        877
    180C D6D540                  877
                                 878 *
                                 879 *      STATUS MESSAGES
                                 880 *
    180F 01               180F   881        DC    XL1'01'
    1810 01               1810   882 FIRSY  DC    XL1'01'
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    1811 0101010101010101 181C   883        DC    12IL1'01'
    1819 01010101                883
    181D 15               181D   884        DC    IL1'21'
    181E 40               181E   885 MUCM   DC    XL1'40'
    181F D2C5E8C2D6C1D9C4 1832   886        DC    CL20'KEYBOARD MODE SWITCH'
    1827 40D4D6C4C540E2E6        886
    182F C9E3C3C8                886
    1833 0101             1834   887        DC    2IL1'01'
    1835 12               1835   888        DC    IL1'18'
    1836 40               1836   889 MSHIFT DC    XL1'40'
    1837 D2C5E8C2D6C1D9C4 1847   890        DC    CL17'KEYBOARD SHIFTING'
    183F 40E2C8C9C6E3C9D5        890
    1847 C7                      890
    1848 21               1848   891        DC    IL1'33'
    1849 40               1849   892 MRECS  DC    XL1'40'
    184A D9C5D840D6D940C5 1869   893        DC    CL32'REQ OR END OR CANCEL KEY SAMPLED'
    1852 D5C440D6D940C3C1        893
    185A D5C3C5D340D2C5E8        893
    1862 40E2C1D4D7D3C5C4        893
    186A 19               186A   894        DC    IL1'25'
    186B 40               186B   895 MREC   DC    XL1'40'
    186C D9C5D840D6D940C5 1883   896        DC    CL24'REQ OR END OR CANCEL KEY'
    1874 D5C440D6D940C3C1        896
    187C D5C3C5D340D2C5E8        896
    1884 16               1884   897        DC    IL1'22'
    1885 40               1885   898 MSTRBS DC    XL1'40'
    1886 E2E3D9D6C2C540E2 189A   899        DC    CL21'STROBE SWITCH SAMPLED'
    188E E6C9E3C3C840E2C1        899
    1896 D4D7D3C5C4              899
    189B 0E               189B   900        DC    IL1'14'
    189C 40               189C   901 MSTPB  DC    XL1'40'
    189D E2E3D9D6C2C540E2 18A9   902        DC    CL13'STROBE SWITCH'
    18A5 E6C9E3C3C8              902
    18AA 1B               18AA   903        DC    IL1'27'
    18AB 40               18AB   904 MDATE  DC    XL1'40'
    18AC D2C5E8C2D6C1D9C4 18C5   905        DC    CL26'KEYBOARD DATA KEYS ENABLED'
    18B4 40C4C1E3C140D2C5        905
    18BC E8E240C5D5C1C2D3        905
    18C4 C5C4                    905
    18C6 10               18C6   906        DC    IL1'16'
    18C7 40               18C7   907 MREQE  DC    XL1'40'
    18C8 D9C5D840D2C5E840 18D6   908        DC    CL15'REQ KEY ENABLED'
    18D0 C5D5C1C2D3C5C4          908
    18D7 0101010101010101 18E6   909        DC    16IL1'01'
    18DF 0101010101010101        909
    18E7 14               18E7   910        DC    IL1'20'
    18E8 40               18E8   911 MDATCK DC    XL1'40'
    18E9 D2C5E8C2D6C1D9C4 18F8   912        DC    CL19'KEYBOARD DATA CHECK'
    18F1 40C4C1E3C140C3C8        912
    18F9 C5C3D2                  912
    18FC 16               18FC   913        DC    IL1'22'
    18FD 40               18FD   914 MXLAT  DC    XL1'40'
    18FE D2C5E8C2D6C1D9C4 1912   915        DC    CL21'KEYBOARD XLATOR CHECK'
    1906 40E7D3C1E3D6D940        915
    190E C3C8C5C3D2              915
    1913 0B               1913   916        DC    IL1'11'
    1914 40               1914   917 MRET   DC    XL1'40'
    1915 D9C5E3E4D9D540D2 191E   918        DC    CL10'RETURN KEY'
    191D C5E8                    918
    191F 25               191F   919        DC    IL1'37'
    1920 40               1920   920 MDATP  DC    XL1'40'
    1921 D9C5E3E4D9D540D6 1944   921        DC    CL36'RETURN OR DATA KEY INTERRUPT PENDING'
    1929 D940C4C1E3C140D2        921
    1931 C5E840C9D5E3C5D9        921
    1939 D9E4D7E340D7C5D5        921
    1941 C4C9D5C7                921
    1945 08               1945   922        DC    IL1'08'
    1946 40               1946   923 MEND   DC    XL1'40'
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1947 C5D5C440D2C5E8   194D  924         DC    CL7'END KEY'
   194E 08               194E  925         DC    IL1'11'
   194F 40               194F  926 MCAN    DC    XL1'40'
   1950 C3C1D5C3C5D340D2 1959  927         DC    CL10'CANCEL KEY'
   1958 C5E8             1959  927
   195A 20               195A  928         DC    IL1'32'
   195B 40               195B  929 MEOCP   DC    XL1'40'
   195C C5D5C440D6D940C3 197A  930         DC    CL31'END OR CANCEL INTERRUPT PENDING'
   1964 C1D5C3C5D340C9D5       930
   196C E3C5D9D9E4D7E340       930
   1974 D7C5D5C4C9D5C7         930
   197B 1A               197B  931         DC    IL1'26'
   197C 40               197C  932 MREQP   DC    XL1'40'
   197D D9C5D840D2C5E840 1995  933         DC    CL25'REQ KEY INTERRUPT PENDING'
   1985 C9D5E3C5D9D9E4D7       933
   198D E340D7C5D5C4C9D5       933
   1995 C7                     933
   1996 40D5D6D5C5       199A  934 NONE    DC    CL5' NONE'
   199B E3D9C1D5E2D4C9E3 19B1  935 XMTMSG  DC    CL23'TRANSMIT BLOCK ASSEMBLY'                GK
   19A3 40C2D3D6C3D240C1       935
   19AB E2E2C5D4C2D3E8         935
                               936 *
                               937 *       CONSTANTS
                               938 *
   19B2 00000000         19B5  939 STATUS  DC    XL4'00'
   19B6 00000000         19B9  940 STSHDB  DC    XL4'00'
   19BA 0000             19BB  941         DC    XL2'00'
   19BC 0000             19BD  942 ZERO    DC    XL2'00'
   19BE 0001             19BF  943 ONE     DC    XL2'01'
   19C0 0002             19C1  944 TWO     DC    XL2'02'
   19C2 0003             19C3  945 THREE   DC    XL2'03'
   19C4 0004             19C5  946 FOUR    DC    XL2'04'
   19C6 0000             19C7  947 SAV1    DC    XL2'00'
   19C8 0000             19C9  948 SAV2    DC    XL2'00'
   19CA 00000000         19CD  949 WORK    DC    XL4'00'
   19CE 00000000         19D1  950 WORK1   DC    XL4'00'
   19D2 FFFF             19D3  951 HEXFF   DC    XL2'FFFF'
   19D4 00               19D4  952 SWITCH  DC    XL1'00'
   19D5 80               19D5  953 HEX80   DC    XL1'80'
   19D6 0000             19D7  954 SAVPSR  DC    XL2'00'
   19D8 0FFD             19D9  955 STATCA  DC    AL2(STATCK)
   19DA 0FF9             19DB  956 END7A   DC    AL2(END7)
   19DC 16F1             19DD  957 AMSG15  DC    AL2(MSG135-15)
   19DE 171D             19DF  958 AMSG16  DC    AL2(MSG136-15)
   19E0 11C7             19E1  959 ITLV1   DC    AL2(CONSLE)
   19E2 0000             19E3  960 KEEP1   DC    XL2'0000'
   19E4 0000             19E5  961 KEEP2   DC    XL2'0000'
   19E6 1169             19E7  962 AINCB1  DC    AL2(INCB1)
   19E8 1186             19E9  963 AINCB2  DC    AL2(INCB2)
   19EA C2F2E4F3         19ED  964 B2U3    DC    CL4'B2U3'
   19EE C2F2E4F2         19F1  965 B2U2    DC    CL4'B2U2'
   19F2 00044630         19F5  966 DELAYC  DC    XL4'00044630'
   19F6 0000             19F7  967 R1SAV1  DC    XL2'00'
   19F8 0000             19F9  968 R2SAV2  DC    XL2'00'
   19FA 1247             19FB  969 ADRSER  DC    AL2(SELECT)
   19FC 1261             19FD  970 TEMPAR  DC    AL2(RESET)
   19FE 1251             19FF  971 TEM1    DC    AL2(NOTRE1)
   1A00 40304008         1A03  972 STAT    DC    XL4'40304008'
                               973 *
                               974 *       EQUATES
                               975 *
                         0001  976 XR1     EQU   X'01'
                         0002  977 XR2     EQU   X'02'
                         0004  978 PSR     EQU   X'04'
                         0216  979 LINK    EQU   X'216'
                         022A  980 LOAD    EQU   X'22A'
                         021A  981 PRINT   EQU   X'21A'
                         0222  982 HALT    EQU   X'222'
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         0008  983 ARR     EQU   X'08'
                         021E  984 UNPACK  EQU   X'21E'
                         0020  985 P1IAR   EQU   X'20'
                         0010  986 KYBD    EQU   X'10'
                         FFFF  987         END
```

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ADRMSG	A	002	1164	0668	0660* 0671* 0672
ADRSER	A	002	19FB	0969	0701
AINCB1	A	002	19E7	0962	0682
AINCB2	A	002	19E9	0963	0688
AMSG15	A	002	19DD	0957	0579
AMSG16	A	002	19DF	0958	0593
ARR	C	001	0008	0983	0398 0400 0556 0753 0764
B1	A	004	0B9A	0181	0171
B10	A	006	0C3B	0225	0222
B11	A	003	0C89	0246	0231
B111	A	004	0B58	0165	0142
B12	A	003	0C67	0237	0234
B13	A	006	0C78	0242	0238
B14	A	003	0C9A	0251	0247
B15	A	003	0CAB	0256	0252
B16	A	003	0CEE	0274	0262
B161	A	003	0CBC	0261	0257
B162	A	004	0CDD	0270	0266
B163	A	004	0CE7	0272	0269
B17	A	003	0CFF	0279	0275
B19	A	003	0D10	0284	0280
B2	A	004	0AF3	0139	0147
B2U2	A	004	19F1	0965	0451
B2U3	A	004	19ED	0964	0457
B20	A	003	0D27	0290	0285
B21	A	003	0D3C	0296	0291
B22	A	003	0D4D	0301	0297
B23	A	003	0DAC	0332	0307
B231	A	003	0D5E	0306	0302
B246	A	004	0D85	0317	0311
B247	A	004	0D6C	0310	0314
B3	A	004	0B49	0161	0156
B5	A	004	0BB5	0188	0184
B6	A	004	0BD3	0196	0191
B7	A	003	0C50	0230	0203
B8	A	004	0C2A	0220	0206
B9	A	004	0C1B	0216	0208
CABL	A	005	13D4	0827	0433*
CABLE	A	005	13EE	0830	0429
CANSW	A	013	1648	0854	0504
CARD	A	004	130A	0808	0446* 0450 0451 0457
CARDS	A	004	130E	0809	0442
CHECK	A	004	111D	0646	0638
CHECK1	A	004	1135	0655	0650 0681
CHKPRT	A	004	0FB9	0527	0518
CONSLE	A	004	11C7	0697	0959
CON1	A	004	0ED8	0443	0468
CON11	A	004	0E89	0418	0407
COR	A	005	1060	0587	0579* 0588* 0593*
CO1	A	003	0EA3	0427	0417
C1	A	004	0E26	0376	0368
C2	A	003	0E35	0380	0375
DELAY	A	004	1291	0764	0146
DELAYC	A	004	19F5	0966	0770
DOER	A	003	1057	0584	0590
DOER1	A	004	104F	0582	0597
DOIT	A	005	1139	0656	0678
D11	A	006	12AE	0771	0768
D22	A	004	12C6	0778	0772
ENDD	A	004	12CE	0780	0764* 0777*
ENDSNS	A	004	0DD8	0344	0200
ENDSOR	A	004	128D	0758	0753*
ENDSTR	A	004	11C3	0691	0556*
ENDSW	A	010	15DD	0849	0474
ENDX1	A	004	0F49	0481	0476
ENDX2	A	004	0F58	0487	0482

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ENDX3	A	004	0F67	0493	0488
ENDZ	A	004	1275	0749	0698* 0705 0708*
END06	A	004	0FCC	0534	0528
END07	A	004	0F85	0505	0500
END071	A	003	0FA3	0517	0512
END072	A	004	0F94	0511	0506
END09	A	004	0F76	0499	0494
END091	A	004	0F3A	0475	0470
END61	A	004	0FE7	0541	0399* 0416*
END66	A	004	0ED4	0442	0428 0438
END7	A	004	0FF9	0548	0398* 0401* 0956
END7A	A	002	19D8	0956	0416
EOCSW	A	017	1694	0858	0510
EXPSTT	A	004	110C	0639	0684
FIRST	A	001	1810	0882	0646
FLAG	A	001	12D3	0793	0145* 0155 0161* 0165* 0178* 0267* 0475 0481 0487 0493 0511 0537*
FLAG0	C	001	0080	0794	0267 0475
FLAG1	C	001	0040	0795	0481
FLAG2	C	001	0020	0796	0487
FLAG3	C	001	0010	0797	0178 0493
FLAG4	C	001	0008	0798	0511
FOUR	A	002	19C5	0946	0777
HALT	C	001	0222	0982	0065 0077 0089 0102 0136 0330 0546 0729 0742
HEXFF	A	002	19D3	0951	0101
HEX80	A	001	19D5	0953	0467 0683
INC	A	003	0F11	0463	0445 0458
INCADR	A	003	1149	0659	0658* 0670
INCBTO	A	004	1165	0669	0664 0682* 0688*
INCB1	A	006	1169	0670	0962
INCB2	A	006	1186	0677	0669 0963
INCR	A	006	106B	0589	0586
INCZ	A	006	0F00	0457	0452
INC2	A	003	0EC7	0439	0432
ITLV1	A	002	19E1	0959	0039 0361 0747
KEEP1	A	002	19E3	0960	0662* 0676
KEEP2	A	002	19E5	0961	0670* 0671
KYBD	C	001	0010	0986	0064 0076 0088 0100 0362 0363 0369 0371 0380 0721 0723
LENGTH	A	001	1162	0667	0656* 0657*
LEN1	A	001	101D	0566	0192* 0220* 0239* 0248* 0308* 0568*
LEN2	A	001	10AC	0606	0216* 0226* 0243* 0253* 0334* 0608*
LEN3	A	001	10F2	0629	0151* 0185* 0631*
LINK	C	001	0216	0979	0104 0344
LOAD	C	001	022A	0980	0381
MARK	A	001	12D2	0784	0038* 0116* 0138* 0152* 0188* 0270* 0326* 0406 0469 0499 0505 0536* 0623 0685* 0709* 0710 0767 0769*
MARK0	C	001	0080	0785	0710
MARK1	C	001	0040	0786	0709
MARK2	C	001	0020	0787	0138 0767 0769
MARK3	C	001	0010	0788	0038 0116 0326 0406
MARK4	C	001	0008	0789	0469
MARK5	C	001	0004	0790	0499
MARK6	C	001	0002	0791	0270 0505
MARK7	C	001	0001	0792	0152 0188 0625
MCAN	A	001	194F	0926	0340*
MDATCK	A	001	18E8	0911	0204*
MDATE	A	001	18AB	0904	0298* 0377*
MDATP	A	001	1920	0920	0173* 0337*
MEND	A	001	1946	0923	0341*
MEOC	A	011	17D6	0872	0271
MEOCP	A	001	195B	0929	0338*
MOD1	A	001	0EC0	0435	0412* 0423*
MOD2	A	001	0EEB	0448	0413* 0424*
MOD3	A	001	0EFC	0454	0414* 0425*
MOD4	A	001	0F0D	0460	0415* 0426*
MREC	A	001	1868	0895	0263* 0276*
MRECS	A	001	1849	0892	0264* 0281*

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
MREQE	A	001	18C7	0907	0303* 0376*
MREQP	A	001	197C	0932	0339*
MRET	A	001	1914	0917	0258*
MSGCAB	A	001	13E8	0828	0053* 0158* 0225* 0242* 0268* 0271* 0287* 0437 0538 0538*
MSGDAT	A	028	163B	0853	0486
MSGEAR	A	032	13B5	0824	0048
MSGKY	A	016	15ED	0850	0492
MSGL2	A	036	161F	0852	0498
MSGP2	A	010	1683	0857	0320
MSGRES	A	014	13C3	0825	0063 0075 0087 0099 0131
MSGRSW	A	014	15FB	0851	0480
MSGSHF	A	012	14B4	0841	0516
MSGSUS	A	041	1679	0856	0325
MSG018	A	020	1740	0867	0636
MSG019	A	020	1754	0868	0644
MSG02	A	011	1354	0821	0052
MSG033	A	031	16B4	0860	0562 0563* 0567
MSG034	A	031	16D3	0861	0572 0573* 0577
MSG035	A	027	16EF	0863	0603
MSG036	A	027	171B	0865	0614
MSG04	A	050	1395	0823	0043 0059 0094
MSG05	A	033	141E	0834	0082 0150
MSG06	A	033	143F	0835	0070
MSG07	A	014	144D	0836	0120
MSG08	A	027	1478	0838	0135
MSG09	A	026	1492	0839	0125
MSG11	A	022	14A8	0840	0358
MSG12	A	052	14E8	0842	0776
MSG13	A	019	14FB	0843	0727
MSG135	A	017	1700	0864	0578 0578* 0587* 0607 0957
MSG136	A	017	172C	0866	0596 0596* 0618 0958
MSG14	A	049	152C	0844	0740
MSG141	A	035	17A1	0870	0522
MSG142	A	042	17CB	0871	0526
MSG19	A	035	157F	0846	0456
MSG20	A	049	15D3	0848	0462
MSHIFT	A	001	1836	0885	0292*
MSTRB	A	001	189C	0901	0162* 0193*
MSTRBS	A	001	1885	0898	0157* 0172*
MSWARN	A	048	155C	0845	0545
MUCM	A	001	181E	0885	0286*
MXLAT	A	001	18FD	0914	0211* 0232*
NEXT	A	004	11E6	0705	0703
NEXT1	A	004	11F6	0709	0707
NEXT2	A	004	120C	0715	0711 0719
NEXT3	A	004	121E	0720	0716
NEXT5	A	004	1201	0712	0714
NONE	A	005	199A	0934	0654 0680
NOTRES	A	004	122C	0724	0702 0704 0733
NOTRE1	A	004	1251	0737	0971
ONE	A	002	19BF	0943	0657 0771
POR	A	019	1349	0820	0053
PRINT	C	001	021A	0981	0040 0045 0049 0056 0060 0067 0072 0079 0084 0091 0096 0117 0122 0128 0132 0317 0322 0355 0408 0418 0434 0447 0453 0459 0471 0477 0483 0489 0495 0501 0507 0513 0519 0523 0530 0539 0542 0564 0574 0604 0615 0627 0633 0639 0641 0651 0665 0689 0724 0737 0773
PSR	C	001	0004	0978	0697 0748*
PTIAR	C	001	0020	0985	0698 0720* 0722*
REED	A	008	17E8	0874	0225 0242
REP	A	025	1304	0806	0411 0421
REPLCE	A	004	0E3D	0398	0054 0126 0153 0159 0163 0176 0179 0194 0212 0214 0218 0223 0228 0235 0240 0244 0249 0254 0259 0272 0277 0282 0288 0294 0299 0304 0315 0327 0335 0342 0378 0712 0717 0731 0734
REQCAB	A	008	1650	0855	0268
RESET	A	004	1261	0744	0736 0970

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
KESMSG	A	019	180E	0877	0150* 0181* 0182* 0186* 0187* 0630
RTN01	A	001	0A0D	0034	0024
RTN02	A	001	0AB2	0111	0036
RTN03	A	001	0DDC	0351	0113
R1SAV1	A	002	19F7	0967	0557* 0686 0744
R2SAV2	A	002	19F9	0968	0558* 0687 0745
SAVPSR	A	002	19D7	0954	0697* 0748
SAV1	A	002	19C7	0947	0403* 0534 0765* 0778
SAV2	A	002	19C9	0948	0404* 0535 0766* 0779
SELECT	A	004	1247	0734	0969
SENSOR	A	004	1279	0753	0169 0365 0372
STAT	A	004	1A03	0972	0115
STATCA	A	002	19D9	0955	0399
STATCK	A	004	0FFD	0556	0329 0541 0955
STATUS	A	004	19B5	0939	0139* 0140* 0141 0143 0148 0170 0174 0183 0189 0190 0196* 0197* 0198* 0199 0201 0366 0367 0373 0374 0561 0563 0581 0598 0619* 0620* 0621* 0637 0699* 0700* 0715 0754* 0755* 0756*
STRBE	A	010	17E0	0873	0158
STSHDB	A	004	19B9	0940	0115* 0199 0360* 0364* 0370* 0571 0573 0594 0609 0622* 0623* 0624* 0645 0746* 0757*
SWITCH	A	001	19D4	0952	0402* 0467* 0580* 0591 0595* 0632* 0683*
TABLEA	A	001	12E5	0801	0309
TABLE7	A	016	12E4	0800	0583
TEMPAR	A	002	19FD	0970	0722
TEM1	A	002	19FF	0971	0720
THREE	A	002	19C3	0945	0401 0708
TST	A	003	0EDC	0444	0443* 0464 0464* 0465
TSTBTO	A	003	1157	0663	0655* 0677 0677*
TSTR	A	003	105A	0585	0582* 0589 0589*
TST2	A	003	0EB1	0431	0430* 0440 0440* 0441
TWO	A	002	19C1	0944	0588
UCREED	A	018	17FA	0875	0287
UNPACK	C	001	021E	0984	0559 0569 0600 0611
UVWXYZ	A	001	0A00	0005	
WORK	A	004	19CD	0949	0598* 0599* 0602 0609* 0610* 0613 0770* 0771*
WORK1	A	004	19D1	0950	0400* 0405
XMTBLK	A	001	12D4	0799	0217* 0227* 0293* 0527 0529*
XMTMSG	A	023	19B1	0935	0533
XR1	C	001	0001	0976	0201* 0202 0205 0207 0209 0221 0230 0233 0237 0246 0251 0256 0261 0265 0274 0279 0284 0290 0296 0301 0306 0310 0332 0403 0405* 0427 0431 0444 0466 0466* 0517 0534* 0557 0581* 0585 0594* 0637* 0645* 0647 0648 0649 0663 0679 0679* 0686* 0705* 0706 0744* 0765 0778*
XR2	C	001	0002	0977	0309* 0310 0312 0312* 0313 0404 0429* 0433 0439 0439* 0442* 0446 0463 0463* 0535* 0558 0583* 0584 0584* 0587 0646* 0656 0658 0659 0659* 0660 0661 0661* 0662 0672* 0673 0675 0676* 0680 0687* 0745* 0766 0779*
ZERO	A	002	19BD	0942	0360

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

1031 5471 PRINTER KEYBOARD FAULT LOCATION DIAGNOSTICS MOD 12

OBJECT CARD LISTING

THE CHARACTER • INDICATES A BLANK COLUMN AND THE CHARACTERS D̄ Ē H̄ INDICATE NUMERIC SHIFT.

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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

 GBK GBD   PN 42  48247 EC 827805   PRINTER/KEYBOARD            MOD 12  84a84a8a                10310000
T+-Y:DCD     B-4    AA&  D B,H:DA.  K(* R8*BG /ZA&J+  ND+G /OHE S L_*B  G /YBB1(MCAHL:A(  IOH* E2H10310001
T+-Z5CT4AA T /OH  E LHLV*BG /YFC/|  Ca1  OH*BH/C/OH*  BFUD/ECa&8%BG /Y  FC/|Ca1 &OH*BH/C   SOH* 23Q10310002
T+-DO /ZAHJ&;D+|   /OHEA-8LO"<&H<B  G SH&8aBG /ZA</+  ND+L /OHEA-8LO"<  & C7"F)| /OHSD+L    /OH 1&%10310003
T+-,,E-H C)O< 1W  9F-<:DA.KOH*BFUD  +ED4&9*BG /YAF/K  KOH*+|&O  <BG /Y  BC/|COH*BF-Q,EGT    /OH LHa10310004
T+-%WH/CV+2 K4T   LF$<ODJW5+B R%"H  &NT-&F$|2U &: J.  LOH*KU*BGB?<8 JW  3a/ NC DQC/&;|A&  &aTY ¬9*10310005
T+-_/ J.KOH*+|&&    C-AD_|2DADaPAS  EC UL71¬-OH*+|K     T%AD_<aPAS*OH*  +|&&  C%AD_<("-G  4 ¬& 5- 10310006
T+->*C¬8A' G4C¬8  A' G4OH*K;L-&F$|  2DBDaPASE|EORHC-  HF$P2U ¬ /08'A     +/ K4aBGCT4<      a&A- ¬ZH10310007
T+-?PCT3NF 48 JW  3a/ <|A&&aT3FF 8  a1/-(+-DK4TX"F$&  9HAW3aZ ||B &GL1  *FI3 /08'A   +3   R_L% 28U10310008
T+-OK JW3+8 R%-4  CF$MR>*BAC)TB JW  2; DCaZA)|EOQ:G5    ?HA.P5  |HAFG-  B "H&B31*F|7 /08  'B   LEH10310009
T+-1( <BGCT4<     a.JB%+-DK5<BGCT4  -  HaHA )¬H  a-D  GOH*+|&-   OGD'4  P:CO_DHO: J.MOH*  +|K  )$Y10310010
T+-2H  I8 -|2UC<  aPAT'¬H Ba-DGOH*  +|&O  G5  |HAB30  -DA7 /08'B   C *  L7J¬Y|B4&,<BGCT4  -  H 8Ha10310011
T+-3C¬& Ba-D.|B   &G*BGCT4A  A'  C  2 &%a.JB%OH*+|&&    G-D "H&B31*FJL   /08'C    ; OAaZ  %|EO J0%10310012
T+-3=FF%aPA/I:H   CaZ (+Y K400GD'4  OH|HGBTYBD_H<B/|  -E'$ /08'B &H; -  AaZ .(EOQEaBGCT4  <     7-U10310013
T+-49; &AaZ .|EO  QK*BGCT4<  A8- C  2UADaPA-;CADL91¬  :OH*+|K&  X-B ¬H  &C31*FCQ: J.MOH*  +|&O $EO10310014
T+-54  I8& G2U %  aPAS,OH*+|&M  GS    ¬H&B31*F<¬ /08  'A&  ¬M BaYEH|B   &G*HBD>N_  H OHD  (/$H EZ<10310015
T+-6? -F'"OC  &5  %OH*+|&-  <BG /,  AB/ECD G /OHE SU  O;LY&D_. /08'A     OH*|"*BG SH& P5    |H :-U10310016
T+-7D-&%a.JB%OH*  +|&&  C1*FK aPAV  $|EOR-C1*FMaaPAV  FOH*+|&4  <BG /Q  C |""OH*BFUQOEH-  &O&O $L 10310017
T+-8V 1W9F$450AX  /a1 Aa1 B|D R_aB  GDXU8&AW3+O R%"H  &F¬<& L2 F$¬3D L   /1I9+H R%3V F$|  2D a aYY10310018
T+-9-|EOQ131*FH?   /08'A&  a1 AOH*  BH- 4B "aC D|:/X  R( -R4&8AC"OR030   F)&4 JXG( HR2LM  AF)D 5H810310019
T+-:$+J K47H&H*B  G /YBFJ<D| D+OCO  AC>%a &#a| D|C&O  AC=YR6"HGF%BG /,  BFJ<DD Da-&# |HD  +:30 ¬D 10310020
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1031 5471 PRINTER KEYBOARD FAULT LOCATION DIAGNOSTICS 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

T+-#O-&#a|HD|CP4    ?HAHaHBD=8a &:  2;  BaZ &. &L5 C    /OHE KML:|HGC;H  BA&8 C,H+%% -C,G  B /< ¬O<10310021
T+-aJCTOAC_58  C  2UBa% 1<H <BG /Y  AA/<HC&<LB/X1a-D  HOH*BF-DTEPa( 1<  HF;72 &T /OHE N&  N4=H ;RY10310022
T+-'<  -&+  #)C_7  H #*4-DAC- R5AX  NOB +6C-HD_.2U T    /OHE-&YN7LS D_|  2U T /OHE-&8N=3/   D_< K8010310023
T+-=GaZ HOH*BFYD  *ET%8HA.LaZ HOH*  BFYD&E;48DA.LaZ   HOH*BFYDUE/a8AA.  KaZ HOH*BFYD(EU-  8 /H :#a10310024
T+-"B4?H&B<BG /D  ADJEH+ -K4"H&B<B  G /DACAK4; D aZ   &OH*BFYE(E:G /OH  E-KYP23-AD_L2U O  # JH ):*10310025
T+-"'5<BG /DAE1W  1(&DR13MBF*U#G1.  K+"aK400LD=-L:*B  G /DKOH*|"*BG /D  F<AN*OH*BH/ AOH*    C& 9QY10310026
T+/ 8BAGF( DR'3&  BF¬X /OH; JW4E,   < AE4F$L /OHE-Ja  O_CO¬DA7 /OH; JW  8E%a< A$LF$T /OH  E-/a 7K%10310027
T+/A3E_<<C1$"EO   < JATF)4a AXMO-D  R%TOADE?B /.M8-H  B;    aZ .. DOa&   + JATF*D+ AA$DE?   HA  ;8810310028
T+/B>N36 F)L2-J-  < JATF)"B JW6|H   R5 O|E2%P.<BGDDa  < AXHF$H#-AXHOH*  BG-DR2/$>OH*BFYD  %EO  ¬$410310029
T+/CZ|BO&, O F*Y  R_T> F*, /OH; JX  HE1, /OHE-SOP.C?  "F$&#¬1W2+ODR%3?  "F$-#¬1W6+ODR_3-  AD_H aD*10310030
T+/DUaZ <OH*BFYH  LF 8aD1C2|  R5<B  G /DBEA) O-DR%?H  GD*BG /DKOH*BFYH  ME5LB JW60-HQC7W    GU E3H10310031
T+/E¬"-E9"O|2U T   /OHE-&MRWTOADN-  % AES  8 DOHR?20  DM% 8-H ( HJR+H   B L&BF;(8  C2U T   /OH ¬$810310032
T+/FEFYD     C /1F  FC  R9JE.CODJRAX  V(&HJR.4A |HA #1    LMBF;<+ AEQDNT   HAD94-DAT&& FR$    JD a/<10310033
T+/GN(&OADD-R908   F)&R5* -D&O#"1.  K(&DR'3MBF¬U< JE   YF;X /OHEUaBG      4AAXP(B K;C LF$<  ODJU 3&D10310034
T+/H&_LM-F¬? -AH  ZO|aJ9?HG&3MADX/  'A-.2 &Q+ JI8F*<   :&A.K+H K47H&BaB  GCT4E  C /1HA+<   R%"H ;:%10310035
T+/I.D ? /08'A&    OH*KCCM-F¬"3D    5HAX'a1 AOH*BF%Q  LE|%&H*BG SH&H*B  GCT4E  C /1H%OH*  +|Q  1H%10310036
T+/HF   C2/1C /OH  E1TDN.A SOH*BH/   S(&DR'3MBF¬U#OAW  7(* R8LMDF)-  /O     ( -KUC LF$<ODJW  5+OD O.Q10310037
T+/.AF$<# JW7OH*    C&HD_D4 JXG( H  R2L--D_.2D Y:HA.  KC <R3JX5CO<R3JW  "O DK1%BG /YB(AL   YC-D ¬L%10310038
T+/.aD_DR1LMAF**  5 /XIOH*       |E  ,aW?4E"/,OO?BE')   &DCOa?L8Q|G"6*P  P4aGC1MCF5_|L5>$  I5** E3H10310039
T+/<7&<|A6*J/8X,  AQ+¬X9=¬Ba_|2O?.  Ma%.25¬.Ba_¬2O?.  Ra%.28?.BaDL2O?|  La%.35".8a=.2O?.  Ua'U 'JU10310040
T+/(21)/ 5_V 5'X  OOaPE1DC15*J)OaT  EO'I O>LLO>.S8aG  R84C1Q)R 8aPS86C   B5>|H&(XE6DCP1)P  D&<D EYU10310041
T+/+_5*J 5'XOOaP  E1DC15*LIOaGT5_X  S&+.H5>LL1DCB1MC  O1%$I1UCA5;/ 1)X  R5_V 5%|C9(XS&<X  N&(U a#<10310042
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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+/|Y5>LT2)PE&|G	R1;.E84CT2<N 2<G	L8@|H1*|K&<|AQ_|	EL;¬X9=¬X&DA &DA	&DA &DA &DA &DA	&D K9*10310043
T+/&T&(.D@¬L11@|	5'¬|GO"P5@%¬C'|$	16*PQ&(¬E5*J 8%T	O9(|D&<.E&($NE'¬	R5%|E1*J 5%$F5'X	OO@M 5.D10310044
T+/J;1*J 8%TO9(|	D&<.E&($NE'XE6DC	P1)PD&($F1>.E5;.	E&<V/5UCT1;.T2)N	4'$W1)V 8%TI1>(	,&(* 3HU10310045
T+/KR6*PS8UCA5*J	6*PL1*GS1MCS5@G	C1MCB0)XI1UCR5>L	T2)PE&(XU5;I 5>P	E6MC2&(LI5*PN0*.	L1M 9ID10310046
T+/LM2)PT1)XR9(¬	T8UCT1;.T5_V 8%T	I1>(4%PY5)R O@T	A5*¬E&($F&+.TO;|	U8UCA1>|E6MCO5*N	5<U RE 10310047
T+/M|5;LT1OCE6)X	O6MCM0;/ 1;¬I8>|	I5;|E6)XU5=(5)$	T&(XE8%PT2)PT1)X	R9(¬T&(XE8%PT&<.	Y&<& P/-10310048
T+/NH2:.AO_|EQFC	R1)¬LO*|E&<E-O?.	L@W?AQ<.25¬.WO)X	N2)PGQ(XE8%PT8@X	N14CT2<XS&<PR6|$	R&<- OQ@10310049
T+/OE0)|T&(LA:DC	B1MCI5;PA4@XDQ<E	-O?.U@UCM0;/ O%N	8>$A5'¬E1DCW2;|	H&<E-O¬|A@4A-OOC	B@>& N.010310050
T+/P @4CM0;/ O%N	8>$A5'¬E1DCW2;|	H&<E-O?.U'MCP0)X	T&G?S&(LA:DCD2*$	F1)V,&(XE8=LR5MC	T5U 53&10310051
T+/P#5_XI14CL5%(	O*$T1)V 8>$A5@P	N1DCS9%XTO@TO6MC	K1;/ 2<PL1DCD5>$	N6*PQ9<PS84CS9%X	TO@- JEM10310052
T+/Q66*N-8%PA84C	AQ<.24"I,&+.U8_¬	EO=(5_¬E5MCP2)N	9|G25_V 1<GTOMC	K1;/ 2<XT&($U84C	O1U MI-10310053
T+/R15_XD1)XCO)P	C1)(8>$I8@|H6*P	Q&(.E:E7S9+.P1*|	T&($P1)N 5@XN8UC	B@|I,O?C4E@LO@W?	D@|< 2H-10310054
T+/E%E@LO'F?D@|P	R1OCS1*GT&(¬21)P	D&($R&<|A5MCS9%X	TO@/*1<GTOMCC2<G	RO*|T1)V 6*PC1*X	V1*& EE410310055
T+/$X&FA &FA,&DC	DO;|A&<|HO)XAO=|	E6MCE9'¬EO=|E1DA	-&DA-E4A P(XE1*J	8>$I8@|H1;I 6*P	C1*U 2R*10310056
T+/*S9*PD&FA &FA	&DA &DA &DA &DA	&DA &(XE1*J 8>$	I8@|H1;I 1;¬P1*|	T1*J @DA @DA &DA	&D 2HD10310057
T+/))&DA &DA &DA	&+.TO;|U8UCR1*|	E2;PE1DCW0;I,8>|	A8=LS&<PX5@PC8@P	D&+$A8W?I1UCA5;/	5>< KJD10310058
T+/;Q2<PR&<XN8@P	R6;LP8@XN14CD1;P	IO@PS&<GT8@GC2<P	D&+|O&+.Y8>|E5DC	A6*N 5_¬E6*GT2)P	G&<< ;BM10310059
T+/¬L5_XR1*|T4=/	,5_LI84CC2<PC4%X	N14CB@=.2E4CB@'¬	2E4CA5*J O@GB4@N	(4%L1'|E)1)PD&($	R&<< 1$-10310060
T+/-+0)N)8>|R5%.	E&+.WP)XE1*J 8>R	)9(¬P6MCCO;.E&(X	E1*J 8>R)P(XE8%P	R9*PD&<.I84CI8UC	O5M O2U10310061
T+//I &DA &DA &D	A &DA &DN&(.E:<.	OO)XD&(LO1<N 8>$	I8@|H &DK&(.E:<.	OO)XD&+.H2*$T2)P	GHM =8 10310062
T+/SD6*PQ&($R&<P	N1DCO6MCCO)PC1)(	4%PY&+.A5(¬L1*&	R&(XE6DCO6MCE5*J	5_V O@GNO@PL&(.	E:AQ :HQ10310063
T+/S"&+.T6)$B1MC	S9%XTO@/ 8%GM5'|	E1 9 8>|R5%.E&+.	W2:|C2A_ 4%PYO_$	A6*J 1<GTOMCK1;T	S&<M 2K<10310064

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+/T:5*GB4@PDDDC	R1)/ 4%PY&<PNO*.	L1*&A &DA &DA &D	A &DA &DAEDCK1;T	B5%GR1DCDO;|A&<|	H1*< ¬AO10310065
T+/U54/R 4%PYO_$	A6*J 9'|A8'$R&<|	H1*|KB4CR1;|U6)N	4%PYIMCR1;|U6)N	5_V 1<GTOMCK1;/	2)M N1 10310066
T+/V08@PR6;LP84C	P1)PD2)PGBDCE5*J	4%PYB4CCO)PC1)(	4%PYHDCE5*J 5_V	O@GNO@PL&<XN8@P	R6;& 13D10310067
T+/W,5=(5@PN1<X	N11Z 6*PQ&(.E:DC	I5;|E6)XU5=(5@P	N1<XN14CN5_PE8'X	A5;.M2;(O_|OO'I	O;H JSD10310068
T+/XW8%PMO_|Y	D	- C &	C""OB	|"&"9E?DPGJGG	AD =A810310069
TGAYCEJFFO?.U@@.	29|H ADQO AI	GDWDKMM O& -			63%10310070
E"""*E7*=¬DC"PH$	="7M&F| | C	F% ASC R A	SO Q	17350630751	110750.U10310071

LAST PAGE

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                           2 *                                    LAST CHG :09:10 75
                           3         DECK  4
                           4         SEQ   0
   0A00                    5 UVWXYZ  START X'0A00'
                           6         TREP
                           7
                           8 ********************************************************************
                           9 *                                                                  *
                          10 *                 5471 PRINTER KEYBOARD DIAGNOSTIC TESTS           *
                          11 *                                                                  *
                          12 *                       SECTION 4--KEYBOARD TESTS                  *
                          13 *                                                                  *
                          14 ********************************************************************
                          15 ****                                                              ****
                          16 ****                      SECTION PREFACE                         ****
                          17 ****                                                              ****
                          18 ********************************************************************
                          19
                          20         DC    XL2'1041'          PROGRAM ID AND REVISION LEVEL
   0A00 1041       0A01   21         DC    XL1'00'            SECTION FLAGS
   0A02 00         0A02   22         DC    XL1'00'            CURRENT ROUTINE NUMBER
   0A03 00         0A03   23         DC    XL2'00'            RESERVED
   0A04 0000       0A05   24         DC    AL2(RTN01)         ADDRESS OF FIRST ROUTINE
   0A06 0A0D       0A07   25         DC    XL2'00'            RESERVED
   0A08 0000       0A09   26         DC    XL3'105000'        PRINTER KEYBOARD SPUT ENTRY
   0A0A 105000     0A0C   27
                          27
                          28 *
                          29 *********                                          *********
                          30 * RTN01 *                REQUEST KEY TEST          * RTN01 *
                          31 *********                                          *********
                          32 *
                          33 *                                ROUTINE PREFIX
   0A0D 01                0A0D 34 RTN01  DC    XL1'01'            ROUTINE NUMBER
   0A0E 80                0A0E 35        DC    XL1'80'            INTERVENTION REQUIRED
   0A0F 0AAA              0A10 36        DC    AL2(RTN02)         ADDRESS OF NEXT ROUTINE
                          37
                          37
   0A11 F3 10 00                38        SIO   X'00',KYBD         RESET KEYBOARD
   0A14 0C 05 1857 1D8E         39        MVC   MSG16-9(6),REQ
   0A1A C0 87 021A              40        B     PRINT              PRINT
   0A1E 42                0A1E  41        DC    XL1'42'             'REQ
   0A1F 10                0A1F  42        DC    IL1'16'               KEY
   0A20 1860              0A21  43        DC    AL2(MSG16)              TEST'
   0A22 10C2              0A23  44        DC    XL2'10C2'
   0A24 0C 05 184C 1D8E         45        MVC   MSG15-4(6),REQ
   0A2A C0 87 021A              46        B     PRINT              PRINT
   0A2E 06                0A2E  47        DC    XL1'06'             'PRESS AND
   0A2F 1C                0A2F  48        DC    IL1'28'               RELEASE
   0A30 1850              0A31  49        DC    AL2(MSG15)              REQ KEY'
   0A32 C0 87 0222              50        B     HALT               HALT
   0A36 10C2              0A37  51        DC    XL2'10C2'           OF -C2-
   0A38 3B 20 15F8              52        SBF   MARK,MARK2
   0A3C 0C 03 1D3B 1D9E         53        MVC   STSHDB(4),STREQ    SET XPTD STATUS
   0A42 C0 87 154D              54        B     SIO
   0A46 39 40 1D37              55        TBF   STATUS,X'40'       CHECK END OR CAN INT PEND OFF
   0A4A F2 10 0B                56        JT    D1
   0A4D 3C 5C 1CDD              57        MVI   MEOCP,C'*'
   0A51 C0 87 0FDD              58        B     REPLCE             REPLACE
   0A55 0C0000            0A57  59        DC    XL3'0C0000'         B2N2, B2P2
   0A58 3B 80 1D37              60 D1     TBN   STATUS,X'80'       CHECK REQ KEY
   0A5C F2 10 0B                61        JT    D2                  INT PEND ON
   0A5F 3C 5C 1CFE              62        MVI   MREQP,C'*'
   0A63 C0 87 0FDD              63        B     REPLCE             REPLACE
   0A67 0C0000            0A69  64        DC    XL3'0C0000'         B2N2, B2P2
   0A6A 3B 80 1D34              65 D2     SBF   STATUS-3,X'80'     SET UPPR CASE MODE SW OFF
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   0A6E 0D 00 1D34 1D38         66        CLC   STATUS-3(1),STSHDB-3 CHECK REED SWITCHES
   0A74 F2 81 2B                67        JE    D3
   0A77 38 80 1D37              68        TBN   STATUS,X'80'        CHECK FOR UPPER CASE MODE ON
   0A7B F2 10 07                69        JT    *+10
   0A7E 3C 5C 1CFE              70        MVI   MREQP,C'*'
   0A82 F2 87 04                71        J     *+7
   0A85 3C 2D 124C              72        MVI   LEN2,X'2D'
   0A89 3D 40 1D34              73        CLI   STATUS-3,X'40'      CHECK FOR A X'40'
   0A8D F2 01 07                74        JNE   *+10
   0A90 3A 01 15FA              75        SBN   XMTBLK,X'01'        SET XMIT BLK FLAG                GK
   0A94 C0 87 0FDD              76        B     REPLCE              REPLACE
   0A98 240002            0A9A  77        DC    XL3'240002'          B2N2, B2S2, CABLE(GC553)        GK
   0A9B C0 87 0FDD              78        B     REPLCE              REPLACE
   0A9F 040000            0AA1  79        DC    XL3'040000'          A-B2N2
   0AA2 C0 87 138C              80 D3     B     SIORT               ENABLE INTERRUPTS
   0AA6 C0 87 0216              81        B     LINK
                                82 *
                                83 *********                                          *********
                                84 * RTN02 *                CANCEL KEY TEST           * RTN02 *
                                85 *********                                          *********
                                86 *
                                87 *                               ROUTINE PREFIX
   0AAA 02                0AAA  88 RTN02  DC    XL1'02'             ROUTINE NUMBER
   0AAB 80                0AAB  89        DC    XL1'80'             INTERVENTION REQUIRED
   0AAC 0B26              0AAD  90        DC    AL2(RTN03)          ADDRESS OF NEXT ROUTINE
                                91
                                91
   0AAE F3 10 00                92        SIO   X'00',KYBD          RESET KEYBOARD
   0AB1 0C 05 1857 1D94         93        MVC   MSG16-9(6),CANCEL
   0AB7 C0 87 021A              94        B     PRINT               PRINT
   0ABB 42                0ABB  95        DC    XL1'42'              'CANCEL
   0ABC 10                0ABC  96        DC    IL1'16'                KEY
   0ABD 1860              0ABE  97        DC    AL2(MSG16)               TEST'
   0ABF 10C3              0AC0  98        DC    XL2'10C3'
   0AC1 0C 05 184C 1D94         99        MVC   MSG15-4(6),CANCEL
   0AC7 C0 87 021A             100        B     PRINT               PRINT
   0ACB 06                0ACB 101        DC    XL1'06'              'PRESS AND
   0ACC 1C                0ACC 102        DC    IL1'28'                RELEASE
   0ACD 1850              0ACE 103        DC    AL2(MSG15)               CANCEL KEY'
   0ACF C0 87 0222             104        B     HALT                HALT
   0AD3 10C3              0AD4 105        DC    XL2'10C3'            OF -C3-
   0AD5 3B 20 15F8             106        SBF   MARK,MARK2
   0AD9 0C 03 1D3B 1DA6        107        MVC   STSHDB(4),STCAN     SET XPTD STATUS
   0ADF C0 87 154D             108        B     SIO
   0AE3 38 60 1D37             109        TBN   STATUS,X'60'        CHECK END OR CAN ON
   0AE7 39 90 1D37             110        TBF   STATUS,X'90'        CHECK REQ AND END OFF
   0AEB F2 10 25               111        JT    E1
   0AEE 3C 5C 1CFE             112        MVI   MREQP,C'*'
   0AF2 3C 5C 1CC8             113        MVI   MEND,C'*'
   0AF6 38 40 1D37             114        TBN   STATUS,X'40'        CHECK IF PENDING ON
   0AFA F2 10 04               115        JT    *+7
   0AFD 3C 5C 1CDD             116        MVI   MEOCP,C'*'
   0B01 38 20 1D37             117        TBN   STATUS,X'20'        CHECK IF CAN ON
   0B05 F2 10 04               118        JT    *+7
   0B08 3C 5C 1CD1             119        MVI   MCAN,C'*'
   0B0C C0 87 0FDD             120        B     REPLCE              REPLACE
   0B10 0C0000            0B12 121        DC    XL3'0C0000'          B2N2, B2P2
   0B13 C0 87 138C             122 E1     B     SIORT               ENABLE INTERRUPTS
   0B17 38 20 1D37             123        TBN   STATUS,X'20'        CHECK CAN STILL ON
   0B1B C0 10 0216             124        BT    LINK
   0B1F C0 87 0FDD             125        B     REPLCE              REPLACE
   0B23 080000            0B25 126        DC    XL3'080000'          B2P2
                               127 *
                               128 *********                                          *********
                               129 * RTN03 *                END KEY TEST              * RTN03 *
                               130 *********                                          *********
                               131 *
                               132 *                              ROUTINE PREFIX
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0B26 03               0B26  133 RTN03  DC    XL1'03'           ROUTINE NUMBER
   0B27 80               0B27  134        DC    XL1'80'           INTERVENTION REQUIRED
   0B28 0BAD             0B29  135        DC    AL2(RTN04)        ADDRESS OF NEXT ROUTINE
                               136
                               136
   0B2A F3 10 00               137        SIO   X'00',KYBD        RESET KEYBOARD
   0B2D 0C 05 1857 1D9A        138        MVC   MSG16-9(6),END
   0B33 C0 87 021A             139        B     PRINT             PRINT
   0B37 42               0B37  140        DC    XL1'42'            'END
   0B38 10               0B38  141        DC    IL1'16'              KEY
   0B39 1860             0B3A  142        DC    AL2(MSG16)            TEST'
   0B3B 10C4             0B3C  143        DC    XL2'10C4'
   0B3D 0C 05 184C 1D9A        144        MVC   MSG15-4(6),END
   0B43 C0 87 021A             145        B     PRINT             PRINT
   0B47 06               0B47  146        DC    XL1'06'            'PRESS AND
   0B48 1C               0B48  147        DC    IL1'28'              RELEASE
   0B49 1850             0B4A  148        DC    AL2(MSG15)            END KEY
   0B4B C0 87 0222             149        B     HALT              HALT
   0B4F 10C4             0B50  150        DC    XL2'10C4'          OF -C4-
   0B51 3B 20 15F8             151        SBF   MARK,MARK2
   0B55 0C 03 1D3B 1DA2        152        MVC   STSHDB(4),STEND   SET XPTD STATUS
   0B5B C0 87 154D             153        B     SIO
   0B5F 38 10 1D37             154        TBN   STATUS,X'10'      CHECK END KEY ON
   0B63 39 20 1D37             155        TBF   STATUS,X'20'      CHECK CANCEL KEY OFF
   0B67 F2 10 16               156        JT    F1
   0B6A 3C 5C 1CD1             157        MVI   MCAN,C'*'
   0B6E 38 10 1D37             158        TBN   STATUS,X'10'      CHECK IF END ON
   0B72 F2 10 04               159        JT    *+7
   0B75 3C 5C 1CC8             160        MVI   MEND,C'*'
   0B79 C0 87 0FDD             161        B     REPLCE            REPLACE
   0B7D 0C0000           0B7F  162        DC    XL3'0C0000'        B2N2, B2P2
   0B80 38 40 1D37             163 F1     TBN   STATUS,X'40'      CHECK INTRPT PEND ON
   0B84 39 80 1D37             164        TBF   STATUS,X'80'      CHECK REQ INT PEND OFF
   0B88 F2 10 0B               165        JT    F2
   0B8B 3C 5C 1CFE             166        MVI   MREQP,C'*'
   0B8F C0 87 0FDD             167        B     REPLCE            REPLACE
   0B93 0C0000           0B95  168        DC    XL3'0C0000'        B2N2, B2P2
   0B96 C0 87 138C             169 F2     B     SIORT             ENABLE INTERRUPTS
   0B9A 38 10 1D37             170        TBN   STATUS,X'10'      CHECK ENC STILL ON
   0B9E C0 10 0216             171        BT    LINK
   0BA2 3C 5C 1CC8             172        MVI   MEND,C'*'
   0BA6 C0 87 0FDD             173        B     REPLCE            REPLACE
   0BAA 080000           0BAC  174        DC    XL3'080000'        B2P2
                               175 *
                               176 *********                                 *********
                               177 * RTN04 *                 SHIFT KEY TEST  * RTN04 *
                               178 *********                                 *********
                               179 *
                               180 *                           ROUTINE PREFIX
   0BAD 04               0BAD  181 RTN04  DC    XL1'04'            ROUTINE PREFIX
   0BAE 50               0BAE  182        DC    IL1'80'            INTERVENTION REQUIRED
   0BAF 0CF4             0BB0  183        DC    AL2(RTN05)         ADDRESS OF NEXT ROUTINE
                               184
                               184
   0BB1 F3 10 00               185        SIO   X'00',KYBD        RESET KEYBOARD
   0BB4 0C 05 1857 1D85        186        MVC   MSG16-9(6),SHIFT
   0BBA C0 87 021A             187        B     PRINT             PRINT
   0BBE 42               0BBE  188        DC    XL1'42'            'SHIFT
   0BBF 10               0BBF  189        DC    IL1'16'              KEY
   0BC0 1860             0BC1  190        DC    AL2(MSG16)            TEST'
   0BC2 10E6             0BC3  191        DC    XL2'10E6'
   0BC4 C0 87 021A             192        B     PRINT             PRINT
   0BC8 01               0BC8  193        DC    XL1'01'            'RESET
   0BC9 0E               0BC9  194        DC    IL1'14'              THE
   0BCA 171B             0BCB  195        DC    AL2(MSGRES)           HALT'
   0BCC 3B 20 15F8             196        SBF   MARK,MARK2
   0BD0 C0 87 021A             197        B     PRINT             PRINT
   0BD4 06               0BD4  198        DC    XL1'06'            'HOLD
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0BD5 13               0BD5  199        DC    IL1'19'              SHIFT KEY
   0BD6 1A2D             0BD7  200        DC    AL2(MSG17)            DOWN'
   0BD8 C0 87 0222             201        B     HALT              HALT
   0BDC 10E6             0BDD  202        DC    XL2'10E6'          OF -E6-
   0BDE 0C 03 1D38 1DB9        203        MVC   STSHDB(4),STUPPR  SET XPTD STATUS
   0BE4 C0 87 15C3             204        B     SIOS              WAIT FOR DEPRESSION
   0BE8 3D 8E 1D34             205        CLI   STATUS-3,X'8E'
   0BEC F2 81 51               206        JE    G1
   0BEF 38 80 1D34             207        TBN   STATUS-3,X'80'    CHECK UC MODE SW ON
   0BF3 38 02 1D35             208        TBN   STATUS-2,X'02'    CHECK KYBD SHIFTING ON
   0BF7 F2 90 0B               209        JF    *+14
   0BFA 3C 2D 124C             210        MVI   LEN2,X'2D'
   0BFE C0 87 0FDD             211        B     REPLCE            REPLACE
   0C02 040000           0C04  212        DC    XL3'040000'        B2N2
   0C05 38 80 1D34             213        TBN   STATUS-3,X'80'    CHECK UC MODE ON
   0C09 F2 10 23               214        JT    G2
   0C0C 3C 5C 1BA0             215        MVI   MUCM,C'*'
   0C10 3D 5A 1D36             216        CLI   STATUS-1,X'5A'    CHECK CHAR ENCODE FOR X'5A'
   0C14 F2 01 07               217        JNE   *+10
   0C17 C0 87 0FDD             218        B     REPLCE            REPLACE
   0C1B 040000           0C1D  219        DC    XL3'040000'        B2N2
   0C1E 0C 07 1735 1A12        220        MVC   MSGCAB-11(8),MSGUCM
   0C24 3A 01 15FA             221        SBN   XMTBLK,X'01'       SET XMIT BLK FLAG                    GK
   0C28 C0 87 0FDD             222        B     REPLCE            REPLACE
   0C2C 280002           0C2E  223        DC    XL3'280002'        B2P2, B2S2, CABLE(GC553)
   0C2F 0C 07 1735 1A1A        224 G2     MVC   MSGCAB-11(8),MSGRD
   0C35 3C 2D 124C             225        MVI   LEN2,X'2D'
   0C39 C0 87 0FDD             226        B     REPLCE            REPLACE
   0C3D 200002           0C3F  227        DC    XL3'200002'        B2S2, CABLE(GC553)
   0C40 38 02 1D35             228 G1     TBN   STATUS-2,X'02'    CHECK SHIFTING ON
   0C44 F2 10 0B               229        JT    G3
   0C47 3C 5C 1BB8             230        MVI   MSHIFT,C'*'
   0C4B C0 87 0FDD             231        B     REPLCE            REPLACE
   0C4F 0C0000           0C51  232        DC    XL3'0C0000'        B2N2, B2P2
   0C52 F3 10 00               233 G3     SIO   X'00',KYBD        RESET KEYBOARD
   0C55 C0 87 14E7             234        B     STROBE
   0C59 C0 87 021A             235        B     PRINT             PRINT
   0C5D 42               0C5D  236        DC    XL1'42'            'RESET
   0C5E 0E               0C5E  237        DC    IL1'14'              THE
   0C5F 171B             0C60  238        DC    AL2(MSGRES)           HALT'
   0C61 10E7             0C62  239        DC    XL2'10E7'
   0C63 C0 87 021A             240        B     PRINT             PRINT
   0C67 06               0C67  241        DC    XL1'06'            'RELEASE
   0C68 11               0C68  242        DC    IL1'17'              SHIFT
   0C69 1A3E             0C6A  243        DC    AL2(MSG18)            KEY'
   0C6B C0 87 0222             244        B     HALT              HALT
   0C6F 10E7             0C70  245        DC    XL2'10E7'          OF -E7-
   0C71 0C 03 1D3B 1DBD        246        MVC   STSHDB(4),STLWR   SET XPTD STATUS
   0C77 3B 20 15F8             247        SBF   MARK,MARK2
   0C7B C0 87 15C3             248        B     SIOS
   0C7F 3D 3E 1D34             249        CLI   STATUS-3,X'3E'    CHECK RD SW
   0C83 F2 81 51               250        JE    G4                 COMBINATION
   0C86 38 01 1D37             251        TBN   STATUS,X'01'      CHECK DATA CHECK ON
   0C8A F2 10 35               252        JT    G6
   0C8D 39 80 1D34             253        TBF   STATUS-3,X'80'    CHECK UPPR CASE MODE OFF
   0C91 F2 10 23               254        JT    G7
   0C94 3C 5C 1BA0             255        MVI   MUCM,C'*'
   0C98 3D 7E 1D36             256        CLI   STATUS-1,X'7E'    CHECK CHAR ENCODE FOR X'7E'
   0C9C F2 01 07               257        JNE   *+10
   0C9F C0 87 0FDD             258        B     REPLCE            REPLACE
   0CA3 040000           0CA5  259        DC    XL3'040000'        B2N2
   0CA6 0C 07 1735 1A12        260        MVC   MSGCAB-11(8),MSGUCM
   0CAC 3A 01 15FA             261        SBN   XMTBLK,X'01'       SET XMIT BLK FLAG                    GK
   0CB0 C0 87 0FDD             262        B     REPLCE            REPLACE
   0CB4 280002           0CB6  263        DC    XL3'280002'        B2S2, CABLE(GC553), B2P2
   0CB7 3C 2D 124C             264 G7     MVI   LEN2,X'2D'
   0CBB C0 87 0FDD             265        B     REPLCE            REPLACE
   0CBF 040000           0CC1  266        DC    XL3'040000'        B2N2
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0CC2 0C 07 1735 1A1A       267 G6      MVC   MSGCAB-11(8),MSGRD
   0CC8 3C 5C 1C6A            268         MVI   MDATCK,C'*'
   0CCC 3C 2D 124C            269         MVI   LEN2,X'2D'
   0CD0 C0 87 0FDD            270         B     REPLCE                 REPLACE
   0CD4 200002          0CD6  271         DC    XL3'200002'             B2S2, CABLE(GC553)
   0CD7 38 02 1D35            272 G4      TBN   STATUS-2,X'02'         CHECK SHIFTING ON
   0CDB F2 10 0B              273         JT    G5
   0CDE 3C 5C 188A            274         MVI   MSHIFT,C'*'
   0CE2 C0 87 0FDD            275         B     REPLCE                 REPLACE
   0CE6 0A0000          0CE8  276         DC    XL3'0A0000'             B2N2, B2S2
   0CE9 F3 10 07              277 G5      SIO   X'07',KYBD             ENABLE INTERRUPTS
   0CEC C0 87 14E7            278         B     STROBE
   0CF0 C0 87 0216            279         B     LINK
                              280 *
                              281 *********                                        *********
                              282 * RTN05 *              CARRIER RETURN KEY TEST   * RTN05 *
                              283 *********                                        *********
                              284 *
                              285 *                          ROUTINE PREFIX
   0CF4 05                0CF4  286 RTN05   DC    XL1'05'                 ROUTINE NUMBER
   0CF5 80                0CF5  287         DC    XL1'80'                 INTERVENTION REQUIRED
   0CF6 0D8B              0CF7  288         DC    AL2(RTN06)              ADDRESS OF NEXT ROUTINE
                              289
                              289
   0CF8 F3 10 00              290         SIO   X'00',KYBD              RESET KEYBOARD
   0CFB 3B 20 15F8            291         SBF   MARK,MARK2
   0CFF 0C 05 1857 1DC3       292         MVC   MSG16-9(6),RETRN
   0D05 C0 87 021A            293         B     PRINT                   PRINT
   0D09 42                0D09  294         DC    XL1'42'                  'RETURN
   0D0A 10                0D0A  295         DC    IL1'16'                    KEY
   0D0B 1860              0D0C  296         DC    AL2(MSG16)                  TEST'
   0D0D 10C5              0D0E  297         DC    XL2'10C5'
   0D0F 0C 05 184C 1DC3       298         MVC   MSG15-4(6),RETRN
   0D15 C0 87 021A            299         B     PRINT                   PRINT
   0D19 06                0D19  300         DC    XL1'06'                  'PRESS AND
   0D1A 1C                0D1A  301         DC    IL1'28'                    RELEASE
   0D1B 1850              0D1C  302         DC    AL2(MSG15)                  RETURN KEY'
   0D1D C0 87 0222            303         B     HALT                    HALT
   0D21 10C5              0D22  304         DC    XL2'10C5'                OF -C5-
   0D23 0C 03 1D38 1DC7       305         MVC   STSHDB(4),STRET         SET XPTD STATUS
   0D29 3B 20 15F8            306         SBF   MARK,MARK2
   0D2D C0 87 15C3            307         B     SIOS                    WAIT FOR STATUS CHANGE
   0D31 39 03 1D37            308         TBF   STATUS,X'03'            CHECK XLATOR CHECK
   0D35 F2 10 0F              309         JT    H1                       AND DATA CHECK OFF
   0D38 3C 5C 1C6A            310         MVI   MDATCK,C'*'
   0D3C 3C 5C 1C7F            311         MVI   MXLAT,C'*'
   0D40 C0 87 0FDD            312         B     REPLCE                  REPLACE
   0D44 080000            0D46  313         DC    XL3'080000'              A-B2P2
   0D47 38 0C 1D37            314 H1      TBN   STATUS,X'0C'
   0D4B F2 10 19              315         JT    H2
   0D4E 38 08 1D37            316         TBN   STATUS,X'08'            CHECK IF INTERRUPT PEND IS ON
   0D52 F2 10 07              317         JT    *+10
   0D55 3C 5C 1CA2            318         MVI   MDATP,C'*'
   0D59 F2 87 04              319         J     *+7
   0D5C 3C 5C 1C96            320         MVI   MRET,C'*'
   0D60 C0 87 0FDD            321         B     REPLCE                  REPLACE
   0D64 0C0000            0D66  322         DC    XL3'0C0000'              B2N2, B2P2
   0D67 3D 1C 1D34            323 H2      CLI   STATUS-3,X'1C'          CHECK
   0D6B F2 81 11              324         JE    H3                       REED SWITCHES
   0D6E 3C 2D 124C            325         MVI   LEN2,X'2D'
   0D72 0C 07 1735 1A1A       326         MVC   MSGCAB-11(8),MSGRD
   0D78 C0 87 0FDD            327         B     REPLCE                  REPLACE
   0D7C 200002            0D7E  328         DC    XL3'200002'              B2S2, CABLE(GC553)
   0D7F C0 87 138C            329 H3      B     SIORT                   ENABLE INTERRUPTS
   0D83 C0 87 14E7            330         B     STROBE
   0D87 C0 87 0216            331         B     LINK
                              332 *
                              333 *********                                        *********
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              334 * RTN06 *              DATA KEY TEST-LOWER CASE   * RTN06 *
                              335 *********                                        *********
                              336 *
                              337 *                          ROUTINE PREFIX
   0D8B 06                0D8B  338 RTN06   DC    XL1'06'                 ROUTINE NUMBER
   0D8C 80                0D8C  339         DC    XL1'80'                 INTERVENTION REQUIRED
   0D8D 0E90              0D8E  340         DC    AL2(RTN07)              ADDRESS OF NEXT ROUTINE
                              341
                              341
   0D8F F3 10 00              342         SIO   X'00',KYBD              RESET KEYBOARD
   0D92 0C 04 18AE 1DAF       343         MVC   MSG-7(5),LOWER
   0D98 C0 87 021A            344         B     PRINT                   PRINT
   0D9C 46                0D9C  345         DC    XL1'46'                  'IN LOWER
   0D9D 51                0D9D  346         DC    IL1'81'                    SHIFT PRESS
   0D9E 18F7              0D9F  347         DC    AL2(MSG013)                 ALL DATA KEYS'
   0DA0 10C6              0DA1  348         DC    XL2'10C6'
   0DA2 C0 87 0222            349         B     HALT                    HALT
   0DA6 10C6              0DA7  350         DC    XL2'10C6'                OF -C5-
   0DA8 C2 01 15FA            351         LA    TABLE1-1,XR1            CHARACTER ENCODE TABLE
   0DAC C2 02 1656            352         LA    TABLE3-1,XR2            REED SWITCH TABLE
   0DB0 D2 01 01              353 REPOB   LA    1(,XR1),XR1             INCREMENT
   0DB3 E2 02 01              354         LA    1(,XR2),XR2              COUNTERS
   0DB6 BD FF 00              355         CLI   0(,XR2),X'FF'           CHECK
   0DB9 C0 81 0216            356         BE    LINK                     FOR END
   0DBD 0C 03 1D38 1DAA       357 REPOB1  MVC   STSHDB(4),STLWR1
   0DC3 1C 00 1D3A 00         358         MVC   STSHDB-1(1),0(,XR1)     SET XPTD
   0DC8 2C 00 1D38 00         359         MVC   STSHDB-3(1),0(,XR2)      STATUS
   0DCD 39 20 15F8            360         SBF   MARK,MARK2
   0DD1 C0 87 15C3            361         B     SIOS                    WAIT FOR STATUS CHANGE
   0DD5 8D 00 00 1D34         362         CLC   0(1,XR2),STATUS-3       CHECK
   0DDA F2 81 29              363         JE    I1                       REED SW
   0DDD 3C 2D 124C            364         MVI   LEN2,X'2D'
   0DE1 39 01 1D37            365         TBF   STATUS,X'01'            CHECK DATA CHECK OFF
   0DE5 F2 10 10              366         JT    *+19
   0DE8 0C 07 1735 1B7D       367         MVC   MSGCAB-11(8),REED
   0DEE C0 87 0FDD            368         B     REPLCE                  REPLACE
   0DF2 200002            0DF4  369         DC    XL3'200002'              B2S2, CABLE(GC553)
   0DF5 F2 87 88              370         J     I4
   0DF8 3A 40 15F9            371         SBN   FLAG,FLAG1
   0DFC C0 87 0FDD            372         B     REPLCE                  REPLACE
   0E00 040000            0E02  373         DC    XL3'040000'              B2N2
   0E03 F2 87 7A              374         J     I4
   0E06 4D 00 00 1D36         375 I1      CLC   0(1,XR1),STATUS-1       CHECK CHAR
   0E0A F2 81 30              376         JE    I2                       ENCODED
   0E0E 3C 20 11BD            377         MVI   LEN1,X'20'
   0E12 38 01 1D37            378         TBN   STATUS,X'01'            CHECK FOR DATA CHECK
   0E16 F2 90 0A              379         JF    *+13
   0E19 C0 87 0FDD            380         B     REPLCE                  REPLACE
   0E1D 080000            0E1F  381         DC    XL3'080000'              B2P2
   0E20 F2 87 5D              382         J     I4
   0E23 38 02 1D37            383         TBN   STATUS,X'02'            CHECK XLATOR CHECK ON
   0E27 F2 90 0A              384         JF    *+13
   0E2A C0 87 0FDD            385         B     REPLCE                  REPLACE
   0E2E 080000            0E30  386         DC    XL3'080000'              B2P2
   0E31 F2 87 4C              387         J     I4
   0E34 C0 87 0FDD            388         B     REPLCE                  REPLACE
   0E38 0C0000            0E3A  389         DC    XL3'0C0000'              B2N2, B2P2
   0E3B F2 87 42              390         J     I4
   0E3E 38 08 1D37            391 I2      TBN   STATUS,X'08'            CHECK INT PEND ON
   0E42 39 04 1D37            392         TBF   STATUS,X'04'            CHECK RET OFF
   0E46 F2 10 12              393         JT    *+21
   0E49 3C 5C 1CA2            394         MVI   MDATP,C'*'
   0E4D 3C 5C 1C96            395         MVI   MRET,C'*'
   0E51 C0 87 0FDD            396         B     REPLCE                  REPLACE
   0E55 0C0000            0E57  397         DC    XL3'0C0000'              A-B2P2, N2
   0E58 F2 87 25              398         J     I4
   0E5B 39 03 1D37            399         TBF   STATUS,X'03'            CHECK DATA CHECKS OFF
   0E5F F2 10 12              400         JT    I3
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0E62 3C 5C 1C6A            401        MVI   MDATCK,C'*'
   0E66 3C 5C 1C7F            402        MVI   MXLAT,C'*'
   0E6A C0 87 0FDD            403        B     REPLCE              REPLACE
   0E6E 080000          0E70  404        DC    XL3'080000'          B2P2
   0E71 F2 87 0C              405        J     I4
   0E74 C0 87 138C      I3    406        B     SIORT               ENABLE INTERRUPTS
   0E78 C0 87 14E7            407        B     STROBE              RESET STROBE SWITCH
   0E7C C0 87 1363            408        B     PRINTT              PRINT CHARACTER
   0E80 C0 87 0212      I4    409        B     TEST                CHECK
   0E84 38 01 020B            410        TBN   SBYTE3,SSW1F         FOR TIGHT
   0E88 C0 10 0DBD            411        BT    REPOB1                LOOP BIT ON
   0E8C C0 87 0DB0            412        B     REPOB               PREPARE FOR NEXT KEY DEPRESSION
                              413 *
                              414 *********                                              *********
                              415 * RTN07 *              DATA KEY TEST-UPPER CASE        * RTN07 *
                              416 *********                                              *********
                              417 *
                              418 *                              ROUTINE PREFIX
   0E90 07                0E90 419 RTN07  DC    XL1'07'             ROUTINE NUMBER
   0E91 80                0E91 420        DC    XL1'80'             INTERVENTION REQUIRED
   0E92 0F6C              0E93 421        DC    AL2(RTN08)          ADDRESS OF NEXT ROUTINE
                              422
                              423        SIO   X'00',KYBD          RESET KEYBOARD
   0E94 F3 10 00              424        B     PRINT               PRINT
   0E97 C0 87 021A      0E98  425        DC    XL1'41'              LOCK
   0E9B 41              0E9C  426        DC    IL1'19'               UPPER
   0E9C 13              0E9E  427        DC    AL2(MSG17)             SHIFT DOWN
   0E9D 1A2D            0EA0  428        DC    XL2'10C7'
   0E9F 10C7                  429        B     PRINT               PRINT
   0EA1 C0 87 021A      0EA5  430        DC    XL1'01'              'IN UPPER
   0EA5 01              0EA6  431        DC    IL1'66'                SHIFT PRESS
   0EA6 42              0EA8  432        DC    AL2(MSG013)             ALL DATA KEYS'
   0EA7 18F7                  433        B     PRINT               PRINT
   0EA9 C0 87 021A      0EAD  434        DC    XL1'06'              UNLOCK
   0EAD 06              0EAE  435        DC    IL1'17'               SHIFT
   0EAE 11              0EB0  436        DC    AL2(MSG18)             KEY
   0EAF 1A3E                  437        B     HALT                HALT
   0EB1 C0 87 0222      0E86  438        DC    XL2'10C7'            OF -C6-
   0EB5 10C7                  439        SBF   MARK,MARK2
   0EB7 3B 20 15F8            440        MVC   STSHDB(4),STUPFR
   0EBB 0C 03 1D3B 1DB9       441 J2     SNS   STATUS-2,X'13'
   0EC1 30 13 1D35            442        SNS   STATUS,X'11'
   0EC5 30 11 1D37            443        TBN   STATUS-3,X'80'
   0EC9 38 80 1D34            444        JT    J1
   0ECD F2 10 13              445        B     DELAY
   0ED0 C0 87 14A6            446        B     J2
   0ED4 C0 87 0EC1            447        MVI   MUCM,C'*'
   0ED8 3C 5C 1BA0            448        B     REPLCE              REPLACE
   0EDC C0 87 0FDD      0EE2  449        DC    XL3'C80000'          A-B2P2
   0EE0 080000                450 J1     B     STROBE
   0EE3 C0 87 14E7            451        LA    TABLE2-1,XR1        CHARACTER ENCODE TABLE
   0EE7 C2 01 1628            452        LA    TABLE4-1,XR2        REED SWITCH TABLE
   0EEB C2 02 1684            453 REPOC  IA    1(,XR1),XR1         INCREMENT
   0EEF D2 01 01              454        LA    1(,XR2),XR2          COUNTERS
   0EF2 E2 02 01              455        CLI   0(,XR2),X'FF'       CHECK FOR
   0EF5 BD FF 00              456        BE    LINK                 END OF TABLE
   0EF8 C0 81 0216            457 REPOC1 MVC   STSHDB(4),STLWR1     SET
   0EFC 0C 03 1D3B 1DAA       458        MVC   STSHDB-1(1),0(,XR1)    XPTD
   0F02 1C 00 1D3A 00         459        MVC   STSHDB-3(1),0(,XR2)     STATUS
   0F07 2C 00 1D38 00         460        SBF   MARK,MARK2
   0F0C 3B 20 15F8            461        B     SIOS                WAIT FOR STATUS CHANGE
   0F10 C0 87 15C3            462        CLC   0(1,XR2),STATUS-3   CHECK REED SW
   0F14 8D 00 00 1D34         463        CLC   0(1,XR1),STATUS-1   CHECK CHARACTER ENCODE
   0F19 4D 00 00 1D36         464        JE    J3
   0F1E F2 81 12              465        SBN   FLAG,FLAG1
   0F21 3A 40 15F9            466        MVI   LEN1,X'20'
   0F25 3C 20 118D            467        B     REPLCE              REPLACE
   0F29 C0 87 0FDD
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0F2D 080000          0F2F  468        DC    XL3'080000'          A-B2P2
   0F30 F2 87 29              469        J     J5
   0F33 38 08 1D37            470 J3     TBN   STATUS,X'08'        CHECK INT PEND ON
   0F37 39 07 1D37            471        TBF   STATUS,X'07'        CHECK RET AND DATA CHECKS OFF
   0F3B F2 10 12              472        JT    J4
   0F3E 3C 5C 1C6A            473        MVI   MDATCK,C'*'
   0F42 3C 5C 1C96            474        MVI   MRET,C'*'
   0F46 C0 87 0FDD            475        B     REPLCE              REPLACE
   0F4A 080000          0F4C  476        DC    XL3'080000'          A-B2P2
   0F4D F2 87 0C              477        J     J5
   0F50 C0 87 138C      J4    478        B     SIORT               ENABLE INTERRUPTS
   0F54 C0 87 14E7            479        B     STROBE              RESET STROBE SWITCH
   0F58 C0 87 1363            480        B     PRINTT              PRINT CHARACTER
   0F5C C0 87 0212      J5    481        B     TEST                CHECK
   0F60 38 01 020B            482        TBN   SBYTE3,SSW1F         FOR TIGHT
   0F64 C0 10 0EFC            483        BT    REPOC1                LOOP BIT ON
   0F68 C0 87 0EEF            484        B     REPOC               PREPARE FOR NEXT KEY DEPRESSION
                              485 *
                              486 *********                                              *********
                              487 * RTN08 *              CHARACTER ENCODE TEST           * RTN08 *
                              488 *********                                              *********
                              489 *
                              490 *                              ROUTINE PREFIX
   0F6C 08                0F6C 491 RTN08  DC    XL1'08'             ROUTINE PREFIX
   0F6D 80                0F6D 492        DC    XL1'80'             INTERVENTION REQUIRED
   0F6E FFFF              0F6F 493        DC    XL2'FFFF'           LAST ROUTINE
                              494
                              494
   0F70 C0 87 021A            495        B     PRINT               PRINT
   0F74 42              0F74  496        DC    XL1'42'              CHAR
   0F75 15              0F75  497        DC    IL1'21'               ENCODE
   0F76 19AB            0F77  498        DC    AL2(MSGCEN)            TEST
   0F78 10C8            0F79  499        DC    XL2'10C8'
   0F7A C0 87 021A            500        B     PRINT               PRINT
   0F7E 01              0F7E  501        DC    XL1'01'              PRESS
   0F7F 2D              0F7F  502        DC    IL1'45'                AND RELEASE
   0F80 19D8            0F81  503        DC    AL2(MSGFG)              F AND G KEYS
   0F82 C0 87 021A            504        B     PRINT               PRINT
   0F86 06              0F86  505        DC    XL1'06'              PRESS
   0F87 1B              0F87  506        DC    IL1'27'                AND RELEASE
   0F88 1780            0F89  507        DC    AL2(MSG08)              SPACE BAR
   0F8A C0 87 0222            508        B     HALT                HALT
   0F8E 10C8            0F8F  509        DC    XL2'10C8'            OF -C8-
   0F90 F3 10 01        SYNC3 510        SIO   X'01',KYBD          RESET KEYBOARD
   0F93 30 13 1D35      SYNC4 511        SNS   STATUS-2,X'13'      SAVE
   0F97 30 11 1D37            512        SNS   STATUS,X'11'          STATUS
   0F9B 38 08 1D37            513        TBN   STATUS,X'08'
   0F9F C0 90 0F93            514        BF    SYNC4
   0FA3 3D C6 1D36            515        CLI   STATUS-1,C'F'       CHECK
   0FA7 C0 81 0F90            516        BE    SYNC3                FOR -F- KEY
   0FAB 3D C7 1D36            517        CLI   STATUS-1,C'G'       CHECK FOR
   0FAF C0 81 0F90            518        BE    SYNC3                -G- KEY
   0FB3 3D 40 1D36            519        CLI   STATUS-1,X'40'      CHECK FOR
   0FB7 F2 81 1E              520        JE    ENDH                  SPACE BAR
   0FBA C0 87 021A            521        B     PRINT               PRINT
   0FBE C2              0FBE  522        DC    XL1'C2'              CHECK
   0FBF 21              0FBF  523        DC    IL1'33'               BALL
   0FC0 19F9            0FC1  524        DC    AL2(MSGBL)             COMPENSATOR
   0FC2 100C            0FC3  525        DC    XL2'100C'               ADJUSTMENT
   0FC4 0C 03 1D3B 1D77       526        MVC   STSHDB(4),STATFC
   0FCA 3C 20 118D            527        MVI   LEN1,X'20'
   0FCE C0 87 119D            528        B     STATCK              PRINT STATUS
   0FD2 C0 87 0222            529        B     HALT                HALT
   0FD6 100C            0FD7  530        DC    XL2'100C'            OF -0C-
   0FD8 C0 87 022A      ENDH  531        B     LOAD
   0FDC 00              0FDC  532        DC    XL1'00'
                              533 ************************************************************************
                              534 * REPLCE *                                              * REPLCE *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              535 **********   THIS SUBROUTINE IS USED TO PRINT CARD CALLOUTS  **********
                              536 *            WHICH HAVE BEEN ISOLATED AS FAILING UNITS.              *
                              537 *            LINKAGE IS VIA                                          *
                              538 *                                                                    *
                              539 *                B     REPLCE                                        *
                              540 *                DC    XL3'XXXXXX'                                   *
                              541 *                                                                    *
                              542 *            WHERE -XXXXXX- REPRESENTS THE CARDS AND/OR CABLES       *
                              543 *            TO BE CHECKED.                                          *
                              544 *                                                                    *
                              545 ************************************************************************
                              546
                              546
 OFDD 34 08 119C              547 REPLCE ST    END7+3,ARR           SAVE RETURN ADDRESS
 OFE1 0C 01 118A 1D5B         548        MVC   END61+3(2),STATCA
 OFE7 34 08 1D53              549        ST    WORK1,ARR            MODIFY
 OFEB 0E 01 119C 1D45         550        ALC   END7+3,THREE(2)       RETURN
 OFF1 3C 00 1D56              551        MVI   SWITCH,X'00'
 OFF5 34 01 1D49              552        ST    SAV1,XR1             SAVE
 OFF9 34 02 1D48              553        ST    SAV2,XR2              REGISTERS
 OFFD 35 01 1D53              554        L     WORK1,XR1
 1001 39 10 15F8              555        TBF   MARK,MARK3
 1005 F2 10 21                556        JT    CON11
 1008 C0 87 021A              557        B     PRINT                PRINT
 100C 02              100C    558        DC    XL1'02'               NON-ERROR
 100D 19              100D    559        DC    IL1'25'                REPLACE
 100E 16DB            100F    560        DC    AL2(REP)                MESSAGE
 1010 0C 01 118A 1D5D         561        MVC   END61+3(2),END7A
 1016 3C 01 1060              562        MVI   MOD1,X'01'
 101A 3C 01 108B              563        MVI   MOD2,X'01'
 101E 3C 01 109C              564        MVI   MOD3,X'01'
 1022 3C 01 10AD              565        MVI   MOD4,X'01'
 1026 F2 87 1A                566        J     CO1
 1029 C0 87 021A              567 CON11  B     PRINT                PRINT
 102D C2              102D    568        DC    XL1'C2'               ERROR
 102E 19              102E    569        DC    IL1'25'                REPLACE
 102F 16DB            1030    570        DC    AL2(REP)                MESSAGE
 1031 1001            1032    571        DC    XL2'1001'
 1033 3C 81 1060              572        MVI   MOD1,X'81'
 1037 3C 81 108B              573        MVI   MOD2,X'81'
 103B 3C 81 109C              574        MVI   MOD3,X'81'
 103F 3C 81 10AD              575        MVI   MOD4,X'81'
 1043 7D 00 02                576 CO1    CLI   2(,XR1),X'00'
 1046 F2 81 2B                577        JE    END66
 1049 C2 02 1746              578        LA    CABLE,XR2            SETUP FOR
 104D 3C 01 1052              579        MVI   TST2+1,X'01'          CABLE PRINTOUT
 1051 78 00 02                580 TST2   TBN   2(,XR1),*-*          CHECK FOR
 1054 F2 90 10                581        JF    INC2                   BITS ON
 1057 2C 04 172C 00           582        MVC   CABL(5),0(,XR2)      MOVE LOGIC PAGE # INTO PRINTOUT
 105C C0 87 021A              583        B     PRINT                PRINT
 1060 01              1060    584 MOD1   DC    XL1'01'               'CHECK
 1061 25              1061    585        DC    IL1'37'                CABLE
 1062 1740            1063    586        DC    AL2(MSGCAB)             XXXXX'
 1064 F2 87 0D                587        J     END66
 1067 E2 02 05                588 INC2   LA    5(,XR2),XR2
 106A 0E 00 1052 1052         589        ALC   TST2+1(1),TST2+1     INCREMENT
 1070 C0 20 1051              590        BNOL  TST2                  MESSAGE POINTER
 1074 C2 02 16E5              591 END66  LA    CARDS,XR2            SET CARD POINTER
 1078 3C 01 107D              592 CON1   MVI   TST+1,X'01'
 107C 78 00 00                593 TST    TBN   0(,XR1),*-*          CHECK FOR
 107F F2 90 2F                594        JF    INC                   CARD PRINTING
 1082 2C 03 16E1 00           595        MVC   CARD(4),0(,XR2)
 1087 C0 87 021A              596        B     PRINT                PRINT
 108B 01              108B    597 MOD2   DC    XL1'01'               EACH
 108C 06              108C    598        DC    IL1'06'                CARD
 108D 16E1            108E    599        DC    AL2(CARD)
 108F 0D 03 16E1 1D73         600        CLC   CARD(4),B2U2         CHECK FOR B2U2
 1095 F2 01 08                601        JNE   INCZ                  CARD PRINTOUT
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

 1098 C0 87 021A              602        B     PRINT                PRINT
 109C 01              109C    603 MOD3   DC    XL1'01'               B2U2
 109D 23              109D    604        DC    IL1'35'                SWAPABLE
 109E 1883            109F    605        DC    AL2(MSG19)              WITH A-A3A3
 10A0 0D 03 16E1 1D6F         606 INCZ   CLC   CARD(4),B2U3
 10A6 F2 01 08                607        JNE   INC
 10A9 C0 87 021A              608        B     PRINT                PRINT
 10AD 01              10AD    609 MOD4   DC    XL1'01'               A-B2U3
 10AE 23              10AE    610        DC    IL1'35'                SWAPPABLE
 10AF 18A6            10B0    611        DC    AL2(MSG20)              WITH A-B2U5
 10B1 E2 02 04                612 INC    LA    4(,XR2),XR2          CHECK
 10B4 0E 00 107D 107D         613        ALC   TST+1(1),TST+1          ALL BITS
 10BA C0 20 107C              614        BNOL  TST                     PER BYTE
 10BE D2 01 01                615        LA    1(,XR1),XR1
 10C1 0E 00 1D56 1D57         616        ALC   SWITCH,HEX80         CHECK
 10C7 C0 20 1078              617        BNOL  CON1                  BOTH BYTES
 10CB 38 08 15F8              618        TBN   MARK,MARK4           CHECK
 10CF F2 90 08                619        JF    END091                END SW
 10D2 C0 87 021A              620        B     PRINT                PRINT
 10D6 81              10D6    621        DC    XL1'81'               END
 10D7 0A              10D7    622        DC    IL1'10'                SWITCH
 10D8 1901            10D9    623        DC    AL2(ENDSW)
 10DA 38 80 15F9              624 END091 TBN   FLAG,FLAG0
 10DE F2 90 08                625        JF    ENDX1
 10E1 C0 87 021A              626        B     PRINT                PRINT
 10E5 81              10E5    627        DC    XL1'81'               REQ
 10E6 0E              10E6    628        DC    IL1'14'                SWITCH
 10E7 191F            10E8    629        DC    AL2(MSGRSW)
 10E9 38 40 15F9              630 ENDX1  TBN   FLAG,FLAG1
 10ED F2 90 08                631        JF    ENDX2
 10F0 C0 87 021A              632        B     PRINT                PRINT
 10F4 81              10F4    633        DC    XL1'81'               KEY
 10F5 1C              10F5    634        DC    IL1'28'                HIT
 10F6 195F            10F7    635        DC    AL2(MSGDAT)             OUT OF ORDER
 10F8 38 20 15F9              636 ENDX2  TBN   FLAG,FLAG2
 10FC F2 90 08                637        JF    ENDX3
 10FF C0 87 021A              638        B     PRINT                PRINT
 1103 81              1103    639        DC    XL1'81'               KEY
 1104 10              1104    640        DC    IL1'16'                HELD
 1105 1911            1106    641        DC    AL2(MSGKY)              DOWN
 1107 38 10 15F9              642 ENDX3  TBN   FLAG,FLAG3
 110B F2 90 08                643        JF    END09
 110E C0 87 021A              644        B     PRINT                PRINT
 1112 81              1112    645        DC    XL1'81'               RE-SEAT L2
 1113 24              1113    646        DC    IL1'36'
 1114 1943            1115    647        DC    AL2(MSGL2)
 1116 38 04 15F8              648 END09  TBN   MARK,MARK5
 111A F2 90 08                649        JF    END07
 111D C0 87 021A              650        B     PRINT                PRINT
 1121 81              1121    651        DC    XL1'81'               CANCEL
 1122 0D              1122    652        DC    IL1'13'                SWITCH
 1123 196C            1124    653        DC    AL2(CANSW)
 1125 38 02 15F8              654 END07  TBN   MARK,MARK6
 1129 F2 90 08                655        JF    END072
 112C C0 87 021A              656        B     PRINT                PRINT
 1130 81              1130    657        DC    XL1'81'               'END
 1131 11              1131    658        DC    IL1'17'                OR CAN
 1132 1A0A            1133    659        DC    AL2(EOCSW)              SWITCH
 1134 38 08 15F9              660 END072 TBN   FLAG,FLAG4           CHECK FOR
 1138 F2 90 08                661        JF    END071                SHIFT KEY
 113B C0 87 021A              662        B     PRINT                 MESSAGE
 113F 81              113F    663        DC    XL1'81'
 1140 0C              1140    664        DC    IL1'12'
 1141 178C            1142    665        DC    AL2(MSGSHF)
 1143 78 01 00                666 END071 TBN   0(,XR1),X'01'
 1146 F2 90 10                667        JF    PRTMSG                                        GK
 1149 C0 87 021A              668        B     PRINT                PRINT
 114D 81              114D    669        DC    XL1'81'               INTERRUPT
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   114E 4D               114E  670         DC    IL1'77'                 MESSAGE
   114F 1B4B             1150  671         DC    AL2(MSG141)
   1151 C0 87 021A             672         B     PRINT
   1155 81               1155  673         DC    XL1'81'
   1156 2A               1156  674         DC    IL1'42'
   1157 1B75             1158  675         DC    AL2(MSG142)
   1159 3B 01 15FA             676 PRTMSG  TBN   XMTBLK,X'01'          SET FOR XMIT BLK FLAG          GK
   115D F2 90 0C               677         JF    END06                                                  GK
   1160 3B 01 15FA             678         SBF   XMTBLK,X'01'          RESET XMIT BLK FLAG            GK
   1164 C0 87 021A             679         B     PRINT                 PRINT                          GK
   1168 81               1168  680         DC    XL1'81'                'TRANSMIT                     GK
   1169 17               1169  681         DC    IL1'23'                    BLOCK                     GK
   116A 1D33             1168  682         DC    AL2(XMTMSG)                 ASSEMBLY'                GK
   116C 35 01 1D49             683 END06   L     SAV1,XR1              RESTORE
   1170 35 02 1D4B             684         L     SAV2,XR2               REGISTERS
   1174 3B 1F 15F8             685         SBF   MARK,X'1F'            RESET FLAGS
   1178 3B FF 15F9             686         SBF   FLAG,X'FF'            RESET PROGRAM FLAGS
   117C 0C 13 1740 1741        687         MVC   MSGCAB(20),MSGCAB+1
   1182 C0 87 021A             688         B     PRINT                 SPACE
   1186 92               1186  689         DC    XL1'92'                TWO LINES
   1187 C0 87 119D             690 END61   B     STATCK                PRINT STATUS
   118B C0 87 021A             691         B     PRINT                 PRINT
   118F 86               118F  692         DC    XL1'86'                DO NOT
   1190 30               1190  693         DC    IL1'48'                 RESET HALT
   1191 1834             1192  694         DC    AL2(MSWARN)
   1193 C0 87 0222             695         B     HALT                  HALT
   1197 1001             1198  696         DC    XL2'1001'              OF -01-
   1199 C0 87 0000             697 END7    B     *-*
                               698 ********************************************************************
                               699 *                                                                  *
                               700 *          THIS SUBROUTINE IS USED TO PRINT THE EXPECTED           *
                               701 *          AND RECEIVED STATUS, REED SWITCH COMBINATION,           *
                               702 *          AND DATA CHARACTER ENCODED.                             *
                               703 *                                                                  *
                               704 ********************************************************************
   119D 34 08 1362             705 STATCK  ST    ENDSTR+3,ARR
   11A1 34 01 1D7D             706         ST    R1SAV1,XR1              SAVE
   11A5 34 02 1D7F             707         ST    R2SAV2,XR2               REGISTERS
   11A9 C0 87 021E             708         B     UNPACK                UNPACK
   11AD 01               11AD  709         DC    IL1'01'                 CHARACTER
   11AE 1D36             11AF  710         DC    AL2(STATUS-1)            RECEIVED
   11B0 1A5A             11B1  711         DC    AL2(MSG033-4)
   11B2 0C 00 1A5E 1D36        712         MVC   MSG033(1),STATUS-1
   11B8 C0 87 021A             713         B     PRINT                 PRINT
   11BC 81               11BC  714         DC    XL1'81'                 CHARACTER
   11BD 1F               11BD  715 LEN1    DC    IL1'31'                  RECEIVED
   11BE 1A5E             11BF  716         DC    AL2(MSG033)
   11C0 3C 1F 11BD             717         MVI   LEN1,X'1F'
   11C4 C0 87 021E             718         B     UNPACK                UNPACK
   11C8 01               11C8  719         DC    IL1'01'                 CHARACTER
   11C9 1D3A             11CA  720         DC    AL2(STSHDB-1)            EXPECTED
   11CB 1A79             11CC  721         DC    AL2(MSG034-4)
   11CD 0C 00 1A7D 1D3A        722         MVC   MSG034(1),STSHDB-1
   11D3 C0 87 021A             723         B     PRINT                 PRINT
   11D7 82               11D7  724         DC    XL1'82'                 CHARACTER
   11D8 1F               11D8  725         DC    IL1'31'                  EXPECTED
   11D9 1A7D             11DA  726         DC    AL2(MSG034)
   11DB 0C 0F 1AA9 1AAA        727         MVC   MSG135-1(16),MSG135   INITIALIZE
   11E1 0C 01 1203 1D5F        728         MVC   COR+3(2),AMSG15        FOR THE
   11E7 3C 00 1D56             729         MVI   SWITCH,X'00'            BIT
   11EB C2 01 1D34             730         LA    STATUS-3,XR1             CHECKER
   11EF 3C 01 11FB             731 DOER1   MVI   TSTR+1,X'01'
   11F3 C2 02 16B2             732         LA    TABLE7-16,XR2           TABLE OF PRINTOUTS
   11F7 E2 02 02               733 DOER    LA    2(,XR2),XR2             INCREMENT COUNTER
   11FA 78 00 00               734 TSTR    TBN   0(,XR1),X'00'           CHECK FOR ON
   11FD F2 90 0B               735         JF    INCR
   1200 2C 01 1A9B 00          736 COR     MVC   MSG135-15(2),0(,XR2) MOVE CHARACTER
   1205 0E 01 1203 1D43        737         ALC   COR+3(2),TWO            TO REED SW PRINTOUT
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1208 0E 00 11FB 11FB        738 INCR    ALC   TSTR+1(1),TSTR+1      CHECK ALL
   120D C0 20 11F7             739         BNOL  DOER                   BITS IN EACH BYTE
   1211 3D 80 1D56             740         CLI   SWITCH,X'80'
   1215 F2 81 18               741         JE    *+27
   1219 0C 01 1203 1D61        742         MVC   COR+3(2),AMSG16       INITIALIZE
   121E C2 01 1D38             743         LA    STSHDB-3,XR1           FOR PRINTING
   1222 3C 80 1D56             744         MVI   SWITCH,X'80'            EXPECTED
   1226 0C 0F 1AD5 1AD6        745         MVC   MSG136-1(16),MSG136      REED SW CHAR
   122A C0 87 11EF             746         B     DOER1
   122E 0C 00 1D4C 1D34        747         MVC   WORK-3(1),STATUS-3    SET UC MODE
   1234 3B 80 1D4C             748         SBF   WORK-3,X'80'           SWITCH OFF
   1238 C0 87 021E             749         B     UNPACK                UNPACK
   123C 01               123C  750         DC    IL1'01'                RECEIVED
   123D 1D4C             123E  751         DC    AL2(WORK-3)             REED
   123F 1A98             1240  752         DC    AL2(MSG035-1)            SWITCHES
   1243 C0 87 021A             753         B     PRINT                 PRINT
   1247 81               1248  754         DC    XL1'81'                RECEIVED
   1248 2C               1249  755 LEN2    DC    IL1'44'                 REED
   1249 1AAA             124A  756         DC    AL2(MSG135)              SWITCHES
   124B 3C 2C 124C             757         MVI   LEN2,X'2C'
   1251 0C 00 1D4C 1D38        758         MVC   WORK-3(1),STSHDB-3    SET UC MODE
   1257 3B 80 1D4C             759         SBF   WORK-3,X'80'           SWITCH OFF
   125B C0 87 021E             760         B     UNPACK                UNPACK
   125F 01               125F  761         DC    IL1'01'                EXPECTED
   1260 1D4C             1261  762         DC    AL2(WORK-3)             REED
   1262 1AC4             1263  763         DC    AL2(MSG036-1)            SWITCHES
   1266 C0 87 021A             764         B     PRINT                 PRINT
   126A 82               126A  765         DC    XL1'82'                EXPECTED
   126B 2C               126B  766         DC    IL1'44'                 REED
   126C 1AD6             126D  767         DC    AL2(MSG136)              SWITCHES
   126E 3B FF 1D36             768         SBF   STATUS-1,X'FF'        SETUP
   1272 3B 7F 1D34             769         SBF   STATUS-3,X'7F'         RECEIVED
   1276 3B 01 1D35             770         SBF   STATUS-2,X'01'          STATUS
   127A 3B FF 1D3A             771         SBF   STSHDB-1,X'FF'        SETUP
   127E 3B 7F 1D38             772         SBF   STSHDB-3,X'7F'         XPTE
   1282 3B 01 1D39             773         SBF   STSHDB-2,X'01'          STATUS
   1286 3B 01 15F8             774         TBN   MARK,MARK7
   128A F2 90 08               775         JF    *+11
   128D C0 87 021A             776         B     PRINT                 PRINT
   1291 82               1291  777         DC    XL1'82'                RESERVED
   1292 13               1292  778         DC    IL1'19'                 BIT MESSAGE
   1293 1B90             1294  779         DC    AL2(RESMSG)
   1295 3C 00 1D56             780         MVI   SWITCH,X'00'          CLEAR SWITCH
   1299 C0 87 021A             781         B     PRINT                 PRINT
   129D 82               129D  782         DC    XL1'82'                STATUS
   129E 14               129E  783         DC    IL1'20'                 RECEIVED
   129F 1AEA             12A0  784         DC    AL2(MSG018)              WAS
   12A1 C2 01 1D34             785         LA    STATUS-3,XR1
   12A5 F2 87 11               786         J     CHECK
   12A8 C0 87 021A             787 EXPSTT  B     PRINT                 SPACE
   12AC 92               12AC  788         DC    XL1'92'                TWO LINES
   12AD C0 87 021A             789         B     PRINT                 PRINT
   12B1 82               12B1  790         DC    XL1'82'                STATUS
   12B2 14               12B2  791         DC    IL1'20'                 EXPECTED
   12B3 1AFE             12B4  792         DC    AL2(MSG019)              WAS
   12B5 C2 01 1D38             793         LA    STSHDB-3,XR1
   12B9 C2 02 1B91             794 CHECK   LA    FIRST-1,XR2
   12BD 79 80 00               795         TBF   0(,XR1),X'80'         CHECK
   12C0 79 FE 01               796         TBF   1(,XR1),X'FE'          FOR ANY
   12C3 79 FF 03               797         TBF   3(,XR1),X'FF'           BITS ON
   12C6 F2 90 08               798         JF    CHECK1
   12C9 C0 87 021A             799         B     PRINT                 IF NO
   12CD 81               12CD  800         DC    XL1'81'                BITS ON,
   12CE 05               12CE  801         DC    IL1'05'                 PRINT
   12CF 1D1C             12D0  802         DC    AL2(NONE)                'NONE'
   12D1 3C 01 12F4             803 CHECK1  MVI   TSTBTO+1,X'01'
   12D5 2C 00 12FE 00          804 DOIT    MVC   LENGTH,0(,XR2)        SETUP
   12DA 0E 00 12FE 1D41        805         ALC   LENGTH(1),ONE           FOR
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   12E0 2C 00 12E7 00          806       MVC   INCADR+2(1),0(,XR2)    LENGTH
   12E5 E2 02 00               807 INCADR LA   *-*(,XR2),XR2
   12E8 34 02 1300             808       ST    ADRMSG,XR2
   12EC E2 02 01               809       LA    1(,XR2),XR2
   12EF 34 02 1D65             810       ST    KEEP1,XR2              SAVE XR2
   12F3 78 00 00               811 TSTBTO TBN  0(,XR1),X'00'          CHECK FOR
   12F6 F2 90 08               812       JF    INCBTO                  BIT ON
   12F9 C0 87 021A             813       B     PRINT                  PRINT
   12FD 81               12FD  814       DC    XL1'81'                 STATUS
   12FE 00               12FE  815 LENGTH DC    IL1'00'
   12FF 0000             1300  816 ADRMSG DC    AL2(00)
   1301 C0 87 1322             817 INCBTO B    INCB2
   1305 0C 00 1D67 12E7        818 INCB1  MVC   KEEP2(1),INCADR+2
   130B 0F 01 1300 1D67        819       SLC   ADRMSG(2),KEEP2        ADJUST ADDRESS TO BEGINNING
   1311 35 02 1300             820       L     ADRMSG,XR2              OF MESSAGE FIELD
   1315 BD 01 00               821       CLI   0(,XR2),X'01'
   1318 F2 81 03               822       JE    *+6
   1318 BC 40 01               823       MVI   1(,XR2),X'40'
   131E 35 02 1D65             824       L     KEEP1,XR2
   1322 0E 00 12F4 12F4        825 INCB2  ALC   TSTBTO+1(1),TSTBTO+1 TEST ALL BITS
   1328 C0 20 12D5             826       BNOL  DOIT                    OF EACH BYTE
   132C D2 01 01               827       LA    1(,XR1),XR1
   132F 8D 04 00 1D18          828       CLC   0(5,XR2),NONE-4        CHECK FOR
   1334 CC 01 12D1             829       BNE   CHECK1                  LAST MESSAGE
   1338 0C 01 1304 1D69        830       MVC   INCBTO+3(2),AINCB1
   133E 0E 00 1D56 1D57        831       ALC   SWITCH(1),HEX80
   1344 C0 20 12A8             832       BNOL  EXPSTT
   1348 0C 01 1304 1D6B        833       MVC   INCBTO+3(2),AINCB2
   134E 3B FF 15F8             834       SBF   MARK,X'FF'              RESET FALGS
   1352 35 01 1D7D             835       L     R1SAV1,XR1              RESTORE
   1356 35 02 1D7F             836       L     R2SAV2,XR2               REGISTERS
   135A C0 87 021A             837       B     PRINT                   SPACE
   135E 93               135E  838       DC    XL1'93'                  SIX LINES
   135F C0 87 0000             839 ENDSTR B    *-*                     RETURN
                               840 ********************************************************************************
                               841 *                                                                              *
                               842 *      THIS SUBROUTINE PRINTS THE CHARACTER WHICH HAS BEEN                     *
                               843 *      DETECTED IN THE SENSE BYTE, G CODE '11', LOW ORDER ADDRESS              *
                               844 *                                                                              *
                               845 ********************************************************************************
   1363 34 08 138B             846 PRINTT ST   PRINTE+3,ARR
   1367 31 18 1D37             847       LIO   STATUS,X'18'            PRINT
   136B F3 18 80               848       SIO   X'80',X'18'              CHARACTER
   136E 30 19 1D4F             849 SYNCP  SNS   WORK,X'19'             WAIT FOR
   1372 39 10 1D4F             850       TBF   WORK,X'10'               PRINTER BUSY
   1376 C0 90 136E             851       BF    SYNCP                     TO DROP
   137A 38 08 1D4F             852       TBN   WORK,X'08'              IF END OF
   137E F2 90 07               853       JF    PRINTE                   LINE ON,
   1381 F3 18 40               854       SIO   X'40',X'18'               RETURN
   1384 C0 87 136E             855       B     SYNCP                      CARRIER
   1388 C0 87 0000             856 PRINTE B    *-*
                               857 ********************************************************************************
                               858 *                                                                              *
                               859 *              SUBROUTINE TO ENABLE PRINTER                                    *
                               860 *                                                                              *
                               861 ********************************************************************************
   138C 34 08 13D2             862 SIORT  ST   ENDG+3,ARR
   1390 3A 80 15F8             863       SBN   MARK,MARK0              EXPECT INTERRUPT FLAG
   1394 3A C0 1D39             864       SBN   STSHDB-2,X'C0'          SET ENABLED BITS ON
   1398 34 01 1D7D             865       ST    R1SAV1,XR1              SAVE
   139C 34 02 1D7F             866       ST    R2SAV2,XR2               REGISTERS
   13A0 0C 02 1D53 1D82        867       MVC   WORK1(3),DLAY
   13A6 35 C0 1D63             868       L     ITLV1,X'C0'             LOAD INT LEVEL 1 IAR
   13AA 34 C0 1D63             869       ST    ITLV1,X'C0'
   13AE F3 10 06               870       SIO   X'06',KYBD              ENABLE INTERRUPTS
   13B1 38 40 15F8             871 SIO1   TBN   MARK,MARK1             CHECK INTERRUPT RECEIVED
   13B5 F2 10 17               872       JT    ENDG
   13B8 0F 02 1D53 1D41        873       SLC   WORK1(3),ONE            WAIT 1SO
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   13BE C0 01 13B1             874       BNZ   SIO1                    MSEC FOR AN INTERRUPT
   13C2 0C 0E 173C 1996        875       MVC   MSGCAB-4(15),INTPL
   13C8 C0 87 0FDD             876       B     REPLCE                 REPLACE B2N2,
   13CC 840301           13CE  877       DC    XL3'840301'             B3L2, B3S2, B3P2, CABLE(KD141)
   13CF C0 87 0000             878 ENDG   B     *-*                    RETURN
                               879 ********************************************************************************
                               880 *                                                                              *
                               881 *                    INTERRUPT HANDLING SUBROUTINE                             *
                               882 *                                                                              *
                               883 ********************************************************************************
   13D3 34 04 1D59             884 CONSLE ST   SAVPSR,PSR
   13D7 34 20 148D             885       ST    ENDZ+3,P1IAR
   13DB 30 13 1D35             886       SNS   STATUS-2,X'13'          SAVE
   13DF 30 11 1D37             887       SNS   STATUS,X'11'             STATUS
   13E3 35 20 1D84             888       L     ADRSER,X'20'            CHECK
   13E7 C0 80 143D             889       BC    NOTRES-3,X'80'           IAR/ARR
   13EB C0 FF 13F2             890       BC    NEXT,X'FF'                SELECTION
   13EF F2 87 4B               891       J     NOTRES-3
   13F2 35 01 148D             892 NEXT   L     ENDZ+3,XR1
   13F6 7D 06 02               893       CLI   2(,XR1),X'06'
   13F9 F2 01 06               894       JNE   NEXT1
   13FC 0E 01 148D 1D45        895       ALC   ENDZ+3(2),THREE
   1402 3A 40 15F8             896 NEXT1  SBN   MARK,MARK1            SET INTERRUPT RECEIVED FLAG
   1406 38 80 15F8             897       TBN   MARK,MARK0              CHECK FOR
   140A F2 10 0B               898       JT    NEXT2                    XPTD INTERRUPT
   140D C0 87 0FDD             899 NEXT5  B     REPLCE                 REPLACE
   1411 050000           1413  900       DC    XL3'050000'             A-B2N2, B2L2
   1414 C0 87 140D             901       B     NEXT5
   1418 38 C0 1D35             902 NEXT2  TBN   STATUS-2,X'C0'          CHECK INTERRUPTS
   141C F2 10 13               903       JT    NEXT3                    ENABLED ON
   141F 3C 5C 1C49             904       MVI   MREQE,C'*'
   1423 3C 5C 1C2D             905       MVI   MDATE,C'*'
   1427 C0 87 0FDD             906       B     REPLCE                 REPLACE
   142B 050000           142D  907       DC    XL3'050000'             B2L2, B2N2
   142E C0 87 1418             908       B     NEXT2
   1432 35 20 1D88             909 NEXT3  L     TEM1,P1IAR             DISABLE
   1436 F3 10 00               910       SIO   X'00',KYBD              INTERRUPTS
   1439 35 20 1D86             911       L     TEMPAR,P1IAR           RESET
   143D F3 10 01               912       SIO   X'01',KYBD              INTERRUPTS
   1440 C0 87 021A             913 NOTRES B    PRINT                  PRINT
   1444 C6               1444  914       DC    XL1'C6'                 'INTERRUPT
   1445 13               1445  915       DC    IL1'19'                   NOT
   1446 17D3             1447  916       DC    AL2(MSG13)                 RESET'
   1448 1021             1449  917       DC    XL2'1021'
   144A C0 87 0222             918       B     HALT
   144E 1021             144F  919       DC    XL2'1021'
   1450 C0 87 0FDD             920       B     REPLCE                 REPLACE
   1454 050000           1456  921       DC    XL3'050000'             B2L2, B2N2
   1457 C0 87 1440             922       B     NOTRES
   145B C0 87 0FDD             923 SELECT B    REPLCE                 REPLACE
   145F 800000           1461  924       DC    XL3'800000'             A-B3L2
   1462 C0 87 145B             925       B     SELECT
   1466 C0 87 021A             926 NOTRE1 B    PRINT                  PRINT
   146A C6               146A  927       DC    XL1'C6'                 'INTERRUPT
   146B 31               146B  928       DC    IL1'49'                   RESET BY
   146C 1804             146D  929       DC    AL2(MSG14)                 DISABLE
   146E 1022             146F  930       DC    XL2'1022'                   COMMAND'
   1470 C0 87 0222             931       B     HALT
   1474 1022             1475  932       DC    XL2'1022'
   1476 35 01 1D7D             933 RESET  L     R1SAV1,XR1             RESTORE
   147A 35 02 1D7F             934       L     R2SAV2,XR2              REGISTERS
   147E 3B C0 1D39             935       SBF   STSHDB-2,X'C0'          RESET STATUS
   1482 35 C0 1D63             936       L     ITLV1,X'C0'
   1486 35 04 1D59             937       L     SAVPSR,PSR
   148A C0 87 0000             938 ENDZ   B     *-*                    RETURN
                               939 *
                               940 *              STATUS RECORDER
                               941 *
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

  148E 34 08 14A5             942 SENSOR ST    ENDSOR+3,ARR          SAVE RETURN ADDRESS
  1492 30 13 1D35             943        SNS   STATUS-2,X'13'        STATUS
  1496 30 11 1D37             944        SNS   STATUS,X'11'          SAVE
  149A 38 01 1D35             945        SBF   STATUS-2,X'01'        SET RESERVED
  149E 38 01 1D39             946        SBF   STSHDB-2,X'01'         BIT OFF
  14A2 C0 87 0000             947 ENDSOR B     *-*                   RETURN
                              948 *
                              949 *      DELAY SUBROUTINE:
                              950 *      SUBROUTINE ALLOWS ONE MINUTE FOR
                              951 *      A CHANGE OF STATUS TO BE DETECTED.
                              952 *
  14A6 34 08 14E6             953 DELAY  ST    ENDD+3,ARR
  14AA 34 01 1D49             954        ST    SAV1,XR1              SAVE CONTENTS
  14AE 34 02 1D4B             955        ST    SAV2,XR2               OF REGISTERS
  14B2 38 20 15F8             956        TBN   MARK,MARK2            CHECK FOR
  14B6 F2 10 0A               957        JT    D11                    INITIALIZED ON
  14B9 3A 20 15F8             958        SBN   MARK,MARK2
  14BD 0C 03 1D4F 1D7B        959        MVC   WORK(4),DELAYC        DELAY CONSTANT
  14C3 0F 03 1D4F 1D41        960 D11    SLC   WORK(4),ONE           ALLOW ONE
  14C9 C0 01 14DB             961        BNZ   D22                    MINUTE
  14CD C0 87 021A             962        B     PRINT                 PRINT
  14D1 02           14D1      963        DC    XL1'02'                'NO
  14D2 34           14D2      964        DC    IL1'52'                  CHANGE
  14D3 17C0         14D4      965        DC    AL2(MSG12)                OF STATUS'
  14D5 0E 01 14E6 1D47        966        ALC   ENDD+3(2),FOUR
  14D8 35 01 1D49             967 D22    L     SAV1,XR1              RESTORE
  14DF 35 02 1D4B             968        L     SAV2,XR2               REGISTERS
  14E3 C0 87 0000             969 ENDD   B     *-*                   RETURN
                              970 ********************************************************************
                              971 *           THIS SUBROUTINE WAITS FOR THE KEYBOARD TO BE           *
                              972 *           COMPLETELY RESTORED, WHICH IS ACHIEVED WHEN            *
                              973 *           EITHER THE STROBE SWITCH SAMPLED OR THE REQUEST        *
                              974 *           OR END OR CANCEL KEY SAMPLED HAS DROPPED.              *
                              975 ********************************************************************
  14E7 34 08 154C             976 STROBE ST    ENDL+3,ARR            SAVE RETURN ADDRESS
  14EB 34 01 1D49             977        ST    SAV1,XR1
  14EF 38 3C 1D39             978        SBF   STSHDB-2,X'3C'
  14F3 C2 01 000A             979        LA    10,XR1                WAIT
  14F7 0D FE 01F4 01F4        980 ST1    CLC   500(255),500           SEVERAL
  14FD 36 01 1D55             981        A     HEXFF,XR1               MILLISECONDS
  1501 C0 01 14F7             982        BNZ   ST1
  1505 C2 01 FFFE             983        LA    X'FFFE',XR1
  1509 30 13 1D35             984 ENDL2  SNS   STATUS-2,X'13'        WAIT
  150D 39 3C 1D35             985        TBF   STATUS-2,X'3C'          100 MSEC
  1511 F2 10 31               986        JT    ENDL1                    FOR STATUS
  1514 36 01 1D55             987        A     HEXFF,XR1                 BITS TO BE
  1518 C0 01 1509             988        BNZ   ENDL2                      RESTORED
  151C 38 10 1D34             989        TBN   STATUS-3,X'10'        CHECK STROBE SW ON
  1520 39 08 1D34             990        TBF   STATUS-3,X'08'        CHECK STROBE SAMPLED OFF
  1524 F2 90 0B               991        JF    *+14
  1527 3C 5C 1C1E             992        MVI   MSTRB,C'*'
  1528 C0 87 0FDD             993        B     REPLCE                REPLACE
  152F 040000       1531      994        DC    XL3'040000'            B2N2
  1532 3A 20 15F9             995        SBN   FLAG,FLAG2
  1536 3C 5C 1BED             996        MVI   MREC,C'*'
  153A 3C 5C 1BCB             997        MVI   MRECS,C'*'
  153E C0 87 0FDD             998        B     REPLCE                REPLACE
  1542 0C0000       1544      999        DC    XL3'0C0000'            A-B2P2, B2N2
  1545 35 01 1D49            1000 ENDL1  L     SAV1,XR1
  1549 C0 87 0000            1001 ENDL   B     *-*                   RETURN
                             1002 ********************************************************************
                             1003 *                                                                  *
                             1004 *           THIS SUBROUTINE WAITS ONE MINUTE FOR A CHANGE          *
                             1005 *           IN THE STATUS--WHEN THIS IS DETECTED, CONTROL          *
                             1006 *           IS RETURNED TO THE CURRENT ROUTINE.                    *
                             1007 *                                                                  *
                             1008 ********************************************************************
  154D 34 08 15F7            1009 SIO    ST    ENDSIO+3,ARR
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

  1551 C0 87 148E            1010 SIO2   B     SENSOR                SAVE STATUS
  1555 38 0C 1D35            1011        TBN   STATUS-2,X'0C'        CHECK FOR
  1559 F2 90 08              1012        JF    *+11
  155C C0 87 14E7            1013        B     STROBE
  1560 C0 87 15F4            1014        B     ENDSIO
  1564 C0 87 14A6            1015        B     DELAY
  1568 C0 87 1551            1016        B     SIO2
  156C 3C 5C 1BCB            1017        MVI   MRECS,C'*'
  1570 3C 5C 1BED            1018        MVI   MREC,C'*'
  1574 0D 05 184C 1D8E       1019        CLC   MSG15-4(6),REQ
  157A F2 01 1B              1020        JNE   SIOA
  157D 38 80 1D37            1021        TBN   STATUS,X'80'          CHEK REQ KEY
  1581 F2 10 0D              1022        JT    SIO9                   INT PEND ON
  1584 0C 07 1735 1974       1023        MVC   MSGCAB-11(8),REQCAB
  158A C0 87 0FDD            1024        B     REPLCE                REPLACE
  158E 080408       1590     1025        DC    XL3'080408'            B2P2, B2U3, CABLE(GC461)
  1591 C0 87 0FDD            1026 SIO9   B     REPLCE                REPLACE
  1595 0C0000       1597     1027        DC    XL3'0C0000'            A-B2P2, B2N2
  1598 0D 05 184C 1D94       1028 SIOA   CLC   MSG15-4(6),CANCEL
  159E F2 01 11              1029        JNE   SIOB
  15A1 0C 0A 1738 197F       1030        MVC   MSGCAB-8(11),CANCAB   SETUP FOR
  15A7 3A 04 15F8            1031        SBN   MARK,MARK5               CANCEL
  15AB C0 87 0FDD            1032        B     REPLCE                REPLACE
  15AF 080408       15B1     1033        DC    XL3'080408'            B2P2, B2U3, CABLE(GC461)
  15B2 0C 07 1735 1987       1034 SIOB   MVC   MSGCAB-11(8),ENDCAB   SETUP FOR
  15B8 3A 08 15F8            1035        SBN   MARK,MARK4               END
  15BC C0 87 0FDD            1036        B     REPLCE                REPLACE
  15C0 080408       15C2     1037        DC    XL3'080408'            B2P2, B2U3, CABLE(GC461)
  15C3 34 08 15F7            1038 SIOS   ST    ENDSIO+3,ARR
  15C7 C0 87 148E            1039 SIO4   B     SENSOR                SAVE STATUS
  15CB 38 30 1D35            1040        TBN   STATUS-2,X'30'        CHECK FOR
  15CF F2 10 22              1041        JT    ENDSIO                 STROBE SAMPLED ON
  15D2 C0 87 14A6            1042        B     DELAY
  15D6 C0 87 15C7            1043        B     SIO4
  15DA 3C 5C 1C07            1044        MVI   MSTRBS,C'*'
  15DE 3C 5C 1C1E            1045        MVI   MSTRB,C'*'
  15E2 3D 07 0A03            1046        CLI   CRTND,X'07'           CHECK FOR ROUTINE 7
  15E6 F2 01 04              1047        JNE   *+7
  15E9 3A 08 15F9            1048        SBN   FLAG,FLAG4
  15ED C0 87 0FDD            1049        B     REPLCE                REPLACE
  15F1 080000       15F3     1050        DC    XL3'080000'            A-B2P2
  15F4 C0 87 0000            1051 ENDSIO B     *-*
                             1052 *                                                                  *
                             1053 *                          PROGRAM FLAGS                           *
                             1054 *                                                                  *
  15F8 00           15F8     1055 MARK   DC    XL1'00'
                     0080    1056 MARK0  EQU   X'80'                 EXPECT AN INTERRUPT
                     0040    1057 MARK1  EQU   X'40'                 INTERRUPT RECEIVED
                     0020    1058 MARK2  EQU   X'20'                 INITIALIZE FOR DELAY
                     0010    1059 MARK3  EQU   X'10'                 NON-ERROR PRINTOUT
                     0008    1060 MARK4  EQU   X'08'                 END SWITCH
                     0004    1061 MARK5  EQU   X'04'                 CANCEL SWITCH
                     0002    1062 MARK6  EQU   X'02'                 END OR CAN SWITCH
                     0001    1063 MARK7  EQU   X'01'                 RESERVED BIT
  15F9 00           15F9     1064 FLAG   DC    XL1'00'
                     0080    1065 FLAG0  EQU   X'80'                 REQ SWITCH
                     0040    1066 FLAG1  EQU   X'40'                 KEY HIT OUT OF ORDER
                     0020    1067 FLAG2  EQU   X'20'                 KEY HELD DOWN
                     0010    1068 FLAG3  EQU   X'10'                 RE-SEAT L2
                     0008    1069 FLAG4  EQU   X'08'                 SHIFT KEY MESSAGE
  15FA 00           15FA     1070 XMTBLK DC    XL1'00'                                              GK
                             1071 *
                             1072 *      LOWER CASE CHARACTER ENCODE TABLE
                             1073 *
  15FB F1           15FB     1074 TABLE1 DC    XL1'F1'
  15FC F2F3F4F5F6F7F8F9      1603         DC    XL8'F2F3F4F5F6F7F8F9'
  1604 F06050D8E6C5D9E3      160B         DC   XL8'F06050D8E6C5D9E3'
  160C E8E4C9D6D77CC1E2      1613         DC    XL8'E8E4C9D6D77CC1E2'
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1614 C4C6C7C8D1D2D35B 161B 1078         DC    XL8'C4C6C7C8D1D2D35B'
   161C 7BE9E7C3E5C2D5D4 1623 1079         DC    XL8'7BE9E7C3E5C2D5D4'
   1624 6B4B6140FF       1628 1080         DC    XL5'6B4B6140FF'
                              1081 *
                              1082 *       UPPER CASE CHARACTER ENCODE TABLE
                              1083 *
   1629 7E               1629 1084 TABLE2  DC    XL1'7E'
   162A 4C5E7A6C7D6E5C4D 1631 1085         DC    XL8'4C5E7A6C7D6E5C4D'
   1632 5D6D4ED8E6C5D9E3 1639 1086         DC    XL8'5D6D4ED8E6C5D9E3'
   163A E8E4C9D6D74AC1E2 1641 1087         DC    XL8'E8E4C9D6D74AC1E2'
   1642 C4C6C7C8D1D2D35A 1649 1088         DC    XL8'C4C6C7C8D1D2D35A'
   164A 7FE9E7C3E5C2D5D4 1651 1089         DC    XL8'7FE9E7C3E5C2D5D4'
   1652 4F5F6F40FF       1656 1090         DC    XL5'4F5F6F40FF'
                              1091 *
                              1092 *       LOWER CASE REED SWITCH COMBINATIONS
                              1093 *
   1657 31               1657 1094 TABLE3  DC    XL1'31'
   1658 3273347576373879 165F 1095         DC    XL8'3273347576373879'
   1660 7020105826451923 1667 1096         DC    XL8'7020105826451923'
   1668 68644916577C0162 166F 1097         DC    XL8'68644916577C0162'
   1670 044607085152135B 1677 1098         DC    XL8'044607085152135B'
   1678 3B29674325021554 167F 1099         DC    XL8'3B29674325021554'
   1680 6B0B6140FF       1684 1100         DC    XL5'6B0B6140FF'
                              1101 *
                              1102 *       UPPER CASE REED SWITCH COMBINATIONS
                              1103 *
   1685 B1               1685 1104 TABLE4  DC    XL1'B1'
   1686 B2F3B4F5F6B788F9 168D 1105         DC    XL8'B2F3B4F5F6B788F9'
   168E F0A090D8A6C599A3 1695 1106         DC    XL8'F0A090D8A6C599A3'
   1696 E8E4C996D7FC81E2 169D 1107         DC    XL8'E8E4C996D7FC81E2'
   169E 84C68788D1D293DB 16A5 1108         DC    XL8'84C68788D1D293DB'
   16A6 BBA9E7C3A58295D4 16AD 1109         DC    XL8'BBA9E7C3A58295D4'
   16AE EB8BE1C0FF       16B2 1110         DC    XL5'EB8BE1C0FF'
   16B3 F16BF26BF46BF86B 16C2 1111 TABLE7  DC    CL16'1,2,4,8,A,B,P   '
   16BB C16BC26BD7404040      1111
                              1112 *
                              1113 *       MESSAGES
                              1114 *
   16C3 D9C5D7D3C1C3C540 16DB 1115 REP     DC    CL25'REPLACE FOLLOWING CARD/S:'
   16CB C6D6D3D3D6E6C9D5      1115
   16D3 C740C3C1D9C461E2      1115
   16DB 7A                    1115
   16DC C160             16DD 1116         DC    CL2'A-'
   16DE E7E7E7E7         16E1 1117 CARD    DC    CL4'XXXX'
   16E2 C2F2D3F2         16E5 1118 CARDS   DC    CL4'B2L2'
   16E6 C2F2D4F2         16E9 1119         DC    CL4'B2M2'
   16EA C2F2D5F2         16ED 1120         DC    CL4'B2N2'
   16EE C2F2D7F2         16F1 1121         DC    CL4'B2P2'
   16F2 C2F2D9F2         16F5 1122         DC    CL4'B2R2'
   16F6 C2F2E2F2         16F9 1123         DC    CL4'B2S2'
   16FA C2F2E4F2         16FD 1124         DC    CL4'B2U2'
   16FE C2F3D3F2         1701 1125         DC    CL4'B3L2'
   1702 C2F3D7F2         1705 1126         DC    CL4'B3P2'
   1706 C2F3E2F2         1709 1127         DC    CL4'B3S2'
   170A C2F2E4F3         170D 1128         DC    CL4'B2U3'
   170E D9C5E2C5E340E3C8 171B 1129 MSGRES  DC    CL14'RESET THE HALT'
   1716 C540C8C1D3E3          1129
   171C C3C8C5C3D240C3C1 1727 1130         DC    CL12'CHECK CABLE('
   1724 C2D3C54D              1130
   1728 E7E7E7E7E7       172C 1131 CABL    DC    CL5'XXXXX'
   172D 4040404040404040 1740 1132 MSGCAB  DC    20XL1'40'
   1735 4040404040404040      1132
   173D 40404040              1132
   1741 40               1741 1133         DC    XL1'40'
   1742 D2C4F1F4F1       1746 1134 CABLE   DC    CL5'KD141'
   1747 C7C3F5F5F3       1748 1135         DC    CL5'GC553'
   174C C7C3F5F5F2       1750 1136         DC    CL5'GC552'
   1751 C7C3F4F6F1       1755 1137         DC    CL5'GC461'
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1756 C9D540D3D6C6C5D9 1765 1138         DC    CL16'IN LOWER SHIFT, '
   175E 40E2C8C9C6E36B40      1138
   1766 D7D9C5E2E240C1D5 1780 1139 MSG08  DC    CL27'PRESS AND RELEASE SPACE BAR'
   176E C440D9C5D3C5C1E2      1139
   1776 C540E2D7C1C3C540      1139
   177E C2C1D9                1139
   1781 D6D940E2C8C9C6E3 178C 1140 MSGSHF DC    CL12'OR SHIFT KEY'
   1789 40D2C5E8              1140
   178D D5D640C3C8C1D5C7 17C0 1141 MSG12  DC    CL52'NO CHANGE OF STATUS AFTER ONE MINUTE-ERROR MAY EXIST'
   1795 C540D6C640E2E3C1      1141
   179D E3E4E240C1C6E3C5      1141
   17A5 D940D6D5C540D4C9      1141
   17AD D5E4E3C560C5D9D9      1141
   17B5 D6D940D4C1E840C5      1141
   17BD E7C9E2E3              1141
   17C1 C9D5E3C5D9D9E4D7 17D3 1142 MSG13  DC    CL19'INTERRUPT NOT RESET'
   17C9 E340D5D6E340D9C5      1142
   17D1 E2C5E3                1142
   17D4 C9D5E3C5D9D9E4D7 1804 1143 MSG14  DC    CL49'INTER..PT RESET BY DISABLE--REPLACE A-B2L2,A-B2N2'
   17DC E340D9C5E2C5E340      1143
   17E4 C2E840C4C9E2C1C2      1143
   17EC D3C56060D9C5D7D3      1143
   17F4 C1C3C540C160C2F2      1143
   17FC D3F26BC160C2F2D5      1143
   1804 F2                    1143
   1805 E6C1D9D5C9D5C760 1834 1144 MSWARN DC    CL48'WARNING-RESETTING THIS ERROR HALT MAY BE INVALID'
   180D D9C5E2C5E3E3C9D5      1144
   1815 C740E3C8C9E240C5      1144
   181D D9D9D6D940C8C1D3      1144
   1825 E340D4C1E840C2C5      1144
   182D 40C9D5E5C1D3C9C4      1144
   1835 D7D9C5E2E240C1D5 1850 1145 MSG15  DC    CL28'PRESS AND RELEASE        KEY'
   183D C440D9C5D3C5C1E2      1145
   1845 C5404040404C4040      1145
   184D 40D2C5E8              1145
   1851 4040404040404040 1860 1146 MSG16  DC    CL16'         KEY TEST'
   1859 D2C5E840E3C5E2E3      1146
   1861 60C160C2F2E4F240 1883 1147 MSG19  DC    CL35'-A-B2U2 MAY BE SWAPPED WITH A-A3A3'
   1869 D4C1E840C2C540E2      1147
   1871 E6C1D7D7C5C440E6      1147
   1879 C9E3C840C160C1F3      1147
   1881 C1F340                1147
   1884 60C160C2F2E4F340 18A6 1148 MSG20  DC    CL35'-A-B2U3 MAY BE SWAPPED WITH A-B2U5'
   188C D4C1E840C2C540E2      1148
   1894 E6C1D7D7C5C440E6      1148
   189C C9E3C840C160C2F2      1148
   18A4 E4F540                1148
   18A7 C9D540D3D6E6C5D9 18B5 1149 MSG    DC    CL15'IN LOWER SHIFT '
   18AF 40E2C8C9C6E340        1149
   18B6 D7D9C5E2E240C4C1 18E1 1150         DC    CL44'PRESS DATA KEYS LEFT TO RIGHT, TOP TO BOTTOM'
   18BE E3C140D2C5E8E240      1150
   18C6 D3C5C6E340E3D640      1150
   18CE D9C9C7C8E36B40E3      1150
   18D6 D6D740E3D640C2D6      1150
   18DE E3E3D6D4              1150
   18E2 6B40E3C8C5D540D7 18F7 1151 MSG013 DC    CL22', THEN PRESS SPACE BAR'
   18EA D9C5E2E240E2D7C1      1151
   18F2 C3C540C2C1D9          1151
   18F8 C5D5C440E2E6C9E3 1901 1152 ENDSW  DC    CL10'END SWITCH'
   1900 C3C8                  1152
   1902 D6D940D2C5E840C8 1911 1153 MSGKY  DC    CL16'OR KEY HELD DOWN'
   190A C5D3C440C4D6E6D5      1153
   1912 D9C5D8E4C5E2E340 191F 1154 MSGRSW DC    CL14'REQUEST SWITCH'
   191A E2E6C9E3C3C8          1154
   1920 D9C560E2C5C1E340 1943 1155 MSGL2  DC    CL36'RE-SEAT A-B2L2, SUSPECT OPEN PIN U12'
   1928 C160C2F2D3F26B40      1155
   1930 E2E4E2D7C5C3E340      1155
   1938 D6D7C5D540D7C9D5      1155
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1940 40E4F1F2              1155
   1944 D6D940C4C1E3C140 195F 1156 MSGDAT DC    CL28'OR DATA KEY HIT OUT OF ORDER'
   194C D2C5E840C8C9E340      1156
   1954 D6E4E340D6C640D6      1156
   195C D9C4C5D9              1156
   1960 C3C1D5C3C5D340E2 196C 1157 CANSW  DC    CL13'CANCEL SWITCH'
   1968 E6C9E3C3C8            1157
   196D D9C5D840D2C5E85D 1974 1158 REQCAB DC    CL8'REQ KEY)'
   1975 C3C1D5C3C5D340D2 197F 1159 CANCAB DC    CL11'CANCEL KEY)'
   197D C5E85D                1159
   1980 C5D5C440D2C5E85D 1987 1160 ENDCAB DC    CL8'END KEY)'
   1988 C9D5E3C5D9D9E4D7 1996 1161 INTPL  DC    CL15'INTERRUPT POLL)'
   1990 E340D7D6D3D35D        1161
   1997 C3C8C1D9C1C3E3C5 19AB 1162 MSGCEN DC    CL21'CHARACTER ENCODE TEST'
   199F D940C5D5C3D6C4C5      1162
   19A7 40E3C5E2E3            1162
   19AC D7D9C5E2E240C1D5 19D8 1163 MSGFG  DC    CL45'PRESS AND RELEASE F AND G KEYS SIMULTANEOUSLY'
   19B4 C440D9C5D3C5C1E2      1163
   19BC C540C640C1D5C440      1163
   19C4 C740D2C5E8E240E2      1163
   19CC C9D4E4D3E3C1D5C5      1163
   19D4 D6E4E2D3E8            1163
   19D9 D9C5C6C5D940E3D6 19F9 1164 MSGBL  DC    CL33'REFER TO FEMM 2-155          '
   19E1 40C6C5D4D440F260      1164
   19E9 F1F5F54040404040      1164
   19F1 4040404040404040      1164
   19F9 40                    1164
   19FA C5D5C440D6D940C3 1A0A 1165 EOCSW  DC    CL17'END OR CAN SWITCH'
   1A02 C1D540E2E6C9E3C3      1165
   1A0A C8                    1165
   1A0B E4C340D4D6C4C55D 1A12 1166 MSGUCM DC    CL8'UC MODE)'
   1A13 D9C5C5C440E2E65D 1A1A 1167 MSGRD  DC    CL8'REED SW)'
   1A18 D3D6C3D240E2C8C9 1A2D 1168 MSG17  DC    CL19'LOCK SHIFT KEY DOWN'
   1A23 C6E340D2C5E840C4      1168
   1A28 D6E6D5                1168
   1A2E E4D5D3D6C3D24040 1A3E 1169 MSG18  DC    CL17'UNLOCK  SHIFT KEY'
   1A36 E2C8C9C6E340D2C5      1169
   1A3E E8                    1169
   1A3F 5C              1A3F  1170       DC    CL1'*'
   1A40 C4C1E3C140C3C8C1 1A5E 1171 MSG033 DC    CL31'DATA CHARACTER RECEIVED -  -,  '
   1A48 D9C1C3E3C5D940D9      1171
   1A50 C5C3C5C9E5C5C440      1171
   1A58 6040406068404O        1171
   1A5F C4C1E3C140C3C8C1 1A7D 1172 MSG034 DC    CL31'DATA CHARACTER EXPECTED -  -,  '
   1A67 D9C1C3E3C5D940C5      1172
   1A6F E7D7C5C3E3C5C440      1172
   1A77 6040406068404O        1172
   1A7E 5C              1A7E  1173       DC    CL1'*'
   1A7F D9C5C5C440E2E6C9 1A99 1174 MSG035 DC    CL27'REED SWITCHES RECEIVED -  -'
   1A87 E3C3C8C5E240D9C5      1174
   1A8F C3C5C9E5C5C44060      1174
   1A97 404060                1174
   1A9A 4040404040404040 1AAA 1175 MSG135 DC    CL17'                '
   1AA2 4040404040404040      1175
   1AAA 40                    1175
   1AAB D9C5C5C440E2E6C9 1AC5 1176 MSG036 DC    CL27'REED SWITCHES EXPECTED -  -'
   1AB3 E3C3C8C5E240C5E7      1176
   1ABB D7C5C3E3C5C44060      1176
   1AC3 404060                1176
   1AC6 4040404040404040 1AD6 1177 MSG136 DC    CL17'                '
   1ACE 4040404040404040      1177
   1AD6 40                    1177
   1AD7 E2E3C1E3E4E240D9 1AEA 1178 MSG018 DC    CL20'STATUS RECEIVED WAS,'
   1ADF C5C3C5C9E5C5C440      1178
   1AE7 E6C1E26B              1178
   1AEB E2E3C1E3E4E240C5 1AFE 1179 MSG019 DC    CL20'STATUS EXPECTED WAS,'
   1AF3 E7D7C5C3E3C5C440      1179
   1AFB E6C1E26B              1179
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1AFF C9C640C1D5E840D6 1B28 1180       DC    CL42'IF ANY OTHER INTERRUPTING DEVICES ATTACHED'
   1B07 E3C8C5D940C9D5E3      1180
   1B0F C5D9D9E4D7E3C9D5      1180
   1B17 C740C4C5E5C9C3C5      1180
   1B1F E240C1E3E3C1C3C8      1180
   1B27 C5C4                  1180
   1B29 40E3D640E2E8E2E3 1B48 1181 MSG141 DC    CL35' TO SYSTEM ARE OPERATING CORRECTLY,'
   1B31 C5D440C1D9C540D6      1181
   1B39 D7C5D9C1E3C9D5C7      1181
   1B41 40C3D6D9D9C5C3E3      1181
   1B49 D3E868                1181
   1B4C D6D4C9E340C3C8C5 1B75 1182 MSG142 DC    CL42'OMIT CHECKING B3S2, B3P2, AND CABLE(KD141)'
   1B54 C3D2C9D5C740C2F3      1182
   1B5C E2F26840C2F3D7F2      1182
   1B64 6B40C1D5C440C3C1      1182
   1B6C C2D3C54DD2C4F1F4      1182
   1B74 F15D                  1182
   1B76 D9C5C5C440E2E65D 1B7D 1183 REED   DC    CL8'REED SW)'
   1B7E D9C5E2C5D9E5C5C4 1B90 1184 RESMSG DC    CL19'RESERVED BIT IS ON '
   1B86 40C2C9E340C9E240      1184
   1B8E D6D540                1184
                              1185 *
                              1186 *       STATUS MESSAGES
                              1187 *
   1B91 01              1B91  1188       DC    XL1'01'
   1B92 01              1B92  1189 FIRST  DC    XL1'01'
   1B93 0101010101010101 1B9E 1190       DC    12IL1'01'
   1B98 01010101              1190
   1B9F 15              1B9F  1191       DC    IL1'21'
   1BA0 40              1BA0  1192 MUCM  DC    XL1'40'
   1BA1 D2C5E8C2D6C1D9C4 1BB4 1193       DC    CL20'KEYBOARD MODE SWITCH'
   1BA9 40D4D6C4C540E2E6      1193
   1BB1 C9E3C3C8              1193
   1BB5 0101            1BB6  1194       DC    2IL1'01'
   1BB7 12              1BB7  1195       DC    IL1'18'
   1BB8 40              1BB8  1196 MSHIFT DC    XL1'40'
   1BB9 D2C5E8C2D6C1D9C4 1BC9 1197       DC    CL17'KEYBOARD SHIFTING'
   1BC1 40E2C8C9C6E3C9D5      1197
   1BC9 C7                    1197
   1BCA 21              1BCA  1198       DC    IL1'33'
   1BCB 40              1BCB  1199 MRECS  DC    XL1'40'
   1BCC D9C5D840D6D940C5 1BE8 1200       DC    CL32'REQ OR END OR CANCEL KEY SAMPLED'
   1BD4 D5C440D6D940C3C1      1200
   1BDC D5C3C5D340D2C5E8      1200
   1BE4 40E2C1D4D7D3C5C4      1200
   1BEC 19              1BEC  1201       DC    IL1'25'
   1BED 40              1BED  1202 MREC   DC    XL1'40'
   1BEE D9C5D840D6D940C5 1C05 1203       DC    CL24'REQ OR END OR CANCEL KEY'
   1BF6 D5C440D6D940C3C1      1203
   1BFE D5C3C5D340D2C5E8      1203
   1C06 16              1C06  1204       DC    IL1'22'
   1C07 40              1C07  1205 MSTRBS DC    XL1'40'
   1C08 E2E3D9D6C2C540E2 1C1C 1206       DC    CL21'STROBE SWITCH SAMPLED'
   1C10 E6C9E3C3C840E2C1      1206
   1C18 D4D7D3C5C4            1206
   1C1D 0E              1C1D  1207       DC    IL1'14'
   1C1E 40              1C1E  1208 MSTRB  DC    XL1'40'
   1C1F E2E3D9D6C2C540E2 1C2B 1209       DC    CL13'STROBE SWITCH'
   1C27 E6C9E3C3C8            1209
   1C2C 1B              1C2C  1210       DC    IL1'27'
   1C2D 40              1C2D  1211 MDATE  DC    XL1'40'
   1C2E D2C5E8C2D6C1D9C4 1C47 1212       DC    CL26'KEYBOARD DATA KEYS ENABLED'
   1C36 40C4C1E3C140D2C5      1212
   1C3E E8E240C5D5C1C2D3      1212
   1C46 C5C4                  1212
   1C48 10              1C48  1213       DC    IL1'16'
   1C49 40              1C49  1214 MREQE  DC    XL1'40'
   1C4A D9C5D840D2C5E840 1C58 1215       DC    CL15'REQ KEY ENABLED'
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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

    1C52 C5D5C1C2D3C5C4          1215
    1C59 0101010101010101 1C68   1216          DC    16IL1'01'
    1C61 0101010101010101        1216
    1C69 14               1C69   1217          DC    IL1'20'
    1C6A 40               1C6A   1218 MDATCK  DC    XL1'40'
    1C6B D2C5E8C2D6C1D9C4 1C7D   1219          DC    CL19'KEYBOARD DATA CHECK'
    1C73 40C4C1E3C140C3C8        1219
    1C7B C5C3D2                  1219
    1C7E 16               1C7E   1220          DC    IL1'22'
    1C7F 40               1C7F   1221 MXLAT   DC    XL1'40'
    1C80 D2C5E8C2D6C1D9C4 1C94   1222          DC    CL21'KEYBOARD XLATOR CHECK'
    1C88 40E7D3C1E3D6D940        1222
    1C90 C3C8C5C3D2              1222
    1C95 08               1C95   1223          DC    IL1'11'
    1C96 40               1C96   1224 MRET    DC    XL1'40'
    1C97 D9C5E3E4D9D540D2 1CA0   1225          DC    CL10'RETURN KEY'
    1C9F C5E8                    1225
    1CA1 25               1CA1   1226          DC    IL1'37'
    1CA2 40               1CA2   1227 MDATP   DC    XL1'40'
    1CA3 D9C5E3E4D9D540D6 1CC6   1228          DC    CL36'RETURN OR DATA KEY INTERRUPT PENDING'
    1CAB D940C4C1E3C140D2        1228
    1CB3 C5E840C9D5E3C5D9        1228
    1CBB D9E4D7E340D7C5D5        1228
    1CC3 C4C9D5C7                1228
    1CC7 08               1CC7   1229          DC    IL1'08'
    1CC8 40               1CC8   1230 MEND    DC    XL1'40'
    1CC9 C5D5C440D2C5E8   1CCF   1231          DC    CL7'END KEY'
    1CD0 08               1CD0   1232          DC    IL1'11'
    1CD1 40               1CD1   1233 MCAN    DC    XL1'40'
    1CD2 C3C1D5C3C5D340D2 1CDB   1234          DC    CL10'CANCEL KEY'
    1CDA C5E8                    1234
    1CDC 20               1CDC   1235          DC    IL1'32'
    1CDD 40               1CDD   1236 MEOCP   DC    XL1'40'
    1CDE C5D5C440D6D940C3 1CFC   1237          DC    CL31'END OR CANCEL INTERRUPT PENDING'
    1CE6 C1D5C3C5D340C9D5        1237
    1CEE E3C5D9D9E4D7E340        1237
    1CF6 D7C5D5C4C9D5C7          1237
    1CFD 1A               1CFD   1238          DC    IL1'26'
    1CFE 40               1CFE   1239 MREQP   DC    XL1'40'
    1CFF D9C5D840D2C5E840 1D17   1240          DC    CL25'REQ KEY INTERRUPT PENDING'
    1D07 C9D5E3C5D9D9E4D7        1240
    1D0F E340D7C5D5C4C9D5        1240
    1D17 C7                      1240
    1D18 40D5D6D5C5       1D1C   1241 NONE    DC    CL5' NONE'
    1D1D E3D9C1D5E2D4C9E3 1D33   1242 XMTMSG  DC    CL23'TRANSMIT BLOCK ASSEMBLY'          GK
    1D25 40C2D3D6C3D240C1        1242
    1D2D E2E2C5D4C2D3E8          1242
                                 1243 *
                                 1244 *       CONSTANTS
                                 1245 *
    1D34 00000000         1D37   1246 STATUS  DC    XL4'00'
    1D38 00000000         1D3B   1247 STSHDB  DC    XL4'00'
    1D3C 0000             1D3D   1248          DC    XL2'00'
    1D3E 0000             1D3F   1249 ZERO    DC    XL2'00'
    1D40 0001             1D41   1250 ONE     DC    XL2'01'
    1D42 0002             1D43   1251 TWO     DC    XL2'02'
    1D44 0003             1D45   1252 THREE   DC    XL2'03'
    1D46 0004             1D47   1253 FOUR    DC    XL2'04'
    1D48 0000             1D49   1254 SAV1    DC    XL2'00'
    1D4A 0000             1D4B   1255 SAV2    DC    XL2'00'
    1D4C 00000000         1D4F   1256 WORK    DC    XL4'00'
    1D50 00000000         1D53   1257 WORK1   DC    XL4'00'
    1D54 FFFF             1D55   1258 HEXFF   DC    XL2'FFFF'
    1D56 00               1D56   1259 SWITCH  DC    XL1'00'
    1D57 80               1D57   1260 HEX80   DC    XL1'80'
    1D58 0000             1D59   1261 SAVPSR  DC    XL2'00'
    1D5A 119D             1D5B   1262 STATCA  DC    AL2(STATCK)
    1D5C 1199             1D5D   1263 END7A   DC    AL2(END7)
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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

    1D5E 1A9B             1D5F 1264 AMSG15  DC    AL2(MSG135-15)
    1D60 1AC7             1D61 1265 AMSG16  DC    AL2(MSG136-15)
    1D62 13D3             1D63 1266 ITLV1   DC    AL2(CONSLE)
    1D64 0000             1D65 1267 KEEP1   DC    XL2'0000'
    1D66 0000             1D67 1268 KEEP2   DC    XL2'0000'
    1D68 1305             1D69 1269 AINCB1  DC    AL2(INCB1)
    1D6A 1322             1D6B 1270 AINCB2  DC    AL2(INCB2)
    1D6C C2F2E4F3         1D6F 1271 B2U3    DC    CL4'B2U3'
    1D70 C2F2E4F2         1D73 1272 B2U2    DC    CL4'B2U2'
    1D74 4630C608         1D77 1273 STATFG  DC    XL4'4630C608'
    1D78 00044630         1D7B 1274 DELAYC  DC    XL4'00044630'
    1D7C 0000             1D7D 1275 R1SAV1  DC    XL2'00'
    1D7E 0000             1D7F 1276 R2SAV2  DC    XL2'00'
    1D80 00186A           1D82 1277 DLAY    DC    XL3'00186A'
    1D83 145B             1D84 1278 ADRSER  DC    AL2(SELECT)
    1D85 1476             1D86 1279 TEMPAR  DC    AL2(RESET)
    1D87 1466             1D88 1280 TEM1    DC    AL2(NOTRE1)
    1D89 40D9C5D84040     1D8E 1281 REQ     DC    CL6' REQ  '
    1D8F C3C1D5C3C5D3     1D94 1282 CANCEL  DC    CL6'CANCEL'
    1D95 40C5D5C44040     1D9A 1283 END     DC    CL6' END  '
    1D9B 000C0080         1D9E 1284 STREQ   DC    XL4'000C0080'
    1D9F 000C0050         1DA2 1285 STEND   DC    XL4'000C0050'
    1DA3 000C0060         1DA6 1286 STCAN   DC    XL4'000C0060'
    1DA7 00300008         1DAA 1287 STLWR1  DC    XL4'00300008'
    1DAB D3D6E6C5D9       1DAF 1288 LOWER   DC    CL5'LOWER'
    1DB0 40E2C8C9C6E3     1DB5 1289 SHIFT   DC    CL6' SHIFT'
    1DB6 8E320000         1DB9 1290 STUPPR  DC    XL4'8E320000'
    1DBA 3E320000         1DBD 1291 STLWR   DC    XL4'3E320000'
    1DBE D9C5E3E4D9D5     1DC3 1292 RETRN   DC    CL6'RETURN'
    1DC4 1C30000C         1DC7 1293 STRET   DC    XL4'1C30000C'
                                1294 *
                                1295 *       EQUATES
                                1296 *
                          0001  1297 XR1     EQU   X'01'
                          0002  1298 XR2     EQU   X'02'
                          0004  1299 PSR     EQU   X'04'
                          0A03  1300 CRTNO   EQU   X'0A03'
                          0216  1301 LINK    EQU   X'216'
                          022A  1302 LOAD    EQU   X'22A'
                          021A  1303 PRINT   EQU   X'21A'
                          0222  1304 HALT    EQU   X'222'
                          0008  1305 ARR     EQU   X'08'
                          021E  1306 UNPACK  EQU   X'21E'
                          0020  1307 P1IAR   EQU   X'20'
                          0001  1308 SSW1F   EQU   X'01'
                          0212  1309 TEST    EQU   X'212'
                          020B  1310 SBYTE3  EQU   X'20B'
                          0010  1311 KYBD    EQU   X'10'
                          FFFF  1312         END
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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ADRMSG	A	002	1300	0816	0808* 0819* 0820
ADRSER	A	002	1D84	1278	0888
AINCB1	A	002	1D69	1269	0830
AINCB2	A	002	1D6B	1270	0833
AMSG15	A	002	1D5F	1264	0728
AMSG16	A	002	1D61	1265	0742
ARR	C	001	0008	1305	0547 0549 0705 0846 0862 0942 0953 0976 1009 1038
B2U2	A	004	1D73	1272	0600
B2U3	A	004	1D6F	1271	0606
CABL	A	005	172C	1131	0582*
CABLE	A	005	1746	1134	0578
CANCAB	A	011	197F	1159	1030
CANCEL	A	006	1D94	1282	0093 0099 1028
CANSW	A	013	196C	1157	0653
CARD	A	004	16E1	1117	0595* 0599 0600 0606
CARDS	A	004	16E5	1118	0591
CHECK	A	004	12B9	0794	0786
CHECK1	A	004	12D1	0803	0796 0829
CONSLE	A	004	13D3	0884	1266
CON1	A	004	1078	0592	0617
CON11	A	004	1029	0567	0556
COR	A	005	1200	0736	0728* 0737* 0742*
CO1	A	003	1043	0576	0566
CRTNO	C	001	0A03	1300	1046
DELAY	A	004	14A6	0953	0445 1015 1042
DELAYC	A	004	1D7B	1274	0959
DLAY	A	003	1D82	1277	0867
DOER	A	003	11F7	0733	0739
DOER1	A	004	11EF	0731	0746
DOIT	A	005	12D5	0804	0826
D1	A	004	0A58	0060	0056
D11	A	006	14C3	0960	0957
D2	A	004	0A6A	0065	0061
D22	A	004	14DB	0967	0961
D3	A	004	0AA2	0080	0067
END	A	006	1D9A	1283	0138 0144
ENDCAB	A	008	1987	1160	1034
ENDD	A	004	14E3	0969	0953* 0966*
ENDG	A	004	13CF	0878	0862* 0872
ENDH	A	004	0FD8	0531	0520
ENDL	A	004	1549	1001	0976*
ENDL1	A	004	1545	1000	0986
ENDL2	A	004	1509	0984	0988
ENDSIO	A	004	15F4	1051	1009* 1014 1038* 1041
ENDSOR	A	004	14A2	0947	0942*
ENDSTR	A	004	135F	0839	0705*
ENDSW	A	010	1901	1152	0623
ENDX1	A	004	10E9	0630	0625
ENDX2	A	004	10F8	0636	0631
ENDX3	A	004	1107	0642	0637
ENDZ	A	004	148A	0938	0885* 0892 0895*
END06	A	004	116C	0683	0677
END07	A	004	1125	0654	0649
END071	A	003	1143	0666	0661
END072	A	004	1134	0660	0655
END09	A	004	1116	0648	0643
END091	A	004	10DA	0624	0619
END61	A	004	1187	0690	0548* 0561*
END66	A	004	1074	0591	0577 0587
END7	A	004	1199	0697	0547* 0550* 1263
END7A	A	002	1D5D	1263	0561
EOCSW	A	017	1A0A	1165	0659
EXPSTT	A	004	12A8	0787	0832
E1	A	004	0B13	0122	0111
FIRST	A	001	1B92	1189	0794
FLAG	A	001	15F9	1064	0371* 0465* 0624 0630 0636 0642 0660 0686* 0995* 1048*

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
FLAG0	C	001	0080	1065	0624
FLAG1	C	001	0040	1066	0371 0465 0630
FLAG2	C	001	0020	1067	0636 0995
FLAG3	C	001	0010	1068	0642
FLAG4	C	001	0008	1069	0660 1048
FOUR	A	002	1D47	1253	0966
F1	A	004	0B80	0163	0156
F2	A	004	0B96	0169	0165
G1	A	004	0C40	0228	0206
G2	A	006	0C2F	0224	0214
G3	A	003	0C52	0233	0229
G4	A	004	0CD7	0272	0250
G5	A	003	0CE9	0277	0273
G6	A	006	0CC2	0267	0252
G7	A	004	0CB7	0264	0254
HALT	C	001	0222	1304	0050 0104 0149 0201 0244 0303 0349 0437 0508 0529 0695 0918 0931
HEXFF	A	002	1D55	1258	0981 0987
HEX80	A	001	1D57	1260	0616 0831
H1	A	004	0D47	0314	0309
H2	A	004	0D67	0323	0315
H3	A	004	0D7F	0329	0324
INC	A	003	10B1	0612	0594 0607
INCADR	A	003	12E5	0807	0806* 0818
INCBTO	A	004	1301	0817	0812 0830* 0833*
INCB1	A	006	1305	0818	1269
INCB2	A	006	1322	0825	0817 1270
INCR	A	006	120B	0738	0735
INCZ	A	006	10A0	0606	0601
INC2	A	003	1067	0588	0581
INTPL	A	015	1996	1161	0875
ITLV1	A	002	1D63	1266	0868 0869* 0936
I1	A	005	0E06	0375	0363
I2	A	004	0E3E	0391	0376
I3	A	004	0E74	0406	0400
I4	A	004	0E80	0409	0370 0374 0382 0387 0390 0398 0405
J1	A	004	0EE3	0450	0444
J2	A	004	0EC1	0441	0446
J3	A	004	0F33	0470	0464
J4	A	004	0F50	0478	0472
J5	A	004	0F5C	0481	0469 0477
KEEP1	A	002	1D65	1267	0810* 0824
KEEP2	A	002	1D67	1268	0818* 0819
KYBD	C	001	0010	1311	0038 0092 0137 0185 0233 0277 0290 0342 0423 0510 0870 0910 0912
LENGTH	A	001	12FE	0815	0804* 0805*
LEN1	A	001	118D	0715	0377* 0466* 0527* 0717*
LEN2	A	001	124C	0755	0072* 0210* 0225* 0264* 0269* 0325* 0364* 0757*
LINK	C	001	0216	1301	0081 0124 0171 0279 0331 0356 0456
LOAD	C	001	022A	1302	0531
LOWER	A	005	1DAF	1288	0343
MARK	A	001	15F8	1055	0052* 0106* 0151* 0196* 0247* 0291* 0306* 0360* 0439* 0460* 0555 0618 0648 0654 0685* 0774 0834* 0863* 0871 0896* 0897 0956 0958* 1031* 1035*
MARK0	C	001	0080	1056	0863 0897
MARK1	C	001	0040	1057	0871 0896
MARK2	C	001	0020	1058	0052 0106 0151 0196 0247 0291 0306 0360 0439 0460 0956 0958
MARK3	C	001	0010	1059	0555
MARK4	C	001	0008	1060	0618 1035
MARK5	C	001	0004	1061	0648 1031
MARK6	C	001	0002	1062	0654
MARK7	C	001	0001	1063	0774
MCAN	A	001	1CD1	1233	0119* 0157*
MDATCK	A	001	1C6A	1218	0268* 0310* 0401* 0473*
MDATE	A	001	1C2D	1211	0905*
MDATP	A	001	1CA2	1227	0318* 0394*

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
MEND	A	001	1CC8	1230	0113* 0160* 0172*
MEOCP	A	001	1CDD	1236	0057* 0116*
MOD1	A	001	1060	0584	0562* 0572*
MOD2	A	001	108B	0597	0563* 0573*
MOD3	A	001	109C	0603	0564* 0574*
MOD4	A	001	10AD	0609	0565* 0575*
MREC	A	001	18ED	1202	0996* 1018*
MRECS	A	001	18CB	1199	0997* 1017*
MREQE	A	001	1C49	1214	0904*
MREQP	A	001	1CFE	1239	0062* 0070* 0112* 0166*
MRET	A	001	1C96	1224	0320* 0395* 0474*
MSG	A	015	1885	1149	0343*
MSGBL	A	033	19F9	1164	0524
MSGCAB	A	001	1740	1132	0220* 0224* 0260* 0267* 0326* 0367* 0586 0687 0687* 0875* 1023* 1030* 1034*
MSGCEN	A	021	19AB	1162	0498
MSGDAT	A	028	195F	1156	0635
MSGFG	A	045	19D8	1163	0503
MSGKY	A	016	1911	1153	0641
MSGL2	A	036	1943	1155	0647
MSGRD	A	008	1A1A	1167	0224 0267 0326
MSGRES	A	014	171B	1129	0195 0238
MSGRSW	A	014	191F	1154	0629
MSGSHF	A	012	178C	1140	0665
MSGUCM	A	008	1A12	1166	0220 0260
MSG013	A	022	18F7	1151	0347 0432
MSG018	A	020	1AEA	1178	0784
MSG019	A	020	1AFE	1179	0792
MSG033	A	031	1A5E	1171	0711 0712* 0716
MSG034	A	031	1A7D	1172	0721 0722* 0726
MSG035	A	027	1A99	1174	0752
MSG036	A	027	1AC5	1176	0763
MSG08	A	027	1780	1139	0507
MSG12	A	052	17C0	1141	0965
MSG13	A	019	17D3	1142	0916
MSG135	A	017	1AAA	1175	0727 0727* 0736* 0756 1264
MSG136	A	017	1AD6	1177	0745 0745* 0767 1265
MSG14	A	049	1804	1143	0929
MSG141	A	035	184B	1181	0671
MSG142	A	042	1B75	1182	0675
MSG15	A	028	1850	1145	0045* 0049 0099* 0103 0144* 0148 0298* 0302 1019 1028
MSG16	A	016	1860	1146	0039* 0043 0093* 0097 0138* 0142 0186* 0190 0292* 0296
MSG17	A	019	1A2D	1168	0200 0427
MSG18	A	017	1A3E	1169	0243 0436
MSG19	A	035	1883	1147	0605
MSG20	A	035	18A6	1148	0611
MSHIFT	A	001	1B88	1196	0230* 0274*
MSTRB	A	001	1C1E	1208	0992* 1045*
MSTRBS	A	001	1C07	1205	1044*
MSWARN	A	048	1834	1144	0694
MUCM	A	001	18A0	1192	0215* 0255* 0447*
MXLAT	A	001	1C7F	1221	0311* 0402*
NEXT	A	004	13F2	0892	0890
NEXT1	A	004	1402	0896	0894
NEXT2	A	004	1418	0902	0898 0908
NEXT3	A	004	1432	0909	0903
NEXT5	A	004	140D	0899	0901
NONE	A	005	1D1C	1241	0802 0828
NOTRES	A	004	1440	0913	0889 0891 0922
NOTRE1	A	004	1466	0926	1280
ONE	A	002	1D41	1250	0805 0873 0960
PRINT	C	001	021A	1303	0040 0046 0094 0100 0139 0145 0187 0192 0197 0235 0240 0293 0299 0344 0424 0429 0433 0495 0500 0504 0521 0557 0567 0583 0596 0602 0608 0620 0626 0632 0638 0644 0650 0656 0662 0668 0672 0679 0688 0691 0713 0723 0753 0764 0776 0781 0787 0789 0799 0813 0837 0913 0926 0962

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
PRINTE	A	004	1388	0856	0846* 0853
PRINTT	A	004	1363	0846	0408 0480
PRTMSG	A	004	1159	0676	0667
PSR	C	001	0004	1299	0884 0937*
PTIAR	C	001	0020	1307	0885 0909* 0911*
REED	A	008	1B7D	1183	0367
REP	A	025	16DB	1115	0560 0570
REPLCE	A	004	0FDD	0547	0058 0063 0076 0078 0120 0125 0161 0167 0173 0211 0218 0222 0226 0231 0258 0262 0265 0270 0275 0312 0321 0327 0368 0372 0380 0385 0388 0396 0403 0448 0467 0475 0876 0899 0906 0920 0923 0993 0998 1024 1026 1032 1036 1049
REPOB1	A	006	0DBD	0357	0411
REPOC1	A	006	0EFC	0457	0483
REPOB	A	003	0DB0	0353	0412
REPOC	A	003	0EEF	0453	0484
REQ	A	006	1D8E	1281	0039 0045 1019
REQCAB	A	008	1974	1158	1023
RESET	A	004	1476	0933	1279
RESMSG	A	019	1B90	1184	0779
RETRN	A	006	1DC3	1292	0292 0298
RTNO1	A	001	0A0D	0034	0024
RTNO2	A	001	0AAA	0C88	0036
RTNO3	A	001	0B26	0133	0090
RTNO4	A	001	0BAD	0181	0135
RTNO5	A	001	0CF4	0286	0183
RTNO6	A	001	0D8B	0338	0288
RTNO7	A	001	0E90	0419	0340
RTNO8	A	001	0F6C	0491	0421
R1SAV1	A	002	1D7D	1275	0706* 0835 0865* 0933
R2SAV2	A	002	1D7F	1276	0707* 0836 0866* 0934
SAVPSR	A	002	1D59	1261	0884* 0937
SAV1	A	002	1D49	1254	0552* 0683 0954* 0967 0977* 1000
SAV2	A	002	1D4B	1255	0553* 0684 0955* 0968
SBYTE3	C	001	020B	1310	0410 0482
SELECT	A	004	145B	0923	0925 1278
SENSOR	A	004	148E	0942	1010 1039
SHIFT	A	006	1DB5	1289	0186
SIO	A	004	154D	1009	0054 0108 0153
SIOA	A	006	1598	1028	1020
SIOB	A	006	15B2	1034	1029
SIORT	A	004	138C	0862	0080 0122 0169 0329 0406 0478
SIOS	A	004	15C3	1038	0204 0248 0307 0361 0461
SIO1	A	004	1381	0871	0874
SIO2	A	004	1551	1010	1016
SIO4	A	004	15C7	1039	1043
SIO9	A	004	1591	1026	1022
SSW1F	C	001	0001	1308	0410 0482
STATCA	A	002	1D5B	1262	0548
STATCK	A	004	119D	0705	0528 0690 1262
STATFG	A	004	1D77	1273	0526
STATUS	A	004	1D37	1246	0055 0060 0065* 0066 0068 0073 0109 0110 0114 0117 0123 0154 0155 0158 0163 0164 0170 0205 0207 0208 0213 0216 0228 0249 0251 0253 0256 0272 0308 0314 0316 0323 0362 0365 0375 0378 0385 0391 0392 0399 0441* 0442* 0443 0462 0463 0470 0471 0511* 0512* 0513 0515 0517 0519 0710 0712 0720 0747 0768* 0769* 0770* 0785 0847 0886* 0887* 0902 0943* 0944* 0945* 0984* 0985 0989 0990 1011 1021 1040
STCAN	A	004	1DA6	1286	0107
STEND	A	004	1DA2	1285	0152
STLWR	A	004	1DBD	1291	0246
STLWR1	A	004	1DAA	1287	0357 0457
STREQ	A	004	1D9E	1284	0053
STRET	A	004	1DC7	1293	0305
STROBE	A	004	14E7	0976	0234 0278 0330 0407 0450 0479 1013
STSHDB	A	004	1D3B	1247	0053* 0066 0107* 0152* 0203* 0246* 0305* 0357* 0358* 0359* 0440* 0457* 0458* 0459* 0526* 0720 0722 0743 0758 0771* 0772* 0773* 0793 0864*

1041 5471 PRINTER KEYBOARD FAULT LOCATION DIAGNOSTICS MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
					0935* 0946* 0978*
STUPPR	A	004	1DB9	1290	0203 0440
ST1	A	006	14F7	0980	0982
SWITCH	A	001	1D56	1259	0551* 0616* 0729* 0740 0744* 0780* 0831*
SYNCP	A	004	136E	0849	0851 0855
SYNC3	A	003	0F90	0510	0516 0516
SYNC4	A	004	0F93	0511	0514
TABLE1	A	001	15FB	1074	0351
TABLE2	A	001	1629	1084	0451
TABLE3	A	001	1657	1094	0352
TABLE4	A	001	1685	1104	0452
TABLE7	A	016	16C2	1111	0732
TEMPAR	A	002	1D86	1279	0911
TEM1	A	002	1D88	1280	0909
TEST	C	001	0212	1309	0409 0481
THREE	A	002	1D45	1252	0550 0895
TST	A	003	107C	0593	0592* 0613 0613* 0614
TSTBTO	A	003	12F3	0811	0803* 0825 0825*
TSTR	A	003	11FA	0734	0731* 0738 0738*
TST2	A	003	1051	0580	0579* 0589 0589* 0590
TWO	A	002	1D43	1251	0737
UNPACK	C	001	021E	1306	0708 0718 0749 0760
UVWXYZ	A	001	0A00	0005	
WORK	A	004	1D4F	1256	0747* 0748* 0751 0758* 0759* 0762 0849* 0850 0852 0959* 0960*
WORK1	A	004	1D53	1257	0549* 0554 0867* 0873*
XMTBLK	A	001	15FA	1070	0075* 0221* 0261* 0676 0678*
XMTMSG	A	023	1D33	1242	0682
XR1	C	001	0001	1297	0351* 0353 0353* 0358 0375 0451* 0453 0453* 0458 0463 0552 0554*
					0576 0580 0593 0615 0615* 0666 0683* 0706 0730* 0734 0743* 0785*
					0793* 0795 0796 0797 0811 0827 0827* 0835* 0865 0892* 0893 0933*
					0954 0967* 0977 0979* 0981* 0983* 0987* 1000*
XR2	C	001	0002	1298	0352* 0354 0354* 0355 0359 0362 0452* 0454 0454* 0455 0459 0462
					0553 0578* 0582 0588 0588* 0591* 0595 0612 0612* 0684* 0707 0732*
					0733 0733* 0736 0794* 0804 0806 0807 0807* 0808 0809 0809* 0810
					0820* 0821 0823 0824* 0828 0836* 0866 0934* 0955 0968*
ZERO	A	002	1D3F	1249	

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

1041 5471 PRINTER KEYBOARD FAULT LOCATION DIAGNOSTICS MOD 12

OBJECT CARD LISTING

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

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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

 GBK GBD   PN 42  48249 EC 827805   PRINTER/KEYBOARD             MOD 12  84a84aa                    10410000
T+-Y:DDD     B-4    AA&  F BD,3D    <AJ/PGQ# /OHE&/   CQACBC MQLA6+OH*  BF-Q*FEC /OHSD<H  #HAM EC-10410001
T+-Z5= OCGL%)X%B  GEM49&A47a/ .|EO  *7*BGC'4<   8-A4  7a/ .|EO*"%BGC'4  <   #-A44C& )(A4  8aYD 8T%10410002
T+-DOH3S GL¬2D *  aPA3=aY*D|B4KLC5   GLL2 &*: JP:OH*  |7K&  %BGC'4D  C   /1+<OH*BE-H B2$  3D    :J810410003
T+-,,C MQN16MOH*  BFUH&FF &000EFDO  )V<BG /YFGA/&OH*  BH/CC+2 N= OCGL%  )Z%BGEM48QA47+R   )("H 8J810410004
T+-%WDBMaPA3=|EO  *2C/ GL¬2D &aPA3  )+B )("H&AC1*G(G   /O")C   OH*LTC-  -GL¬ D HOOH*|7&-      < P#010410005
T+-_/- >_a1  C M  QN16EOH*BFUH&FF   &1 OEFDO)W%BG /Y  FGA/&OH*BH/CD+2   N= OCGL%)Y%BGEM4  8DA4 Q,010410006
T+->*(3U-GL¬2DAQ  aPA3J+A )("H&AC1  *G<T /O")C    +D  )(3W GL¬2D %aPA3  =OH*|7&O  <BGD80  8DA4 P$D10410007
T+-?P(a & /QaPA3  HOH*|7&-   J&C|L  3D  <AJ/PG$P /OH  E&/ QQACWOH*BF-D  +E1%#HAP8OH*BF-Q  LFS4 =2410410008
T+-OKOH*BH/CWC <  )+169OH*NO36+GLL  2-ND8-A44+ H)(¬H  &B30_DU3 /O")A     +H )(|H&H31*F:  'O/4 4:M10410009
T+-1((?HAAaBGC'4  D   <A1*5F/H: JP  :OH*|7K-  -OGE3M  EFTO_DU3 /O")H    B+ H)(¬H&B31*F#T   /Oa '-810410010
T+-2H7&O   |<& <B  GE+¬ /OHE&-8PF1C  XOH*BF-QJFT# /OH  SD+*< 14#G$4#HAP  8OH*NO34=GLL2-ND  8 J4 OHD10410011
T+-3C("H&(LW GLL  2DB<aPA>-|P8)(?H  AAaBGC'4D   <A1*  5F/H: JP:OH*|7K-    TO_DU3 /O")A    C * 2-%10410012
T+-3=E3MEFT1*GFY  a.JI<OH*|7K   T-  BGLP2D %aPA>8OH*  |7&Y  |<&AaBGE+¬   /OHOAQ (S"<& C%  -E¬- 1K*10410013
T+-49C MQN17COH*  BFUH&FF &1&OEFDO  )OaBG /YFGA/&OH*  BH/CEC <)+17G+2   N=<BGE*<9 147a/   ||EO PC-10410014
T+-54GFYaPA1"OH*  |7&-  C-<GL¬2DAU  88A47a/ G|EO*Y?H  GAC1*GI$ /O")C     |JO)(|HADLO_DUO  <A1* 2AQ10410015
T+-6?(JYEOH*|7K     %BGD83 /1LXOH*  BE-E CZC3D  <AAS  >GE" /OHEJVDQ'1C  FOH*BH/CFO-DN=%H  BEVQ KJ 10410016
T+-7D4-DA8-HA?¬a   CHDBE-OCGL%)D/O   GLY .  )+  #HAP  8OH*NO84  A44aYD  Z|B4KLCUAGL¬2DA   <A1* P.Y10410017
T+-8V(J_'OH*|7K     ?HGSCZ E¬X /O"  )A   aY):L&  GL$  2-L aHAF'+ D)("H  &B%BGC'4H  C2/54  8 /4 &B 10410018
T+-9-("H&B%BGC'4  H  C2/43 /O")C     aY)B+ -)(3UDGL¬  2DAHaPA2S|EO*V%B  GC'4<  C2/2M9 14  7a/  POM10410019
T+-:$DT1*GFYaPA1  "OH*|7&-  |HGC<B  GD83 /1LXOH*LQaB  G /H8 &H.OA (?*B  GC$ G- '%a1  OH*  BFUD 1A%10410020
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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+-#ODIY_D<¬ /OH	Ē MHQ'@BG /YFDJY	=OH*BH/CG+2 N= 0	CGL%)>L LGLMODJ4	7+H)(|H&D@BGĒH$	/O8 79<10410021
T+-@JOL1*F:C /O"	)B OH*M9@HAEST	8 /ĒD4-DA8-HA?¬@	OHDBE-OCGL%)D̄/O	GLY .)+ #HAP	8OH*) -10410022
T+-'<E*+( )(D4	A46@YDK+U N=LO	-D$7 /O")B @Y*	Z+ -)(3UGGL¬2DAH	@PA1D̄|EO*V%BGC'4	H O9Y10410023
T+-=G@Y*<OH*LT<B	GE+¬ /1(TOH*BDT-	A -? D #@OH*+#OS	""" /OHĒ&/MRD̄1C	HOH*BF-D_F)T /OH	ĒA/% #CH10410024
T+-"BE8C /OHSD<T	3D DOD145<AD)(3-	HGL¬ U =L|*Q)(%B	AC9 '11460HD|UC5	GL$2-J# /OHĒOSD	R=J 6#M10410025
T+-"'C OCGL%))30	-D$7 /1F)OH*BH/	<OH*BH- 4BAF*C D	JS/5$(-)MO8ADRO	)JLO GNQ4 J51(H	)K3M @3010410026
T+/ 8 J5L+J N=|H	&H*BG /YBFJ$$C D	JS/5)| D&QCOADH%	@ JB*| D&,¬H̄GF%B	G /,BFJ$$D D@-JA	-|HD P9D10410027
T+/A3DH%@-JB*|HD	&,P4 ?H̄AH@HBE4Q	@ JAK; B@Z &. &	P. C /OHĒ KMP&|H	GC;HBA&8 DEH&M%	-DED O. 10410028
T+/B>O-HO9LOADG5	8 C2UB@% 1$/ <B	G /YAA/$/C&<O8J5	3@-DHOH*BF-DTFH<	(1$/GO"2 &T /OH	Ē K< K8@10410029
T+/CZFH̄$S -&+ AA	'DG7 HAA@4-DAC-	)N/5POB &;C-HE¬T	2U T /OHĒ-&YR LS	E¬X2U T /OHĒ-&8	RG3- ",Q10410030
T+/DU&AP9@Z HOH*	BFYD*FN@8HAP9@Z	HOH*BFYD&FJD8DAP	9@Z HOH*BFYDUFH<	8AAP8@Z HOH*BFYD	(FOO ;/<10410031
T+/E¬+ HN=|H&B<B	G /D̄ADJYH+ -N=¬H	&B<BG /D̄ACA;<; D	@Z &OH*BFYE(F4?	/OHĒ-KY$)L-AE¬,	2U O 89*10410032
;+/FĒ+ODN=%BG /D	AE143(&D)KLMBGM%	#G1P8+"@N=&OLE4	P&*BG /D̄KOH*JX*B	G /D̄F<A-4OH*BH/	AOH* OH̄@10410033
T+/GN 4BA(S(D	)¬L&BGP" /OH; J4	6FVY< AZ;GL$ /OH	Ē-J@ĒPTO¬D$7 /OH	; J4:FXU< AZ'GL,	/OH 1-U10410034
T+/H&FYH¬FX4<C1D̄	ZFD̄Y< JHCGN@@ A5	OO-D)(COAD¬?B /Ē	28-HB; @Z .. D	ĒWO + JHCGM<+ AG	#D¬% OBY10410035
T+/I.OB J'36 GN$	2-J-< JHCGOGB J4	8|H)N-O|F_ME5%B	GD;@< A5<GL&#-A5	<OH*BG-D)LAD̄QOH*	BFYD :/U10410036
T+/H̄F.AD̄D|BOKL O	GMO)+C> GM3 /OH	; J5<F%L /OHĒ-SO	Ē5T?"GLQ#¬144+OD	)(L?"GLY#¬148+OD	)+L- ¬# 10410037
T+/.A JP8@Z HOH*	BFYHLF9 @ A5OOH*	BFYHMF>,B J44@Y*	JOH*BFZ. /OHĒ-/&	Ē"%HAGLTB />J;Q	;¬8 4J 10410038
T+/.@ PX" "H̄&B<B	G /D̄AAJ4*| DK'BO	D?8 C- K"/5A.	K9OCS - 4 /< 8-H	A(H)RP- |H&B<B	G /Y P:M10410039
T+/<7-& <BGD2H	< A5XD>*| J< GO*	5 /< ?&D @YDC?D	A(&H)R&8 D?&K'<	-D_PK &F(A)F<	AD_D Ē.-10410040
T+/(2C DLAA5ZC-	)N/5POB KD̄ OAD0&	)Ē3?"E¬-5 J5'(&H	)¬@BG /D̄LOH* C&	HD8%1FA47@1S <AU	)L3U 4J410410041
T+/+_DA5|OI L$T-	HGM"2U ¬3FDC /1(	>OH* C&HD'H:-AP	8+%)+L&AGP44 /5	"C H)M16B(*)Q3L	GO<)D̄Q10410042

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+/|Y@1 F+D N=|H	&EO@BGN<)&* AD#D	<C/*@FR$ /O")/ <	AOH* C&DGNU4HAK	(<A<)(L JGL*5HA6	DOH "&U10410043
T+/&TEC7 "1|2@Y)	.(&DMTP4F ?HAA-8	AEH4)JLZ E¬-8-AP	8@/ .OH*|7&M <b	GE 480A45@/ L|EO	*KLO &:U10410044
T+/J;PAO_OH*|7&M	<BGEA-5HA6H@1	(K)/?<& *BG /,	FD1¬LDBG /OHSDBG	/O")A& OH*M&<B	GC'4 KT%10410045
T+/KR- OH*MO@B	G /,F<J-DDB. /OH	SDBH5 J5'(&H)¬3?	GLU5OA5T(&&)O*B	G 4BAKV<A<)(L	JGL* 'Q*10410046
T+/LM+OD)(L%AGLX	/O (-M9T&AGMU	4 /5.+B N=|H&BTY	-E¬-< 15|GP%| 15	|GMG JL$OH*BF-H	4E@ 20%10410047
T+/M|C-DM9/5G(&D	)KLMBGM? /O (-	NLC&AGMU#|A49O-D	B-7= ¬&A'CQAGNP	JL7O-G""T LGLM	9|A4 *3@10410048
T+/NH̄(¬H&<LQAGNP	JMI+A)(CUHGLL	2U %@PAO;OH*|7&&	CY-E¬U@PA?_|EO	$2@BGC'4< 5 J5	IOH* 1YD10410049
T+/OE 4BAP7OH*	MTT-<GLP2U T /1L	XOH*N'<BGEH$ /1N	J|EO$231*F=4(AJ/	<GQ@2 J%8-A47@/	(C * ;#Q10410050
T+/P E3MR)<BGC'4	HA T /O")C C&M	QLA6M@-DJC YP+AV	"+-&N=<BGC'4HA -	<A1*5FQ*:BAP8OH*	|7&- @Q-10410051
T+/P@A -4BAP7OH*	MTT-OGLP2DB. /1K	WOH*N131*G *@PAO	;|&*H̄ "HAACYHE¬X	/O")B OH*	ID K1U10410052
T+/Q6@?|4'¬$7=|X	OQECQ9%PR8=TU2)$	P¬<GS1<$G2(GK45_	#:;¬C9*.N5F_.GMC	"¬U1:;W1'$V1(PO5	+6+Q O$M10410053
T+/R11)XT:+LI5_)	H̄O;.D1%¬H4).LOX"	Z9@|VO_PML5'?&|@	1<X<4)PQ7+GVOHAA	QIUMRH6/UKJRP¬ E	SADQ 1Q810410054
T+/Ē%AO/JM/($+2V	X&2MBENJ,B6E "#F	2@#L5',;8=¬B-U(S	W1RWT:+LIV_¬@-;H	D1Y;H4)H̄L6#>Z9@+	V-ZM 8T810410055
T+/$X5+>.8*C"@O?	2Ē"J,=F?AĒ@I,54A	&(XE5'|A0@N 1_$	L4'$W2)PG&<|A6*J	/8X,AQ+¬X9=¬B@_|	2O?H M1M10410056
T+/*S5|.8@_P2O?.	P@%.26¬.8@>.2O?.	U@%.34".B@'¬2O?|	S@%.29||R1;.E84C	T2<N 2<GL8@|H1*|	K&<< 7:@10410057
T+/)|O*.L1M7X9=¬	X94A &DA &DA &DA	&DA &DA &DA &(.	D@¬L11@|5'¬|GO"P	5@%¬C'|$12)N 4'$	W1)U ;.810410058
T+/;Q&+.H2*$TĒ4C	P6*PS8UCA5*J 6*P	L1*GS1MCS5@GC1MC	B0)XO6MCS2<XF84C	K1;TN5UCC2<GN1@N	5%Q PLO10410059
T+/¬L&+.TO;|U8UC	A1>|E6MCO5*N 5<X	N9+|EQ<PR6)$R&(L	A:DCE9@XS8@XN8@P	R6;LP84CN5>(6*P	S1;< #0010410060
T+/-+2)PT1)XR9(¬	T&(XE8%PT&<.Y&<L	I8%GB4@N-Q(XE5'|	A0@N OOCB@_|2Ē@E	-O?.N@>$A6)PI5*)	-6*M @Ē410410061
T+//I8%PT8@XN14C	T2<XS&<PR6)$R&<T	A4=(5<GY&<.E&<X	N9*GL2*LP6*PS8UC	A5*J 6*PL1*GS1MA	&D Q9<10410062
T+/SD&DA &(.E:DA	&DA &DA 4%PY&+|	E8>(-OOCB@>L2&(L	A:DCB1MCS9%GP5@P	D&+$I8@/ OOCA@@G	3&F PZ&10410063
T+/S"OOCB@>L3&(L	A:DCB1MCS9%GP5@P	D&+$I8@/ OOCB@>L	5&<XN&(|09%PR&+.	H2*$T&(¬R1;.S&<L	A8@D :1D10410064

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+/T:&(.E:+I 4@P	F84CT5UCR2*¬H86_	8'$P&+|O&<.O8=|	O5F_ 8@TE5MCP6*P	S8UCS5@GC1MCBO)X	E5*& R/Y10410065
T+/U5&+.W2;|C2($	R&(.E:DCH1)|D&<L	O9_PR1)TU1;.T&+.	W2;|C2(XEQ+.EO;(	OOCB@_|2Ē4CS9+.	P1*< 4, 10410066
T+/VO84CO5@PN&(¬	I5MCU@¬.O6MCDO;|	A&(.E:DCH2;(5>L	T&($F&($R1<PRO@G	NO@PL&+.W2;|C2(X	E6D :T-10410067
T+/W,4%PYP*|A5*|	E44CK1;/)1)PD&(.	E:E7I5;|E6)XU5=(	5'$L457C2<GRO*|	T1)V 1)PC5%LE&+|	E8>< *3010410068
T+/XW5'XE8>I O)P	D&(XE4@PA8%N 1UC	A5*J 14CK1;TS&+.	I5+LL8@GN1)$U8_|	Y6*PF1)V 8'R 1%P	M5D 6#H10410069
T+/Y/@WC1'¬N &DA	&DA &DA &DA &<P	N1DCO6MCCO)N 8>$	I8@|H9<(5($D1N7	R1*PD&+.WP)|GO'I	8%- OAU10410070
T+/Z*2*$T&(.E:DC	D5>$N9(PL5%|K&DC	S2<XF84CK1;/*1<G	TOMCC2<GRO*|T1)V	6*PC1*XV1*J QDA	QF% L9Y10410071
T+/ĎP&DCDO;|A&<|	HO)XAO=|E6MCE9'¬	EO=|E1DA-&DA-Ē4A	P(XE1*J 8>$I8@|	H1;I 6*PC1*XV1*J	QD :D<10410072
T+/,K&FA &DA &DA	&DA &DA &DA &(X	E1*J 8>$I8@|H1;I	1;¬P1*|T1*J QDA	QDA &DA &DA &DA	&D 82410410073
T+/%(&DA &+.TO;|	U8UCR1*|E2;PE1DC	WO;I,8>|A8=LS&<P	X5@PC8@PD&+$A8W?	I1UCA5;/ 5>|H1)V	2)M 5A410410074
T+/_H8@PR6;LP8@X	N14CD1;PIO@PS&<G	T8@GC2<PD&+|O&+.	Y8>|E5DCA6*N 5_¬	E6*GT2)PG&<|O6)X	EO=< MKQ10410075
T+/>C4=/,5_LI84C	C2<PC4%XN14CB@¬.	2Ē4CB@'¬2Ē4CA5*J	O@GB4@N(4%L1'|E	)6*PE1DCS9V7R1;.	E6;M 79*10410076
T+/>=1*J O%XT&<X	S&(%N& DA &DA &D	A &DA &DAEMCK1;T	B5%GR1DCM5%LE&+.	W2;|C2 DADUCK1;T	B5%D ¬,@10410077
T+/?96*J 8%TI1>|	I5**/&(XE6DCO6MC	E5*J 5_V O@GNO@P	L&(.E:DCSO)!P4@P	DFMCR1)/ 5_V 1)P	D&(Q 41U10410078
T+/O46MCCO)PC1)(	4%PYEUCS8'XOO%N	8>$I8@|H&+.A5(¬	L1*&+&+.T6)$B1MC	S9%XT@@-$&(.E:<.	OO)U NT*10410079
T+/1?1DCDO;|A&(.	E:+I 1)PAQ_|E1AA	6*PQ&(.E:DCE5*G	B4@PD &DA &DA &D	A &DA &DA JJ 4%P	YO_Q 3,810410080
T+/2D̄O)XD&<LA8@E	O@TEO'HO&(.E:<.	OO)XD&+¬LO;|O6MC	C2<PC4-_ 6*PT9(X	N&(.E:BN 6*PT9(X	N&(Q J Q10410081
T+/3V6MCDO;|A&(.	E:DCI5;|E6)XU5=(	5@PN1<XN1O/ 1)P	D&(.E: _ O@GNO@P	L&(.E:BA 1)PD&($	R&<< 8HY10410082
T+/4-O)PC1)(2)P	T1)XR9(¬T&(¬E5*L	I5**Ē&(XE6DCK1;/	2)PT1)XR9(¬T&(¬	E5*LI5*) 5)$N1;|	RO)M 9 &10410083
T+/5$8_LI84CB4'$	C4UCA8>.E5<.L:		A H O D	@@@ -	DR4 =ZY10410084
T+/6ODRUĒW1,GD'<	DOMLH%.29||	B@>L2JTCFB DJT	A/D̄EE%M)/J	W&(XE6DA O@GNO@r	L&<M @-H10410085
T<A7G5*J & < H	C A& O Q O T	L5>$E6MCS2<XF888	2 =<- 6*PT9(X	NGC C	9.-10410086

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
E@@'*E7*=¬DC@PH$	=@7M&F|	I	C	F% ASC R A	SO Q 17380630751	110751$@10410087

LAST PAGE

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                                2         DECK  1
   0A00                         3         START X'0A00'
                                4 ************************************************************
                                5 *                                                          *
                                6 *          SYSTEM/3   PRINTER KEYBOARD SYSTEM TEST MODULE  *
                                7 *                                                          *
                                8 ************************************************************
                                9
   0A00 10F2                0A01   10         DC    XL2'10F2'              S      P
   0A02 C0                  0A02   11         DC    XL1'0'                  E      R
   0A03 00                  0A03   12         DC    XL1'0'                   C      E
   0A04 0000                0A05   13         DC    XL2'0'                    T      F
   0A06 0AED                0A07   14         DC    AL2(RTN01)                 I      A
   0A08 0A0D                0A09   15         DC    AL2(LOGOUT)                 O      C
   0A0A 101000              0A0C   16         DC    XL3'101000'                  N      E
                                   17
   0A0D 80                  0A0D   18 LOGOUT  DC    XL1'80'                LOG-OUT AREA ************
   0A0E 15                  0A0E   19         DC    IL1'21'                                        *
   0A0F F5F4F7F140D7D9C9    0A23   20         DC    CL21'5471 PRINTER KEYBOARD'
   0A17 D5E3C5D940D2C5E8           20
   0A1F C2D6C1D9C4                 20
   0A24 80                  0A24   21         DC    XL1'80'
   0A25 0B                  0A25   22         DC    IL1'11'
   0A26 D3C1E2E340F340E2    0A30   23         DC    CL11'LAST 3 SIOS'
   0A2E C9D6E2                     23
   0A31 40                  0A31   24         DC    XL1'40'
   0A32 02                  0A32   25         DC    IL1'2'
   0A33 0000                0A34   26 SIO3    DC    XL2'0'
   0A35 40                  0A35   27         DC    XL1'40'
   0A36 02                  0A36   28         DC    IL1'2'
   0A37 0000                0A38   29 SIO2    DC    XL2'0'
   0A39 40                  0A39   30         DC    XL1'40'
   0A3A 02                  0A3A   31         DC    IL1'2'
   0A3B 0000                0A3C   32 SIO1    DC    XL2'0'
   0A3D 80                  0A3D   33         DC    XL1'80'
   0A3E 3D                  0A3E   34         DC    IL1'61'
   0A3F E2C5D5E2C540C4C1    0A70   35         DC    CL50'SENSE DATA AFTER LAST 3 INTRPTS (IN Q CODE ORDER 1'
   0A47 E3C140C1C6E3C5D9           35
   0A4F 40D3C1E2E340F340           35
   0A57 C9D5E3D9D7E3E240           35
   0A5F 4DC9D540D840C3D6           35
   0A67 C4C540D6D9C4C5D9           35
   0A6F 40F1                       35
   0A71 F16BF1F36BF1F96B    0A78   36         DC    CL11'1,13,19,1B)'
   0A79 F1C25D                     36
   0A7C 40                  0A7C   37         DC    XL1'40'
   0A7D 08                  0A7D   38         DC    IL1'8'
   0A7E 000000000000000C    0A85   39 LOG3    DC    XL8'0'                 SENSE DATA FOR LEAST RECENT INTRPT
   0A86 40                  0A86   40         DC    XL1'40'
   0A87 08                  0A87   41         DC    IL1'8'
   0A88 0000000000000000    0A8F   42 LOG2    DC    XL8'0'                 SENSE DATA FOR INTRPT BEFORE LAST
   0A90 40                  0A90   43         DC    XL1'40'
   0A91 08                  0A91   44         DC    IL1'8'
   0A92 0000000000000000    0A99   45 LOG1    DC    XL8'0'                 SENSE DATA FOR MOST RECENT INTRPT
   0A9A 80                  0A9A   46         DC    XL1'80'
   0A9B 32                  0A9B   47         DC    IL1'50'
   0A9C E2C5D5E2C540C4C1    0ACD   48         DC    CL50'SENSE DATA AFTER LAST 3 ERRORS (SAME Q CODE ORDER)'
   0AA4 E3C140C1C6E3C5D9           48
   0AAC 40D3C1E2E340F340           48
   0AB4 C5D9D9D6D9E2404D           48
   0ABC E2C1D4C540D840C3           48
   0AC4 D6C4C540D6D9C4C5           48
   0ACC D95D                       48
   0ACE 40                  0ACE   49         DC    XL1'40'
   0ACF 08                  0ACF   50         DC    IL1'8'
   0AD0 000000000000C0000   0AD7   51 ELOG3   DC    XL8'0'                 SENSE DATA AFTER LEAST RECENT ERROR
   0AD8 40                  0AD8   52         DC    XL1'40'
   0AD9 08                  0AD9   53         DC    IL1'8'
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0ADA 0000000000000000 0AE1   54 ELOG2  DC    XL8'0'                 SENSE DATA AFTER ERROR BEFORE LAST
   0AE2 40               0AE2   55         DC    XL1'40'
   0AE3 08               0AE3   56         DC    IL1'8'
   0AE4 0000000000000000 0AEB   57 ELOG1  DC    XL8'0'                 SENSE DATA AFTER LAST ERROR
   0AEC FF               0AEC   58         DC    XL1'FF'
                                59
                                60 ************************************************************
                                61 *                ROUTINE 01 - 5471 SYSTEM TEST MODULE      *
                                62 ************************************************************
                                63 *                                                          *
                                64 *   THIS ROUTINE ENABLES THE KEYBOARD, TURNING ON THE -PROCEED-  *
                                65 *   LIGHT.  KEYED CHARACTERS ARE PRINTED WITH THIS DEVICE.  THERE IS  *
                                66 *   NO RESPONSE TO THE FUNCTION KEYS (REQ, CAN, AND END KEYS)  *
                                67 *                                                          *
                                68 ************************************************************
   0AED 01               0AED   69 RTN01  DC    XL1'01'                ROUTINE PREFIX
   0AEE 00               0AEE   70         DC    XL1'0'
   0AEF FFFF             0AF0   71         DC    XL2'FFFF'
                                72
   0AF1 F2 87 12                73 BEGIN  J     ENAB
   0AF4 0C 07 0AD7 0AE1         74 ERREC  MVC   ELOG3(8),ELOG2       PUT STATUS IN ERROR RECORDING
   0AFA 0C 07 0AE1 0AEB         75        MVC   ELOG2(8),ELOG1        TABLE
   0B00 0C 07 0AEB 0A99         76        MVC   ELOG1(8),LOG1
   0B06 C0 87 0BE8              77 ENAB   B     DOSIO                GO ENABLE KEYBOARD, SET PROCEED LITE
   0B0A 1013                0B0B   78         DC    XL2'1013'
   0B0C 38 01 0A93              79         TBN   LOG1-6,X'01'         BRANCH IF NO KEYBOARD CHECK
   0B10 F2 90 0A                80         JF    CKXCK
   0B13 C0 87 0222              81         B     HALT                 *KEYBOARD CHECK
   0B17 1001                0B18   82         DC    XL2'1001'
   0B19 C0 87 0AF4              83         B     ERREC
   0B1D 38 02 0A93              84 CKXCK  TBN   LOG1-6,X'02'         BRANCH IF NO TRANSLATOR CHECK
   0B21 F2 90 0A                85         JF    CKRET
   0B24 C0 87 0222              86         B     HALT                 *KEYBOARD TRANSLATOR CHECK
   0B28 1002                0B29   87         DC    XL2'1002'
   0B2A C0 87 0AF4              88         B     ERREC
   0B2E 38 0C 0A93              89 CKRET  TBN   LOG1-6,X'0C'         BRANCH IF NOT RETURN KEY
   0B32 F2 90 0A                90         JF    CKDAT
   0B35 C0 87 0BE8              91         B     DOSIO                GO DO CARRIAGE RETURN
   0B39 1845                0B3A   92         DC    XL2'1845'
   0B3B C0 87 0B6A              93         B     CKPERR
   0B3F 38 60 0A93              94 CKDAT  TBN   LOG1-6,X'60'         CHECK FOR
   0B43 C0 10 0B06              95         BT    ENAB                  END OR
   0B47 38 50 0A93              96         TBN   LOG1-6,X'50'           CANCEL
   0B4B C0 10 0B06              97         BT    ENAB                    KEYS
   0B4F 38 08 0A93              98         TBN   LOG1-6,X'08'
   0B53 F2 10 0A                99         JT    ISDAT
   0B56 C0 87 0222             100         B     HALT                 *NO STATUS BIT TO DEFINE INTERRUPT
   0B5A 1011                0B5B  101         DC    XL2'1011'
   0B5C C0 87 0AF4             102         B     ERREC
   0B60 31 18 0A93             103 ISDAT LIO   LOG1-6,X'18'          LOAD CHARACTER TO BE PRINTED
   0B64 C0 87 0BE8             104         B     DOSIO                PRINT LAST KEYED CHARACTER
   0B68 1885                0B69  105         DC    XL2'1885'
   0B6A C2 02 07D0             106 CKPERR LA   2000,XR2
   0B6E 30 1B 0C7E             107 KPSNS SNS   STATUS,X'1B'           SAVE STATUS
   0B72 38 10 0C7E             108         TBN   STATUS,X'10'          CHECK FEEDBACK SW ON
   0B76 F2 10 07               109         JT    SUB
   0B79 38 04 0C7E             110         TBN   STATUS,X'04'          CHECK LONG FN SW ON
   0B7D F2 90 23               111         JF    CKFD                  CONTINUE IF NOT ON
   0B80 36 02 0C80             112 SUB   A     ONE,XR2                 WAIT 100 MILLISECONDS
   0B84 C0 01 0B6E             113         BNZ   KPSNS                   FOR FD OR LN FN TO DROP
   0B88 38 10 0C7E             114         TBN   STATUS,X'10'          CHECK FOR FEEDBACK HALT
   0B8C F2 90 0A               115         JF    CKFD1
   0B8F C0 87 0222             116         B     HALT                 *FEEDBACK SWITCH
   0B93 1005                0B94  117         DC    XL2'1005'
   0B95 C0 87 0AF4             118         B     ERREC
   0B99 C0 87 0222             119 CKFD1 B     HALT                 *LONG FUNCTION SWITCH
   0B9D 1006                0B9E  120         DC    XL2'1006'
   0B9F C0 87 0AF4             121         B     ERREC
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   0BA3 38 01 0A97            122 CKFD   TBN   LOG1-2,X'01'
   0BA7 F2 90 0A              123       JF    CKPRX
   0BAA C0 87 0222            124       B     HALT                *PRINTER MALFUNCTION
   0BAE 1003            0BAF  125       DC    XL2'1003'
   0BB0 C0 87 0AF4            126       B     ERREC
   0BB4 38 02 0A97            127 CKPRX  TBN   LOG1-2,X'02'
   0BB8 F2 90 0A              128       JF    CKNPC
   0BBB C0 87 0222            129       B     HALT                *PRINTER XLATOR CHECK
   0BBF 1004            0BC0  130       DC    XL2'1004'
   0BC1 C0 87 0AF4            131       B     ERREC
   0BC5 38 20 0A97            132 CKNPC  TBN   LOG1-2,X'20'
   0BC9 F2 90 0A              133       JF    CKEOL
   0BCC C0 87 0222            134       B     HALT                *NON-PRINTABLE CHARACTER
   0BD0 1008            0BD1  135       DC    XL2'1008'
   0BD2 C0 87 0AF4            136       B     ERREC
   0BD6 38 08 0A8D            137 CKEOL  TBN   LOG2-2,X'08'
   0BDA C0 90 0B06            138       8F    ENAB
   0BDE C0 87 0BE8            139       B     DOSIO                GO TO NEXT LINE IF END OF LINE
   0BE2 1845            0BE3  140       DC    XL2'1845'
   0BE4 C0 87 0B6A            141       B     CKPERR
                              142
                              143 *********                                          *********
                              144 * DOSIO ***************************************************** DOSIO *
                              145 *******                                          *********
                              146 *                                                          *
                              147 *   SUBROUTINE TO ISSUE START I/O TO PRINTER KEYBOARD AND WAIT FOR    *
                              148 *   INTERRUPT.  LINKAGE IS AS FOLLOWS--                    *
                              149 *                                                          *
                              150 *       B     DOSIO                                      *
                              151 *       DC    2,X'Q BYTE FOLLOWED BY R BYTE'             *
                              152 *                                                          *
                              153 ************************************************************
   0BE8 34 08 0C23            154 DOSIO  ST    CKEXIT+3,ARR          SAVE RETURN ADDRESS
   0BEC 35 01 0C23            155       L     CKEXIT+3,XR1          POINT AT PARAMETER
   0BF0 1C 01 0C17 01         156       MVC   SIO+2(2),1(,XR1)      SET UP COMMAND
   0BF5 0E 01 0C23 0C7C       157       ALC   CKEXIT+3(2),TWO       ADJUST EXIT ADDRESS
   0BFB 35 C0 0C82            158       L     I1ADDR,X'C0'          PREPARE FOR INTERRUPT
   0BFF 3C FF 0C32            159       MVI   FLAG,X'FF'
   0C03 0C 01 0A34 0A38       160       MVC   SIO3(2),SIO2          PUT COMMAND IN PUSH-DOWN TABLE
   0C09 0C 01 0A38 0A3C       161       MVC   SIO2(2),SIO1
   0C0F 0C 01 0A3C 0C17       162       MVC   SIO1(2),SIO+2
   0C15 F3 00 00              163 SIO    SIO   *-*,*-*               ISSUE COMMAND
   0C18 35 C0 0C82            164 INLOOP L     I1ADDR,X'C0'          LOOP UNTIL INTERRUPT OCCURS
   0C1C 3D 00 0C32            165       CLI   FLAG,X'0'
   0C20 C0 81 0000            166 CKEXIT BE    *-*                   EXIT SUBROUTINE WHEN IT DOES
   0C24 3D 10 0A00            167       CLI   X'A00',X'10'          IS THIS MODULE LOADED DIRECTLY BY
   0C28 C0 01 0A0A            168       BNE   X'A0A'                 DCP, KEEP CONTROL
   0C2C C0 87 0C18            169       B     INLOOP
                              170
                              171 *********                                          *********
                              172 * I1RTN ***************************************************** I1RTN *
                              173 *********                                          *********
                              174 *                                                          *
                              175 *   SUBROUTINE TO HANDLE LEVEL 1 INTERRUPTS.  ALL STATUS INDICATIONS  *
                              176 *   ARE ALSO STORED.                                       *
                              177 *                                                          *
                              178 ************************************************************
   0C30 0000            0C31  179 PSRSAV DC    XL2'0'
   0C32 00              0C32  180 FLAG   DC    XL1'0'
   0C33 34 04 0C31            181 I1RTN  ST    PSRSAV,X'04'          SAVE PROGRAM STATUS REGISTER
   0C37 3C 00 0C32            182       MVI   FLAG,X'0'
   0C3B 0C 07 0A85 0A8F       183       MVC   LOG3(8),LOG2          PUT STATUS IN PUSH DOWN TABLE
   0C41 0C 07 0A8F 0A99       184       MVC   LOG2(8),LOG1
   0C47 30 11 0A93            185       SNS   LOG1-6,X'11'
   0C4B 30 13 0A95            186       SNS   LOG1-4,X'13'
   0C4F 30 19 0A97            187       SNS   LOG1-2,X'19'
   0C53 30 1B 0A99            188       SNS   LOG1,X'1B'
                              189
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   0C57 C0 80 0C5F            190       BC    LSRBAD,X'80'          TEST IAR/ARR SELECTION
   0C5B C0 87 0C63            191       B     LSROK
   0C5F 35 60 0C84            192 LSRBAD L     INTHLT,X'60'          LOAD P1 & P2 IARS FOR ERROR HALT
                              193
   0C63 35 04 0C31            194 LSROK  L     PSRSAV,X'04'          RESTORE PSR
   0C67 F3 10 01              195       SIO   X'01',X'10'           RESET INTERRUPT
   0C6A F3 18 01              196       SIO   X'01',X'18'
   0C6D C0 87 0C6D            197       B     *                     LOOP IN INTERRUPT NOT RESET
                              198
   0C71 C0 87 0222            199 ERHALT B     HALT                 *IAR/ARR SELECTION ERROR
   0C75 1012            0C76  200       DC    XL2'1012'
   0C77 C0 87 0B06            201       B     ENAB
                              202
                              203 *************
                              204 * CONSTANTS ***************************************************
                              205 *************
   0C7B 0002            0C7C  206 TWO    DC    IL2'2'
   0C7D 0000            0C7E  207 STATUS DC    XL2'00'
   0C7F 0001            0C80  208 CNE    DC    XL2'0001'
   0C81 0C33            0C82  209 I1ADDR DC    AL2(I1RTN)
   0C83 0C71            0C84  210 INTHLT DC    AL2(ERHALT)
                              211
                              212 ************
                              213 * EQUATES ****************************************************
                              214 ************
   0001                 0001  215 XR1    EQU   1
   0002                 0002  216 XR2    EQU   2
   0008                 0008  217 ARR    EQU   X'08'
   0222                 0222  218 HALT   EQU   X'222'
   0AF1                 0AF1  219       END   BEGIN
```

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ARR	C	001	0008	0217	0154
BEGIN	A	003	0AF1	0073	0219
CKDAT	A	004	0B3F	0094	0090
CKEOL	A	004	CBD6	0137	0133
CKEXIT	A	004	0C20	0166	0154* 0155 0157*
CKFD	A	004	0BA3	0122	0111
CKFD1	A	004	0B99	0119	0115
CKNPC	A	004	0BC5	0132	0128
CKPERR	A	004	0B6A	0106	0093 0141
CKPRX	A	004	0BB4	0127	0123
CKRET	A	004	0B2E	0089	0085
CKXCK	A	004	0B1D	0084	0080
DOSIO	A	004	0BE8	0154	0077 0091 0104 0139
ELOG1	A	008	0AEB	0057	0075 C076*
ELOG2	A	008	0AE1	0054	0074 C075*
ELOG3	A	008	0AD7	0051	0074*
ENAB	A	004	0B06	0077	0073 0095 0097 0138 0201
ERHALT	A	004	0C71	0199	0210
ERREC	A	006	CAF4	0074	0083 C088 0102 0118 0121 0126 0131 0136
FLAG	A	001	0C32	0180	0159* 0165 0182*
HALT	C	001	0222	0218	0081 0086 0100 0116 0119 0124 0129 0134 0199
INLOOP	A	004	0C18	0164	0169
INTHLT	A	002	0C84	0210	0192
ISDAT	A	004	0B60	0103	0099
I1ADDR	A	002	0C82	0209	0158 0164
I1RTN	A	004	0C33	0181	0209
KPSNS	A	004	0B6E	0107	0113
LOGOUT	A	001	0A0D	0018	0015
LOG1	A	008	0A99	0045	0076 0079 0084 0089 0094 0096 0098 0103 0122 0127 0132 0184 0185* 0186* 0187* 0188*
LOG2	A	008	0A8F	0042	0137 0183 0184*
LOG3	A	008	0A85	0039	0183*
LSRBAD	A	004	0C5F	0192	0190
LSROK	A	004	0C63	0194	0191
ONE	A	002	0C80	0206	0112
PSRSAV	A	002	0C31	0179	0181* 0194
RTN01	A	001	0AED	0069	0014
SIO	A	003	0C15	0163	0156* 0162
SIO1	A	002	0A3C	0032	0161 0162*
SIO2	A	002	0A38	0029	0160 0161*
SIO3	A	002	0A34	0026	0160*
STATUS	A	002	0C7E	0207	0107* 0108 0110 0114
SUB	A	004	0B80	0112	0109
TWO	A	002	0C7C	0206	0157
XR1	C	001	0001	0215	0155* 0156
XR2	C	001	0002	0216	0106* 0112*

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

OBJECT CARD LISTING

THE CHARACTER ' INDICATES A BLANK COLUMN AND THE CHARACTERS D̄ Ē H̄ 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
S84A'&DA'&'H̄'H̄'Ē					ĒY%10F20001
T+'Y8D|H	B>4	H̄CJ'&'H'N'¬L7@MC	P6*XN8@PR&(.E:<.	00)XD-'?LO:.T&|(	8%XO8U'B'A'- UG3KQ10F20002
T+-Z3&'H'H'8%P	N8%N'1<GTOMCA1>|	E6MCLO:.T&|(2)P	T6)¬T8UA(2)N'6DC	C5%LE&($R1<PR&|G	1Ē"D'O$D10F20003
T+-D̄>@6?1=O?1OV5	B	&'-	D'H	B'<>.E5:.	E&<LA8@E'0*$T1)V	4@D'LB*10F20004
T+-,Z8>('@4CE6)X	O6:I'L:.A5<N'6DC	C5%LE&($R1<PRPN'	H	A B	'-	'2&10F20005
T<'%Ē'C"'&C"""H̄	GD-?GB_"H8&OGB>D	H̄:OOGB>%H̄W*BGB=	&D3-ABZ|2U',/OH	SD'G'/O	BM¬F1U	NDO@(¬C&10F20006
T<&_<B?&8'-D̄L@Z'	H̄OH*BH/'BOH*H̄'C-	<BZ|2U',/O?YFDP'	/O_D̄+F'HU@'&BOQ	8N'D̄LOA	.2%XH14	OD-MARRD10F20007
T<-_"BOQ8B'D̄L@/'	H̄OH*BH/'JOH*H̄'CD	QBZ|'/O?YFH?B'-¬	&<A%<¬T-&CG#2D*	8A'1=@Z'T'B@YIAY	OD-MA2I410F20008
T<O>3(-H<-<'AB68	8D'1=@Z'H̄OH*BH/'	EOH*H̄'<BG'SH&A%B	GB?&8'&D̄P@Z'H̄OH*	BH/'COH*H̄'	3ISH	QBO*C;A*10F20009
T<&?V+'HH̄V"H̄&B%B	G'SH&A<BGB?&8H̄'D	P@Z'H̄OH*BH/'HOH*	H̄'C-HBY7'U'%FOH*	.:A/EOH*	_H̄KM	/EA'C81410F20010
T.'OKB6Y4B'OT(&D	<H1OACA*AC-D<HO1	@(*'<-T3"CCH<'&Y	4BT-<'&Y8BTO<'&Y	@	%H̄BOSHAOQEAH	(B&MA&Ē010F20011
T<&1DCA¬3	50'2	B|&'<<%BA	'D'Y	'O'D̄HB%BGCA-	4A'01|	<<-OGBYM	H̄TOOGBY@'<K4,I2<	*C'-A#$810F20012
T<'15BZUOD&D̄L<A<	H̄VL'RBZ*OFOD̄ROH'	<P@BGCF<5Q'2D(&&	<<¬<&'¬<Q'*BGCF7	/OHSD	,HJ4REJD	(B&MA)-H10F20013
TC-2DD%BGB0Q	-	D<<011				C-0D82D10F20014
EB?E*E7*=¬DC"PH$	="7M&F|	| C	F%	ASC	R A	S0	Q	21160322700	406708,%10F20015

LAST PAGE

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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

                                2         DECK  4
   0A00                         3         START X'A00'
                                4 *
                                5 ************************************************************************
                                6 *                                                                      *
                                7 *                  5471 PRINTER KEYBOARD FUNCTION TESTS                *
                                8 *                                                                      *
                                9 *                                                                      *
                               10 ************************************************************************
   0A00 1050            0A01   11         DC    XL2'1050'           PROGRAM ID AND REVISION LEVEL
   0A02 00              0A02   12         DC    XL1'00'             SECTION FLAGS
   0A03 00              0A03   13         DC    XL1'00'             CURRENT ROUTINE NUMBER
   0A04 0000            0A05   14         DC    XL2'00'             RESERVED
   0A06 0A0D            0A07   15         DC    AL2(RTN01)          ADDRESS OF FIRST ROUTINE
   0A08 0000            0A09   16         DC    XL2'00'             RESERVED
   0A0A 105000          0A0C   17         DC    XL3'1050C0'         CONSOLE SPUT ENTRY
                               18 *
                               19 *
                               20 ************************************************************************
                               21 *
                               22 *********    LOWER CASE--UPPER CASE PRINT QUALITY TEST
                               23 * RTN01 *
                               24 *********
                               25 *                          ROUTINE PREFIX
   0A0D 01              0A0D   26 RTN01  DC    XL1'01'             ROUTINE PREFIX
   0A0E 00              0A0E   27         DC    XL1'00'             NO INTERVENTION REQUIRED
   0A0F 0AF4            0A10   28         DC    AL2(RTN02)          ADDRESS OF NEXT ROUTINE
                               29 *
   0A11 C0 87 0D8E             30         B     SETUP               CLEAR ERRORS
   0A15 C0 87 021A             31         B     PRINT               PRINT
   0A19 46              0A19   32         DC    XL1'46'             UPPER CASE
   0A1A 21              0A1A   33         DC    IL1'33'              LOWER CASE
   0A1B 1091            0A1C   34         DC    AL2(MSG003)           PRINT TEST
   0A1D 10A1            0A1E   35         DC    XL2'10A1'
   0A1F C0 87 0222             36         B     HALT
   0A23 10A1            0A24   37         DC    XL2'10A1'
   0A25 0C 00 11A4 11A1        38 REPOA2 MVC    COUNT(1),THREE      SET UP LINE COUNT
   0A2B 0C 03 1184 11AB        39 REPO11 MVC    STSHDB(4),ZERO0     CLEAR STATUS
   0A31 C0 87 0EB4             40         B     RETURN              RETURN CARRIER
   0A35 C2 01 0F98             41 REPO1  LA     TABLEA,XR1          EBCDIC TABLE
   0A39 C2 02 0FBD             42         LA    TABLEB,XR2          TILT ROTATE CODES
   0A3D 0C 03 1184 117C        43 REPOA1 MVC    STSHDB(4),STATLC    SETUP FOR
   0A43 1C 00 1185 00          44         MVC   WRITE-1(1),0(,XR1)   LOWER CASE
   0A48 31 18 1186             45         LIO   WRITE,PRNT
   0A4C 30 1B 117E             46         SNS   STATUS-2,X'1B'      KEEP
   0A50 30 19 1180             47         SNS   STATUS,X'19'         STATUS
   0A54 C0 87 0F56             48         B     MODIFY
   0A58 3B 06 117E             49         SBF   STATUS-2,X'06'      SET LONG FUNCTION OFF
   0A5C 0D 02 1180 1184        50         CLC   STATUS(3),STSHDB    CHECK LOWER CASE STATUS
   0A62 C0 01 0F7E             51         BNE   STATCK              PRINT ERRORS
   0A66 C0 87 0DD0             52         B     PRINTS              OTHERWISE PRINT LWR CASE CHARACTER
   0A6A 2C 00 1181 00          53         MVC   STSHDB-3,0(1,XR2)   CHECK
   0A6F 0D 00 1181 117D        54         CLC   STSHDB-3(1),STATUS-3  TILT-ROTATE
   0A75 C0 01 0F7E             55         BNE   STATCK                CODES
   0A79 38 08 1180             56         TBN   STATUS,X'08'        CHECK END
   0A7D F2 10 5A               57         JT    EOL                  OF LINE
   0A80 D2 01 01               58         LA    1(,XR1),XR1
   0A83 E2 02 01               59         LA    1(,XR2),XR2
   0A86 0C 03 1184 1191        60         MVC   STSHDB(4),STATUP    SETUP FOR
   0A8C 1C 00 1185 00          61         MVC   WRITE-1(1),0(,XR1)   UPPER CASE
   0A91 31 18 1186             62         LIO   WRITE,PRNT
   0A95 30 1B 117E             63         SNS   STATUS-2,X'1B'      KEEP
   0A99 30 19 1180             64         SNS   STATUS,X'19'         STATUS
   0A9D C0 87 0F56             65         B     MODIFY
   0AA1 3B 06 117E             66         SBF   STATUS-2,X'06'      SET LONG FUNCTION OFF
   0AA5 0D 02 1180 1184        67         CLC   STATUS(3),STSHDB    CHECK UPPER
   0AAB C0 01 0F7E             68         BNE   STATCK               CASE STATUS
   0AAF C0 87 0DD0             69         B     PRINTS              PRINT UPPER CASE CHARACTER
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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

   0AB3 2C 00 1181 00          70         MVC   STSHDB-3,0(1,XR2)   CHECK
   0AB8 0D 00 1181 117D        71         CLC   STSHDB-3(1),STATUS-3  TILT-ROTATE
   0ABE C0 01 0F7E             72         BNE   STATCK                CODES
   0AC2 38 08 1180             73         TBN   STATUS,X'08'        CHECK END
   0AC6 F2 10 11               74         JT    EOL                  OF LINE
   0AC9 D2 01 01               75         LA    1(,XR1),XR1
   0ACC E2 02 01               76         LA    1(,XR2),XR2          COUNTERS
   0ACF BD FF 00               77         CLI   0(,XR2),X'FF'       CHECK FOR
   0AD2 C0 81 0A35             78         BE    REPO1                END OF TABLE
   0AD6 C0 87 0A3D             79         B     REPOA1
   0ADA 0F 00 11A4 1194        80 EOL    SLC   COUNT(1),ONE         PRINT
   0AE0 C0 01 0A2B             81         BNZ   REPO11               THREE LINES
   0AE4 C0 87 0212             82         B     TEST                 CHECK
   0AE8 38 01 020B             83         TBN   SBYTE3,SSW1F         FOR
   0AEC C0 10 0A25             84         BT    REPOA2                LOOPING
   0AF0 C0 87 0216             85         B     LINK                 GO TO NEXT ROUTINE
                               86 *
                               87 *********    MAXIMUM TILT-ROTATE TEST
                               88 * RTN02 *
                               89 *********
                               90 *                          ROUTINE PREFIX
   0AF4 02              0AF4   91 RTN02  DC    XL1'02'             ROUTINE PREFIX
   0AF5 00              0AF5   92         DC    XL1'00'             NO INTERVENTION REQUIRED
   0AF6 0B9C            0AF7   93         DC    AL2(RTN03)          ADDRESS OF NEXT ROUTINE
                               94 *
   0AF8 C0 87 0D8E             95         B     SETUP               CLEAR ERRORS
   0AFC C0 87 021A             96         B     PRINT               PRINT
   0B00 46              0B00   97         DC    XL1'46'              MAXIMUM
   0B01 18              0B01   98         DC    IL1'24'               TILT-
   0B02 10A9            0B03   99         DC    AL2(MSG004)            ROTATE
   0B04 10A2            0B05  100         DC    XL2'10A2'               TEST
   0B06 C0 87 0222            101         B     HALT
   0B0A 10A2            0B0B  102         DC    XL2'10A2'
   0B0C 0C 00 11A4 11A1       103 REPO8  MVC    COUNT(1),THREE      SETUP LINE COUNT
   0B12 0C 03 1184 11AB       104 REPO22 MVC    STSHDB(4),ZERO0     CLEAR STATUS
   0B18 C0 87 0EB4            105         B     RETURN              RETURN CARRIER
   0B1C C2 01 0FE2            106 REPO2  LA     TABLEC,XR1          EBCDIC TABLE
   0B20 C2 02 0FE7            107         LA    TABLED,XR2          TILT ROTATE CODES
   0B24 0C 03 1184 11AB       108 REPOB1 MVC    STSHDB(4),ZERO0     CLEAR STATUS
   0B2A 1C 00 1185 00         109         MVC   WRITE-1(1),0(,XR1)
   0B2F 7D 7B 00              110         CLI   0(,XR1),X'7B'       SET LWR SHIFT
   0B32 F2 01 04              111         JNE   *+7                  REQUIRED IF
   0B35 3A 80 1182            112         SBN   STSHDB-2,X'80'       -#- BEING PRINTED
   0B39 31 18 1186            113         LIO   WRITE,PRNT          LOAD BUFFER
   0B3D 30 1B 117E            114         SNS   STATUS-2,X'1B'      KEEP
   0B41 30 19 1180            115         SNS   STATUS,X'19'         STATUS
   0B45 C0 87 0F56            116         B     MODIFY
   0B49 3B 06 117E            117         SBF   STATUS-2,X'06'      SET LONG FUNCTION OFF
   0B4D 0D 02 1180 1184       118         CLC   STATUS(3),STSHDB    CHECK
   0B53 C0 01 0F7E            119         BNE   STATCK               STATUS
   0B57 C0 87 0DD0            120         B     PRINTS              PRINT CHARACTER
   0B5B 2C 00 1181 00         121         MVC   STSHDB-3,0(1,XR2)   CHECK
   0B60 0D 00 1181 117D       122         CLC   STSHDB-3(1),STATUS-3  TILT
   0B66 C0 01 0F7E            123         BNE   STATCK                ROTATE
   0B6A 38 08 1180            124         TBN   STATUS,X'08'        CHECK
   0B6E F2 10 11              125         JT    EOL1                 END OF LINE
   0B71 D2 01 01              126         LA    1(,XR1),XR1          INCREMENT
   0B74 E2 02 01              127         LA    1(,XR2),XR2           COUNTERS
   0B77 BD FF 00              128         CLI   0(,XR2),X'FF'       CHECK FOR
   0B7A C0 81 0B1C            129         BE    REPO2                END OF TABLE
   0B7E C0 87 0B24            130         B     REPOB1
   0B82 0F 00 11A4 1194       131 EOL1   SLC   COUNT(1),ONE         PRINT
   0B88 C0 01 0B12            132         BNZ   REPO22               THREE LINES
   0B8C C0 87 0212            133         B     TEST                 CHECK
   0B90 38 01 0208            134         TBN   SBYTE3,SSW1F         FOR
   0B94 C0 10 0B0C            135         BT    REPOB                 LOOPING
   0B98 C0 87 0216            136         B     LINK
                              137 *
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              138 *********    NO-PRINT ESCAPEMENT TEST
                              139 * RTN03 *
                              140 *********
                              141 *                        ROUTINE PREFIX
 0B9C 03                 0B9C 142 RTN03  DC    XL1'03'              ROUTINE PREFIX
 0B9D 00                 0B9D 143        DC    XL1'00'              NO INTERVENTION REQUIRED
 0B9E 0C3F               0B9F 144        DC    AL2(RTN04)           ADDRESS OF NEXT ROUTINE
                              145 *
 0BA0 C0 87 CD8E              146        B     SETUP                CLEAR ERRORS
 0BA4 C0 87 021A              147        B     PRINT                PRINT
 0BA8 46                 0BA8 148        DC    XL1'46'               NO-PRINT
 0BA9 18                 0BA9 149        DC    IL1'24'                ESCAPEMENT
 0BAA 10C1               0BAB 150        DC    AL2(MSG005)             TEST
 0BAC 10A3               0BAD 151        DC    XL2'10A3'
 0BAE C0 87 0222              152        B     HALT
 0BB2 10A3               0BB3 153        DC    XL2'10A3'
 0BB4 0C 00 11A4 11A1         154 REPOC2 MVC   COUNT(1),THREE      SETUP LINE COUNT
 0BBA 0C 03 1184 11AB         155 REPOC1 MVC   STSHDB(4),ZERO0      CLEAR STATUS
 0BC0 C0 87 0EB4              156        B     RETURN               RETURN CARRIER
 0BC4 C2 01 0FEC              157 REPO3  LA    TABLEE,XR1           EBCDIC TABLE
 0BC8 C2 02 0FEF              158        LA    TABLEF,XR2           TILT ROTATE CODES
 0BCC 0C 03 1184 11AB         159 REPOC  MVC   STSHDB(4),ZERO0      CLEAR STATUS
 0BD2 1C 00 1185 00           160        MVC   WRITE-1(1),0(,XR1)
 0BD7 31 18 1186              161        LIO   WRITE,PRNT           LOAD PRINT BUFFER
 0BDB 30 1B 117E              162        SNS   STATUS-2,X'1B'       SAVE
 0BDF 30 19 1180              163        SNS   STATUS,X'19'          STATUS
 0BE3 C0 87 0F56              164        B     MODIFY
 0BE7 3B 06 117E              165        SBF   STATUS-2,X'06'       SET LONG FUNCTION OFF
 0BEB 0D 02 1180 1184         166        CLC   STATUS(3),STSHDB     CHECK
 0BF1 C0 01 0F7E              167        BNE   STATCK                STATUS
 0BF5 C0 87 0DD0              168        B     PRINTS               PRINT CHARACTER
 0BF9 2C 00 1181 00           169        MVC   STSHDB-3,0(1,XR2)    CHECK
 0BFE 3B 80 117D              170        SBF   STATUS-3,X'80'        TILT
 0C02 0D 00 1181 117D         171        CLC   STSHDB-3(1),STATUS-3   ROTATE
 0C08 C0 01 0F7E              172        BNE   STATCK                 CODES
 0C0C 38 08 1180              173        TBN   STATUS,X'08'         CHECK END
 0C10 F2 10 11                174        JT    EOL2                  OF LINE
 0C13 D2 01 01                175        LA    1(,XR1),XR1          INCREMENT
 0C16 E2 02 01                176        LA    1(,XR2),XR2           COUNTERS
 0C19 BD FF 00                177        CLI   0(,XR2),X'FF'
 0C1C C0 81 0BC4              178        BE    REPO3
 0C20 C0 87 0BCC              179        B     REPOC
 0C24 0F 00 11A4 1194         180 EOL2   SLC   COUNT(1),ONE        PRINT
 0C2A C0 01 0BBA              181        BNZ   REPOC1                THREE LINES
 0C2E C0 87 0212              182        B     TEST                 CHECK
 0C32 38 01 020B              183        TBN   SBYTE3,SSW1F          FOR
 0C36 C0 10 0BB4              184        BT    REPOC2                 LOOPING
 0C3A C0 87 022A              185        B     LOAD
 0C3E 00                 0C3E 186        DC    XL1'00'
                              187 *
                              188 *********    OPTIONAL PRINT TEST.
                              189 * RTN04 *
                              190 *********
                              191 *
                              192 *                        ROUTINE PREFIX
 0C3F 04                 0C3F 193 RTN04  DC    XL1'04'              ROUTINE NUMBER
 0C40 80                 0C40 194        DC    XL1'80'              INTERVENTION REQUIRED
 0C41 0D0E               0C42 195        DC    AL2(RTN05)           ADDRESS OF NEXT ROUTINE
                              196 *
 0C43 C0 87 0D8E              197        B     SETUP
 0C47 C0 87 021A              198        B     PRINT                PRINT
 0C4B 41                 0C4B 199        DC    XL1'41'               ENTER
 0C4C 16                 0C4C 200        DC    IL1'22'                PRINT
 0C4D 1141               0C4E 201        DC    AL2(MSG009)             PATTERN
 0C4F 10E2               0C50 202        DC    XL2'10E2'
 0C51 C0 87 021A              203        B     PRINT                PRINT
 0C55 01                 0C55 204        DC    XL1'01'               RESET
 0C56 0F                 0C56 205        DC    IL1'15'                HALT
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

 0C57 1128               0C58 206        DC    AL2(MSG008)
 0C59 C0 87 021A              207        B     PRINT                PRINT
 0C5D 01                 0C5D 208        DC    XL1'01'               PRESS
 0C5E 0E                 0C5E 209        DC    IL1'14'                REQ
 0C5F 114F               0C60 210        DC    AL2(MSG00A)             KEY
 0C61 C0 87 021A              211        B     PRINT                PRINT
 0C65 01                 0C65 212        DC    XL1'01'               KEY
 0C66 1C                 0C66 213        DC    IL1'28'                ENTRY
 0C67 116B               0C68 214        DC    AL2(MSG00B)
 0C69 C0 87 021A              215        B     PRINT                PRINT
 0C6D 06                 0C6D 216        DC    XL1'06'               PRESS
 0C6E 0D                 0C6E 217        DC    IL1'13'                END
 0C6F 1178               0C70 218        DC    AL2(MSG00C)             KEY
 0C71 C0 87 0222              219        B     HALT
 0C75 10E2               0C76 220        DC    XL2'10E2'
 0C77 0C 7D 106F 1070         221 OVER   MVC   CLEAR-1(126),CLEAR  SET TABLE TO -FF-
 0C7D C2 01 0FF2              222        LA    PRTBL,XR1
 0C81 F3 10 01                223        SIO   X'01',X'10'          RESET INTERRUPTS
 0C84 30 11 1180              224 SYNC   SNS   STATUS,X'11'         WAIT FOR
 0C88 38 80 1180              225        TBN   STATUS,X'80'          REQ KEY
 0C8C C0 90 0C84              226        BF    SYNC                   DEPRESSION
 0C90 F3 10 11                227 RSET   SIO   X'11',X'10'          RESET INTERRUPTS
 0C93 30 11 1180              228 SYNCA  SNS   STATUS,X'11'
 0C97 38 40 1180              229        TBN   STATUS,X'4C'         CHECK FOR
 0C9B F2 10 17                230        JT    CKEOC                 END KEY
 0C9E 38 08 1180              231        TBN   STATUS,X'08'         CHECK FOR
 0CA2 F2 10 04                232        JT    KPCHAR                DATA KEY
 0CA5 C0 87 0C93              233        B     SYNCA
 0CA9 4C 00 00 117F           234 KPCHAR MVC   0(1,XR1),STATUS-1    KEEP
 0CAE D2 01 01                235        LA    1(,XR1),XR1           CHAR
 0CB1 C0 87 0C90              236        B     RSET
 0CB5 38 10 1180              237 CKEOC  TBN   STATUS,X'10'         CHECK FOR
 0CB9 F2 10 04                238        JT    ENDMSG                END KEY
 0CBC C0 87 0C77              239        B     OVER
 0CC0 0C 00 11A4 11A1         240 ENDMSG MVC   COUNT(1),THREE      SET UP LINE COUNT
 0CC6 F3 10 00                241        SIO   X'00',X'10'          RESET KEYBOARD
 0CC9 C0 87 0EB4              242 REPOA  B     RETURN               RETURN CARRIER
 0CCD C2 01 0FF2              243 REPO8  LA    PRTBL,XR1            PRINT TABLE
 0CD1 1C 00 1185 00           244 REPO9  MVC   WRITE-1(1),0(,XR1)   LOAD PRINT
 0CD6 31 18 1186              245        LIO   WRITE,PRNT            BUFFER
 0CDA C0 87 0DD0              246        B     PRINTS               PRINT CHARACTER
 0CDE 38 08 1180              247        TBN   STATUS,X'08'         CHECK FOR
 0CE2 F2 10 0E                248        JT    EOL5                  END OF LINE
 0CE5 D2 01 01                249        LA    1(,XR1),XR1          INCREMENT COUNTER
 0CE8 7D FF 00                250        CLI   0(,XR1),X'FF'        CHECK FOR
 0CEB C0 81 0CCD              251        BE    REPO8                 END OF LIST
 0CEF C0 87 0CD1              252        B     REPO9                CONTINUE PRINTING
 0CF3 0F 00 11A4 1194         253 EOL5   SLC   COUNT(1),ONE        PRINT
 0CF9 C0 01 0CC9              254        BNZ   REPOA                 THREE LINES
 0CFD C0 87 0212              255        B     TEST                 CHECK
 0D01 38 01 020B              256        TBN   SBYTE3,SSW1F          FOR
 0D05 C0 10 0CC0              257        BT    ENDMSG                 LOOPING
 0D09 C0 87 022A              258        B     LOAD
 0D0D 00                 0D0D 259        DC    XL1'00'
                              260 *
                              261 *********    OPTIONAL PRINT TEST
                              262 * RTN05 *
                              263 *********
                              264 *                        ROUTINE PREFIX
 0D0E 05                 0D0E 265 RTN05  DC    XL1'05'              ROUTINE NUMBER
 0D0F 80                 0D0F 266        DC    XL1'80'              INTERVENTION REQUIRED
 0D10 FFFF               0D11 267        DC    XL2'FFFF'            LAST ROUTINE
                              268 *
 0D12 C0 87 0D8E              269        B     SETUP                CLEAR ERRORS
 0D16 F3 10 01                270 RST    SIO   X'01',X'10'          RESET THE KEYBOARD
 0D19 F3 18 01                271        SIO   X'01',X'18'          RESET PRINTER
 0D1C 30 19 1180              272        SNS   STATUS,X'19'
 0D20 F2 87 03                273        J     CHK
```

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```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0D23 F3 10 11              274 KECHK   SIO   X'11',X'10'          KEEP PROCEED ON
   0D26 30 11 1180            275 CHK     SNS   STATUS,X'11'
   0D2A 38 80 1180            276         TBN   STATUS,X'80'         CHECK FOR
   0D2E F2 10 46              277         JT    REQ                    REQUEST KEY
   0D31 38 40 1180            278         TBN   STATUS,X'40'         CHECK FOR
   0D35 F2 10 46              279         JT    EOC                    END OR CANCEL
   0D38 38 08 1180            280         TBN   STATUS,X'08'         CHECK FOR
   0D3C C0 90 0D26            281         BF    CHK                    RET OR DATA KEY
   0D40 38 04 1180            282         TBN   STATUS,X'04'         CHECK FOR
   0D44 F2 90 16              283         JF    DATA                   RETURN
   0D47 F3 18 40              284         SIO   X'40',X'18'
   0D4A 30 19 1180            285 SYNCB1  SNS   STATUS,X'19'
   0D4E 38 80 1180            286         TBN   STATUS,X'80'
   0D52 C0 90 0D4A            287         BF    SYNCB1
   0D56 F3 18 01              288         SIO   X'01',X'18'
   0D59 C0 87 0D23            289         B     KECHK
   0D5D 31 18 1180            290 DATA    LIO   STATUS,X'18'          PRINT
   0D61 F3 18 80              291         SIO   X'80',X'18'            CHARACTER
   0D64 30 19 1180            292 SYNCB   SNS   STATUS,X'19'
   0D68 38 80 1180            293         TBN   STATUS,X'80'
   0D6C C0 90 0D64            294         BF    SYNCB
   0D70 F3 18 01              295         SIO   X'01',X'18'
   0D73 C0 87 0D23            296         B     KECHK
   0D77 F3 10 21              297 REQ     SIO   X'21',X'10'          TURN REQ
   0D7A C0 87 0D26            298         B     CHK                    PEND ON
   0D7E 38 10 1180            299 EOC     TBN   STATUS,X'10'         CHECK FOR
   0D82 F2 10 04              300         JT    END05                  END KEY
   0D85 C0 87 0D16            301         B     RST
   0D89 C0 87 022A            302 END05   B     LOAD
   0D8D 00                0D8D 303         DC    XL1'00'
                              304 ********************************************************************************
                              305 *                          THE SETUP SUB-ROUTINE
                              306 *
   0D8E 34 08 0DB4            307 SETUP   ST    SAV1+3,ARR           SAVE RETURN ADDRESS
   0D92 C0 87 0F3E            308         B     DEL100
   0D96 38 20 0F97            309         TBN   MARK,MARK2
   0D9A F2 10 08              310         JT    READY
   0D9D C0 87 021A            311         B     PRINT
   0DA1 06                0DA1 312         DC    XL1'06'
   0DA2 46                0DA2 313         DC    IL1'70'
   0DA3 1107              0DA4 314         DC    AL2(MSG006)
   0DA5 3B FF 0F96            315 READY   SBF   FLAG,X'FF'           *RESET
   0DA9 3B DF 0F97            316         SBF   MARK,X'DF'            *FLAGS
   0DAD 3A 20 0F97            317         SBN   MARK,MARK2
   0DB1 C0 87 0000            318 SAV1    B     *-*                  GO BACK TO ROUTINE
                              319 *
                              320 ********************************************************************************
                              321 *      ERROR HALTS SUB-ROUTINE                                                 *
                              322 *      1)  PUTS ERROR CODE IN HALT ID                                          *
                              323 *      2)  HALTS IF 'HALT ON ERROR' IS ON                                      *
                              324 ********************************************************************************
   0DB5 34 08 0DCF            325 ERRHLT  ST    ENDT+3,ARR
   0DB9 39 FF 0F96            326         TBF   FLAG,X'FF'           RETURN IF
   0DBD F2 10 0C              327         JT    ENDT                   NO ERRORS DETECTED
   0DC0 0C 00 0DCB 0F96       328         MVC   EHLTID(1),FLAG       PUT ERROR CODE IN HALT ID
   0DC6 C0 87 0222            329         B     HALT                 ERROR
   0DCA 10                0DCA 330         DC    XL1'10'                HALT
   0DCB 00                0DCB 331 EHLTID DC    XL1'00'
   0DCC C0 87 0000            332 ENDT    B     *-*
                              333 ********************************************************************************
                              334 *                                                                              *
                              335 *                          PRINT SUBROUTINE                                    *
                              336 *                                                                              *
                              337 ********************************************************************************
   0DD0 34 08 0EB3            338 PRINTS  ST    ENDPRT+3,ARR         SAVE RETURN ADDRESS
   0DD4 F3 18 80              339         SIO   X'80',PRNT           START PRINT
   0DD7 30 1B 117E            340         SNS   STATUS-2,X'1B'       SAVE
   0DDB 30 19 1180            341         SNS   STATUS,X'19'           STATUS
```


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```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0DDF 3A 10 1184            342 ADTWO3  SBN   STSHDB,X'10'         SET PRINTER BUSY
   0DE3 38 10 1180            343         TBN   STATUS,X'10'         CHECK FOR
   0DE7 F2 10 04              344         JT    *+7                    PRINTER
   0DEA 3A 40 0F96            345         SBN   FLAG,FLAG1               BUSY
   0DEE 0C 01 11A7 1196       346         MVC   WORK3(2),CD05
   0DF4 3A 18 1182            347         SBN   STSHDB-2,X'18'       WAIT
   0DF8 38 18 117E            348 SYNCP   TBN   STATUS-2,X'18'          5 MILLISECONDS
   0DFC F2 10 12              349         JT    ADONE1                   FOR FEEDBACK
   0DFF 30 1B 117E            350         SNS   STATUS-2,X'1B'             AND FEEDBACK
   0E03 0E 01 11A7 1194       351 ADONE   ALC   WORK3(2),ONE                 SAMPLED TO
   0E09 C0 20 0DF8            352         BNOL  SYNCP                          COME UP
   0E0D 3A 40 0F96            353         SBN   FLAG,FLAG1
   0E11 39 40 0F96            354 ADONE1  TBF   FLAG,X'40'
   0E15 F2 10 08              355         JT    *+11                 PRINT
   0E18 C0 87 0F7E            356         B     STATCK                ANY ERRORS
   0E1C C0 87 0EB0            357         B     ENDPRT
   0E20 0C 02 11A7 1199       358         MVC   WORK3(3),CD1C0
   0E26 3B 18 1182            359         SBF   STSHDB-2,X'18'
   0E2A 39 18 117E            360 SYNCP1  TBF   STATUS-2,X'18'       WAIT 100
   0E2E F2 10 3F              361         JT    ADTWO1                  MILLISECONDS
   0E31 30 1B 117E            362         SNS   STATUS-2,X'1B'            FOR FEEDBACK
   0E35 0D 05 118A 118A       363         CLC   WORK(6),WORK          WAIT 25 MICROSECONDS
   0E3B 30 19 1180            364         SNS   STATUS,X'19'              AND FEEDBACK
   0E3F 39 01 1180            365         TBF   STATUS,X'01'                SAMPLED TO DROP
   0E43 F2 90 16              366         JF    ADTW22
   0E46 0E 02 11A7 1194       367 ADTWO   ALC   WORK3(3),ONE
   0E4C C0 20 0E2A            368         BNOL  SYNCP1
   0E50 3A 40 0F96            369         SBN   FLAG,FLAG1
   0E54 C0 87 0F7E            370 ADTWO2  B     STATCK
   0E58 C0 87 0EB0            371         B     ENDPRT
   0E5C C0 87 021A            372 ADTW22  B     PRINT                PRINT
   0E60 86                0E60 373         DC    XL1'86'               PRINTER
   0E61 3C                0E61 374         DC    IL1'60'                MALFUNCTION
   0E62 111C              0E63 375         DC    AL2(MSG106)
   0E64 1002              0E65 376         DC    XL2'1002'
   0E66 C0 87 0222            377         B     HALT                 HALT
   0E6A 1002              0E6B 378         DC    XL2'1002'             OF -02-
   0E6C C0 87 0EB0            379         B     ENDPRT
   0E70 39 10 1180            380 ADTWO1  TBF   STATUS,X'10'
   0E74 F2 10 1B              381         JT    ADTWO4
   0E77 38 01 0F97            382         TBN   MARK,MARK7            CHECK
   0E7B F2 10 08              383         JT    *+11                    FOR SHIFT
   0E7E 3A 01 0F97            384         SBN   MARK,MARK7                CYCLE
   0E82 C0 87 0DDF            385         B     ADTWO3
   0E86 3B 01 0F97            386         SBF   MARK,MARK7
   0E8A C0 87 0F3E            387         B     DEL100
   0E8E 30 19 1180            388         SNS   STATUS,X'19'
   0E92 3B 10 1184            389 ADTWO4  SBF   STSHDB,X'10'          CHECK BUSY
   0E96 3A 80 1184            390         SBN   STSHDB,X'80'            DROPPED AND
   0E9A 39 10 1180            391         TBF   STATUS,X'10'              INTERRUPT PENDING
   0E9E 38 80 1180            392         TBN   STATUS,X'80'               CAME ON
   0EA2 F2 10 08              393         JT    *+11                   IF NOT,
   0EA5 C0 87 0F7E            394         B     STATCK                  PRINT
   0EA9 C0 87 0EB0            395         B     ENDPRT                   STATUS
   0EAD F3 18 01              396         SIO   X'01',PRNT           RESET INTERRUPT PENDING
   0EB0 C0 87 0000            397 ENDPRT  B     *-*
                              398 ********************************************************************************
                              399 *                                                                              *
                              400 *                       CARRIER RETURN SUBROUTINE                              *
                              401 *                                                                              *
                              402 ********************************************************************************
   0EB4 34 08 0EB3            403 RETURN  ST    ENDPRT+3,ARR
   0EB8 F3 18 40              404         SIO   X'40',PRNT
   0EBB 30 1B 117E            405         SNS   STATUS-2,X'1B'       CHECK FOR
   0EBF 30 19 1180            406         SNS   STATUS,X'19'           PRINTER
   0EC3 3A 10 1184            407         SBN   STSHDB,X'10'             BUSY
   0EC7 38 10 1180            408         TBN   STATUS,X'10'
   0ECB F2 10 04              409         JT    *+7
```

1050 5471 PRINTER KEYBOARD FUNCTION TESTS-SECTION 5

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    0ECE 3A 40 0F96           410        SBN   FLAG,FLAG1
    0ED2 0C 01 11A7 1196      411        MVC   WORK3(2),CD05
    0ED8 3A 1E 1182           412        SBN   STSHDB-2,X'1E'        WAIT FOR
    0EDC 38 1E 117E           413 SYNCC  TBN   STATUS-2,X'1E'         LONG FUNCTION
    0EE0 F2 10 12             414        JT    ADTRE                   AND LONG
    0EE3 30 1B 117E           415        SNS   STATUS-2,X'1B'           FUNCTION SWITCH
    0EE7 0E 01 11A7 1194      416 ADCNE3 ALC   WORK3(2),ONE              SAMPLED TO COME UP
    0EED C0 20 0EDC           417        BNOL  SYNCC
    0EF1 3A 40 0F96           418        SBN   FLAG,FLAG1
    0EF5 39 40 0F96           419 ADTRE  TBF   FLAG,X'40'           PRINT
    0EF9 F2 10 08             420        JT    *+11                    ANY
    0EFC C0 87 0F7E           421        B     STATCK                   STATUS
    0F00 C0 87 0E80           422        B     ENDPRT                    ERRORS
    0F04 0C 02 11A7 119C      423        MVC   WORK3(3),CD1SEC
    0F0A 3B 1E 1182           424        SBF   STSHDB-2,X'1E'
    0F0E 39 1E 117E           425 SYNCC2 TBF   STATUS-2,X'1E'         WAIT ONE
    0F12 C0 10 0E92           426        BT    ADTW04                   SECOND FOR
    0F16 30 1B 117E           427        SNS   STATUS-2,X'1B'            LONG FUNCTION
    0F1A CD 05 118A 118A      428        CLC   WORK(6),WORK            WAIT 25 MICROSECONDS
    0F20 30 19 1180           429        SNS   STATUS,X'19'               AND LONG
    0F24 39 01 1180           430        TBF   STATUS,X'01'                FUNCTION
    0F28 C0 90 0E5C           431        BF    ADTW22                       SAMPLED TO
    0F2C 0E 02 11A7 1194      432 AD3    ALC   WORK3(3),ONE                    DROP
    0F32 C0 20 0F0E           433        BNOL  SYNCC2
    0F36 3A 40 0F96           434        SBN   FLAG,FLAG1
    0F3A C0 87 0E54           435        B     ADTW02
                              436 ********************************************************************
                              437 *      DELAY SUBROUTINE:  THIS SUBROUTINE SETS UP AND DELAYS       *
                              438 *      FOR SEVERAL MILLISECOND TIMINGS.                            *
                              439 ********************************************************************
    0F3E 34 08 0F55           440 DEL100 ST    ENDDEL+3,ARR          SET UP
    0F42 0C 02 119F 118D      441        MVC   WORK1(3),CDEL10        FOR 100
    0F48 0F 02 119F 1194      442 SUB    SLC   WORK1(3),ONE
    0F4E C0 01 0F48           443        BNZ   SUB
    0F52 C0 87 0000           444 ENDDEL B     *-*
                              445 *
                              446 *
                              447 *      SET EXPECTED STATUS
                              448 *
    0F56 34 08 0F7D           449 MODIFY ST    ENDF+3,ARR            SAVE RETURN ADDRESS
    0F5A 3B 3F 117D           450        SBF   STATUS-3,X'3F'           STATUS
    0F5E 3B 3F 1181           451        SBF   STSHDB-3,X'3F'           STATUS
    0F62 3B 44 1180           452        SBF   STATUS,X'44'          SET RESERVED AND END OF FORMS
    0F66 3B 78 117F           453        SBF   STATUS-1,X'78'         BITS OFF
    0F6A 3B 21 117E           454        SBF   STATUS-2,X'21'          FOR RECEIVED
    0F6E 3B 44 1184           455        SBF   STSHDB,X'44'          SET RESERVED
    0F72 3B 78 1183           456        SBF   STSHDB-1,X'78'         BITS OFF
    0F76 3B 21 1182           457        SBF   STSHDB-2,X'21'          FOR EXPECTED
    0F7A C0 87 0C00           458 ENDF   B     *-*                   RETURN
                              459 *
                              460 *
                              461 *
                              462 *        ERROR PRINTOUTS
                              463 *
    0F7E 34 08 0F95           464 STATCK ST    ENDSTR+3,ARR
    0F82 C0 87 021A           465        B     PRINT                      PRINT
    0F86 C6          0F86     466        DC    XL1'C6'                     REFER
    0F87 43          0F87     467        DC    IL1'67'                     TO
    0F88 1107        0F89     468        DC    AL2(MSG006)                   FEMM
    0F8A 1001        0F8B     469        DC    XL2'1001'
    0F8C C0 87 0222           470        B     HALT
    0F90 1001        0F91     471        DC    XL2'1001'
    0F92 C0 87 0000           472 ENDSTR B     *-*
                              473 ********************************************************************
                              474 *                                 *********
                              475 *                                 * FLAGS *
                              476 *                                 *********
    0F96 00          0F96     477 FLAG   DC    XL1'00'                 ERROR FLAGS
```


1050 5471 PRINTER KEYBOARD FUNCTION TESTS-SECTION 5

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         0040  478 FLAG1  EQU   X'40'                STATUS ERROR
    0F97 00              0F97  479 MARK   DC    XL1'00'              PROGRAM FLAGS
                         0020  480 MARK2  EQU   X'20'                PROGRAM INITIALIZED
                         0001  481 MARK7  EQU   X'01'                SHIFT CYCLE TESTS
                               482 ********************************************************************
                               483 *
                               484 *      EBCDIC TABLE FOR UPPER--LOWER CASE
                               485 *
    0F98 F1                  0F98  486 TABLEA DC    XL1'F1'
    0F99 7EF24CF35EF4        0F9E  487        DC    XL6'7EF24CF35EF4'
    0F9F 7AF56CF67DF7        0FA4  488        DC    XL6'7AF56CF67DF7'
    0FA5 6EF85CF94DF0        0FAA  489        DC    XL6'6EF85CF94DF0'
    0FAB 5D606D504E7C        0FB0  490        DC    XL6'5D606D504E7C'
    0FB1 4A5B5A7B7F6B        0FB6  491        DC    XL6'4A5B5A7B7F6B'
    0FB7 4F4B5F616FFF        0FBC  492        DC    XL6'4F4B5F616FFF'
                               493 *
                               494 *      TILT ROTATE CODES FOR UPPER--LOWER CASE
                               495 *
    0FBD 3F                  0FBD  496 TABLEB DC    XL1'3F'
    0FBE BF36B63EBE35        0FC3  497        DC    XL6'BF36B63EBE35'
    0FC4 B53D8D34B43C        0FC9  498        DC    XL6'B53D8D34B43C'
    0FCA BC39B931B137        0FCF  499        DC    XL6'BC39B931B137'
    0FD0 B71797078727        0FD5  500        DC    XL6'B71797078727'
    0FD6 A7109030B020        0FDB  501        DC    XL6'A7109030B020'
    0FDC A000302FAFFF        0FE1  502        DC    XL6'A000302FAFFF'
                               503 *
                               504 *      TILT-ROTATE TEST TABLE(EBCDIC)
                               505 *
    0FE2 7B                  0FE2  506 TABLEC DC    XL1'7B'
    0FE3 C1D8E6FF            0FE6  507        DC    XL4'C1D8E6FF'
                               508 *
                               509 *      TILT-ROTATE TEST TABLE(T-R CODES)
                               510 *
    0FE7 30                  0FE7  511 TABLED DC    XL1'30'
    0FE8 0F1924FF            0FEB  512        DC    XL4'0F1924FF'
                               513 *
    0FEC C8                  0FEC  514 TABLEE DC    XL1'C8'
    0FED 40FF                0FEE  515        DC    XL2'40FF'
                               516 *
    0FEF 09                  0FEF  517 TABLEF DC    XL1'09'
    0FF0 78FF                0FF1  518        DC    XL2'78FF'
    0FF2 00                  0FF2  519 PRTBL  DC    XL1'00'
    0FF3                     106F  520        DS    CL125
    1070 FF                  1070  521 CLEAR  DC    XL1'FF'
                               522 ********************************************************************
                               523 *
    1071 E4D7D7C5D940C3C1 1091  524 MSG003 DC    CL33'UPPER CASE--LOWER CASE PRINT TEST'
    1079 E2C56060D3D6E6C5       524
    1081 D940C3C1E2C540D7       524
    1089 D9C9D5E340E3C5E2       524
    1091 E3                     524
    1092 D4C1E7C9D4E4D440 10A9  525 MSG004 DC    CL24'MAXIMUM TILT-ROTATE TEST'
    109A E3C9D3E360D9D6E3       525
    10A2 C1E3C540E3C5E2E3       525
    10AA D5D660D7D9C9D5E3 10C1  526 MSG005 DC    CL24'NO-PRINT ESCAPEMENT TEST'
    10B2 40C5E2C3C1D7C5D4       526
    10BA C5D5E340E3C5E2E3       526
    10C2 C9C640          10C4   527          DC    CL3'IF '
    10C5 C5D9D9D6D940C4C5 10E0  528          DC    CL28'ERROR DETECTED IN PRINTING--'
    10CD E3C5C3E3C5C440C9       528
    10D5 D540D7C9C9D5E3C9       528
    10DD D5C7606C               528
    10E1 D9C5C6C5D940E3D6 1107  529 MSG006   DC    CL39'REFER TO MECHANICAL ENTRY CHART ENTRY 2'
    10E9 40D4C5C3C8C1D5C9       529
    10F1 C3C1D340C5D5E3D9       529
    10F9 E840C3C8C1D9E340       529
    1101 C5D5E3D9E840F2         529
    1108 6060D7D9C9D5E3C5 111C  530 MSG106  DC    CL21'--PRINTER MALFUNCTION'
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   1110 D940D4C1D3C6E4D5       530
   1118 C3E3C9D6D5             530
   111D D9C5E2C5E340E3C8 112B  531 MSG008 DC    CL15'RESET THE HALT,'
   1125 C540C8C1D3E36B         531
   112C E3D640C5D5E3C5D9 1141  532 MSG009 DC    CL22'TO ENTER PRINT PATTERN'
   1134 40D7D9C9D5E340D7       532
   113C C1E3E3C5D9D5           532
   1142 D7D9C5E2E240D9C5 114F  533 MSG00A DC    CL14'PRESS REQ KEY,'
   114A D840D2C5E86B           533
   1150 C5D5E3C5D94CD7C1 116B  534 MSG00B DC    CL28'ENTER PATTERN VIA DATA KEYS,'
   1158 E3E3C5D9D540E5C9       534
   1160 C140C4C1E3C140D2       534
   1168 C5E8E26B               534
   116C D7D9C5E2E240C5D5 1178  535 MSG00C DC    CL13'PRESS END KEY'
   1174 C440D2C5E8             535
                               536 *                          CONSTANTS
                               537 *
   1179 00800000         117C  538 STATLC DC    XL4'0C800000'
   117D 00000000         1180  539 STATUS DC    XL4'00'
   1181 00000000         1184  540 STSHDB DC    XL4'0'
   1185 4040             1186  541 WRITE  DC    CL2'  '
   1187 00000000         118A  542 WORK   DC    XL4'00'
   118B 00100D           118D  543 CDEL10 DC    XL3'00100D'
   118E 00400000         1191  544 STATUP DC    XL4'0C400000'
   1192 000001           1194  545 ONE    DC    XL3'000001'
   1195 FB00             1196  546 CD05   DC    XL2'FB00'
   1197 FFFA28           1199  547 CD100  DC    XL3'FFFA28'
   119A FFC821           119C  548 CD1SEC DC    XL3'FFC821'
   119D 000000           119F  549 WORK1  DC    XL3'00'
   11A0 0003             11A1  550 THREE  DC    XL2'0003'
   11A2 000000           11A4  551 COUNT  DC    XL3'000000'
   11A5 000000           11A7  552 WORK3  DC    XL3'00'
   11A8 00000000         11AB  553 ZERO0  DC    XL4'00'
                               554 *
                               555 *                          EQUATES
                               556 *
                         0001  557 SSW1F  EQU   X'01'
                         020B  558 SBYTE3 EQU   X'20B'
                         0222  559 HALT   EQU   X'222'
                         0018  560 PRNT   EQU   X'18'
                         0001  561 XR1    EQU   X'01'
                         0002  562 XR2    EQU   X'02'
                         0008  563 ARR    EQU   X'08'
                         021A  564 PRINT  EQU   X'21A'
                         0216  565 LINK   EQU   X'216'
                         022A  566 LOAD   EQU   X'22A'
                         0212  567 TEST   EQU   X'212'
                               568        END
```


CROSS-REFERENCE

```
SYMBOL  T LEN VALUE DEFN  REFERENCES
ADONE   A 006 0E03  0351
ADONE1  A 004 0E11  0354  0349
ADONE3  A 006 0EE7  0416
ADTRE   A 004 0EF5  0419  0414
ADTWO   A 006 0E46  0367
ADTWO1  A 004 0E70  0380  0361
ADTWO2  A 004 0E54  0370  0435
ADTWO3  A 004 0DDF  0342  0385
ADTWO4  A 004 0E92  0389  0381  0426
ADTW22  A 004 0E5C  0372  0366  0431
AD3     A 006 0F2C  0432
ARR     C 001 0008  0563  0307  0325  0338  0403  0440  0449  0464
CDEL10  A 003 118D  0543  0441
CD05    A 002 1196  0546  0346  0411
CD1SEC  A 003 119C  0548  0423
CD100   A 003 1199  0547  0358
CHK     A 004 0D26  0275  0273  0281  0298
CKEOC   A 004 0CB5  0237  0230
CLEAR   A 001 1070  0521  0221  0221*
COUNT   A 003 11A4  0551  0038* 0080* 0103* 0131* 0154* 0180* 0240* 0253*
DATA    A 004 0D5D  0290  0283
DEL100  A 004 0F3E  0440  0308  0387
EHLTID  A 001 0DCB  0331  0328*
ENDDEL  A 004 0F52  0444  0440*
ENDF    A 004 0F7A  0458  0449*
ENDMSG  A 006 0CC0  0240  0238  0257
ENDPRT  A 004 0EB0  0397  0338* 0357  0371  0379  0395  0403* 0422
ENDSTR  A 004 0F92  0472  0464*
ENDT    A 004 0DCC  0332  0325* 0327
END05   A 004 0D89  0302  0300
EOC     A 004 0D7E  0299  0279
EOL     A 006 0ADA  0080  0057  0074
EOL1    A 006 0B82  0131  0125
EOL2    A 006 0C24  0180  0174
EOL5    A 006 0CF3  0253  0248
ERRHLT  A 004 0DB5  0325
FLAG    A 001 0F96  0477  0315* 0326  0328  0345* 0353* 0354  0369* 0410* 0418* 0419  0434*
FLAG1   C 001 0040  0478  0345  0353  0369  0410  0418  0434
HALT    C 001 0222  0559  0036  0101  0152  0219  0329  0377  0470
KECHK   A 003 0D23  0274  0289  0296
KPCHAR  A 005 0CA9  0234  0232
LINK    C 001 0216  0565  0085  0136
LOAD    C 001 022A  0566  0185  0258  0302
MARK    A 001 0F97  0479  0309  0316* 0317* 0382  0384* 0386*
MARK2   C 001 0020  0480  0309  0317
MARK7   C 001 0001  0481  0382  0384  0386
MODIFY  A 004 0F56  0449  0048  0065  0116  0164
MSG00A  A 014 114F  0533  0210
MSG00B  A 028 116B  0534  0214
MSG00C  A 013 1178  0535  0218
MSG003  A 033 1091  0524  0034
MSG004  A 024 10A9  0525  0099
MSG005  A 024 10C1  0526  0150
MSG006  A 039 1107  0529  0314  0468
MSG008  A 015 112B  0531  0206
MSG009  A 022 1141  0532  0201
MSG106  A 021 111C  0530  0375
ONE     A 003 1194  0545  0080  0131  0180  0253  0351  0367  0416  0432  0442
OVER    A 006 0C77  0221  0239
PRINT   C 001 021A  0564  0031  0096  0147  0198  0203  0207  0211  0215  0311  0372  0465
PRINTS  A 004 0DD0  0338  0052  0069  0120  0168  0246
PRNT    C 001 0018  0560  0045* 0062* 0113* 0161* 0245* 0339  0396  0404
PRTBL   A 001 0FF2  0519  0222  0243
READY   A 004 0DA5  0315  0310
REPOA   A 004 0CC9  0242  0254
REPOA1  A 006 0A3D  0043  0079
```

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
REPOA2	A	006	0A25	0038	0084
REPOB	A	006	0B0C	0103	0135
REPOB1	A	006	0B24	0108	0130
REPOC	A	006	0BCC	0159	0179
REPOC1	A	006	0BBA	0155	0181
REPOC2	A	006	0BB4	0154	0184
REPO1	A	004	0A35	0041	0078
REPO11	A	006	0A2B	0039	0081
REPO2	A	004	0B1C	0106	0129
REPO22	A	006	0B12	0104	0132
REPO3	A	004	0BC4	0157	0178
REPO8	A	004	0CCD	0243	0251
REPO9	A	005	0CD1	0244	0252
REQ	A	003	0D77	0297	0277
RETURN	A	004	0EB4	0403	0040 0105 0156 0242
RSET	A	003	0C90	0227	0236
RST	A	003	0D16	0270	0301
RTN01	A	001	0A0D	0026	0015
RTN02	A	001	0AF4	0091	0028
RTN03	A	001	0B9C	0142	0093
RTN04	A	001	0C3F	0193	0144
RTN05	A	001	0D0E	0265	0195
SAV1	A	004	0DB1	0318	0307*
SBYTE3	C	001	020B	0558	0083 0134 0183 0256
SETUP	A	004	0D8E	0307	0030 0095 0146 0197 0269
SSW1F	C	001	0001	0557	0083 0134 0183 0256
STATCK	A	004	0F7E	0464	0051 0055 0068 0072 0119 0123 0167 0172 0356 0370 0394 0421
STATLC	A	004	117C	0538	0043
STATUP	A	004	1191	0544	0060
STATUS	A	004	1180	0539	0046* 0047* 0049* 0050 0054 0056 0063* 0064* 0066* 0067 0071 0073 0114* 0115* 0117* 0118 0122 0124 0162* 0163* 0165* 0166 0170* 0171 0173 0224* 0225 0228* 0229 0231 0234 0237 0247 0272* 0275* 0276 0278 0280 0282 0285* 0286 0290 0292* 0293 0299 0340* 0341* 0343 0348 0350* 0360 0362* 0364* 0365 0380 0388* 0391 0392 0405* 0406* 0408 0413 0415* 0425 0427* 0429* 0430 0450* 0452* 0453* 0454*
STSHDB	A	004	1184	0540	0039* 0043* 0050 0053* 0054 0060* 0067 0070* 0071 0104* 0108* 0112* 0118 0121* 0122 0155* 0159* 0166 0169* 0171 0342* 0347* 0359* 0389* 0390* 0407* 0412* 0424* 0451* 0455* 0456* 0457*
SUB	A	006	0F48	0442	0443
SYNC	A	004	0C84	0224	0226
SYNCA	A	004	0C93	0228	0233
SYNCB	A	004	0D64	0292	0294
SYNCB1	A	004	0D4A	0285	0287
SYNCC	A	004	0EDC	0413	0417
SYNCC2	A	004	0F0E	0425	0433
SYNCP	A	004	0DF8	0348	0352
SYNCP1	A	004	0E2A	0360	0368
TABLEA	A	001	0F98	0486	0041
TABLEB	A	001	0FBD	0496	0042
TABLEC	A	001	0FE2	0506	0106
TABLED	A	001	0FE7	0511	0107
TABLEE	A	001	0FEC	0514	0157
TABLEF	A	001	0FEF	0517	0158
TEST	C	001	0212	0567	0082 0133 0182 0255
THREE	A	002	11A1	0550	0038 0103 0154 0240
WORK	A	004	118A	0542	0363 0363 0428 0428
WORK1	A	003	119F	0549	0441* 0442*
WORK3	A	003	11A7	0552	0346* 0351* 0358* 0367* 0411* 0416* 0423* 0432*
WRITE	A	002	1186	0541	0044* 0045 0061* 0062 0109* 0113 0160* 0161 0244* 0245
XR1	C	001	0001	0561	0041* 0044 0058 0058* 0061 0075 0075* 0106* 0109 0110 0126 0126* 0157* 0160 0175 0175* 0222* 0234 0235 0235* 0243* 0244 0249 0249* 0250
XR2	C	001	0002	0562	0042* 0053 0059 0059* 0070 0076 0076* 0077 0107* 0121 0127 0127* 0128 0158* 0169 0176 0176* 0177
ZERO0	A	004	11AB	0553	0039 0104 0108 0155 0159

CROSS-REFERENCE

SYMBOL T LEN VALUE DEFN REFERENCES

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

1050 5471 PRINTER KEYBOARD FUNCTION TESTS-SECTION 5

OBJECT CARD LISTING

THE CHARACTER ' INDICATES A BLANK COLUMN AND THE CHARACTERS D̄ Ē H̄ 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

T+-Y:DE''''''B-4  ''AA&''D'B?L'/06  +OH*BFUQ/DID&Y*B  G'SH&Y&O'DE̅&JY&O  CDQ&JD̅@BGC,LB'&=  QO-H'7HH10500001
T+-Z5C#4<'1FDDPO  *'AFE'CDQDQQOF1E  =<AUJ-<BGC5Q#A/E  =C&HJ-AFDO'D|¬%B  GC)'%'AFA''4'DQD  J¬*''LQH10500002
T+-D̄O'&'=+'-J-|H  &O_HA';H6'&OCDQ&  JUJO'DQM'<J-J/T'  $DP8CFJF'CH*|NT%  FDP8('/F'DQL''&'  =OH*'PQ-10500003
T+-,,C)'%'AFA''4'  'DQDJ¬*'AC788BAF  'a/'J4-DA8-HA?¬@  'OHDH̄(*BC8T4|'AF  UDRL''&Y,OH*BDT-  A'-%'M-@10500004
T+-%WOA'HI*BG'/Q  B''>*OH*(T%BG'/Z  FFABZDH̄.'/OHSDH̄H  <'AFUDĒD<'1FDDĒ?  '/O:40-D|8%HBC=*  <'1D'Ē8@10500005
T+-_//AF,G''J/&A  ';OC2'&&:-AFB<J-  J/T'$DP8CFJF'OH*  |NT%FDP8('/F'DQL  ''&'=OH*(4BO'DQD  C&''JD10500006
T+->*DQDJ¬*'AC78  8BAF'a/'J4-DA8-H  A?¬@'OHD.G<BGB2&  |'AFUDRL''&%KOH*  BDT-A'-?'D'%<OH*  BE-<'29010500007
T+-??''O"OH*(T%B  G'/ZFFACADH̄|'/OH  SDH̄<<'AFUDĒD<'1F  DDĒ?'/O:40-D|#<H  BC=@<'1FDDĒ%*'AF  E'CD'1#Q10500008
T+-OKFAFF<A%J¬T'  RDQC'/O'D+OQJ¬-4  BDQ'J/<'AC7#'/07  &.''J-&'#-AE'C&'  J-JE'O'D|¬T-HDQC  2DAD'*YD10500009
T+-1(4-DA8-HA?¬@  'OHD.1<BGB@O|'AF  UDRL''&>:OH*BDT-  A'-?'D'>4OH*BH̄-'  D-'4+OH*(T%BG'/Z  AE/D'2,01C500010
T+-2H&JCSOH*BF-D  |DK?'/OHĒ'&8JL@B  G'/YAGAE,OH*BF-Q  (DPT'/OHSD+H<¬JA  ?DGCB'&"2@1'A<AD  J-C-'KD̄<10500011
T+-3C-AF'OI'</|<  &DL'JDQ'8&AF'a/'  P+'-J-|H&A<BGCI(  <'''J¬'HA'*BGCI'  8DAF'a/'DOH*<)OO  'DĒ&'J/-10500012
T+-3=DĒG3D'C'/O:  40-D|a/O'DQM'<J-  J/%BGC)'8BAF'a/'  +4-DA¬¬a'OHD<3*B  GC(D|'AFUDRL''&3  IOH*'$ĒH10500013
T+-49'/H8'&H.OA'  <O<BG'SY'AQC""@B  GCQ#3D'G?F'DOFJF  'aY*C@1'J<ADJ-CS  'DQC2DDQ8&AF'a/A  F+'-'NIY10500014
T+-54DQC'U'4W+'&  J-|H̄&E?<Q&C'RDQ'  8-AF'OI'(K?<Q'*B  GCK<1FAF'@1S'<AU  J-CS'DQC'U'5U@1-  AOH*'Q,*10500015
T+-6?CK|3DBG'/04  W+A'J-|H&A<BGCJ$'  '/OHD̄'C&HC$L'/0@  =+B'|V"H&B<BG'/Y  FJ/DG+"@|VT?¬C9*  :H'@'4B'10500016
T+-7D̄V@BG'''4B'7  |+¬@|V?H&C'O'C*%  |V%BG'SH&'<BG'''  4B':3@1S'<A%J¬T'  RDQ':DAFD+A'J-|H  &ACY'L1H10500017
T+-8V&'=OC'DJZ1F  O+/-J-T-QDP#2DAH  OF1E=C-DJZ1FMOB'  (=CZ'C9Q9&'=O@/'  HOH*|¬%BGC,'<'/F  XDRU'8C&10500018
T+-9-+1-J-TUQDP#  2DC@OF1E=C&MJS/F  H̄<AUJ-CUADQC2UAQ  +'/FXDRL'H'8D̄+U'  |V%BGC7#'/O:00H*  8FYQ'8:410500019
T+-:$|AD*D'./OH  SD'./O:O+J'J-|H  &F3-AC9¬2D'-:'&=  POH*(73%AC9¬'/O@  =<AUJ-C%&DQ&:-AF  D+J''"2M10500020
T+-#QDQ'8-AF'a/'  HOH*|¬%BGC,C3F'G  '/O''('-+%"<Q&C'  $DP8OFJF'+/'J/C-  &DQC2D'&:&'=OC'D  JZ1D'PQH10500021
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EC NO. 816654 816684 PAGE 7

1050 5471 PRINTER KEYBOARD FUNCTION TESTS-SECTION 5

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+-@JVTY;DQH8G/E  =@/'K<A%J¬-8ADĒ*  JV<'-C_O:&'=O+M'  |V?H&B<BGC7#'/O:  OC'HJZ1F*+18J-TU  ;DP8'P'H10500022
T+-'<OA'+UT'$DP8  (AJFH̄DQYOFJF'+&D  J-<B&CVO+'/FXDRL  'H'@++U'|V%BGCV&  4B'NC'HJX1F(COH  JX1D'O'Y10500023
T+-=GV<'AC4T'/O'  '('-|¬L%"DP4#|1F  A+4&J-C_8DQ<#HJF  BOH*''C&HC9P'/OH  Ē1U<'*#U10500024
T+-"BD&*&'*BG'SH  &'*BG''''''|E=@U3  3P?J:'O36¬¬)>=E3  9L¬A)QF5&LX1H̄O5Z  #¬6_|K5'/$"@"?3Ē  6|,8'P3<10500025
T.O"2($M'?LK4|.O  9>LF1(#*PVO;GI:*  &UCBOHH''-B=?"7?  A6+$"<'@RI|"H&|@  I:|@''''''''''''  ''''''  O#%10500026
T+/BD̄"=LP5@PR&<|  A8%N-Q(|O9%PR&<|  A8%N'5'XI5;('8@P  S8'LA9@XM9(J'8@X  L86CR5>|A8@N'8@P  S8'M'29&10500027
T+/CV5WCP6*XN84C  E8%|A5@PM1)PT&+|  E8>|I1UCE6)XO6MC  D1;|EO=|E1DCI5MC  P6*XN8@XN16A-6*P  F1)U'6Z%10500028
T+/D-&+|O&(LEO@T  A5*XCO)('1)PT6;/  'O@TA6;('1)PT6;/  '@WA-5'XI5;|E6MC  MO)|F9(PC8@XO5)X  E8%M'2Z%10500029
T+/E$84CT2<N'2<G  L86?T5UCE5;|E6MC  P6*XN84CPO;|T1)X  N5'XE8>I'6*PQ&(.  E:F?E5;|E6MCPO;|  T1)U'2BQ10500030
T+/FO5MCV2*E'1<G  TOMCK1;TS̄E'¬R1;.  S&<PN1DCK1;-'-''''''''''''  A'&''''  D'4'&''''  A=0''4:%10500031
TEAF,""YY"@-/'''  '''<''''''''''''  ''''''''''''''  ''''''''''''''  ''''''''''''''  '''''  1HM10500032
E"H'*E7*=¬DC"PH$  ="7M&F|'''|''C''  F%''ASC''R A  SO''Q''''''''''  21160322700  406700#Y10500033
```

LAST PAGE

DATE 02MAR70 06APR70 PROG ID 0105-0
EC NO. 816654 816684 PAGE 7A

CCCO INSTALLATION DELETE PROGRAM - MOD 12

```
ERR LOC  OBJECT CODE        ADDR STMT SOURCE STATEMENT

                                    2 *                                                        LAST CHG :08 15 75
                                    3          DECK   4
                                    4          SEQ    0
    0000                            5 XCCC     START  X'0000'
    0A00                            6          ORG    X'0A00'
                                    7          TREP
                                    8 ***********************************************************************
                                    9 *                              SECTION PREFACE                        *
                                   10 ***********************************************************************
                                   11 *                                                                     *
                                   12 *    THIS AREA CONTAINS INFORMATION NECESSARY FOR SECTION OPERATION.  *
                                   13 *    THE PROGRAM IDENTIFICATION, FLAGS, FIRST ROUTINE ADDRESS AND     *
                                   14 *    ERROR RECORDING TABLE ADDRESS ARE LOADED BY ASSEMBLED DATA.  THE *
                                   15 *    CURRENT ROUTINE NUMBER IS SUPPLIED BY THE CONTROL PROGRAM.       *
                                   16 *                                                                     *
                                   17 ***********************************************************************
    0A00 CCCO               0A01   18 PROGID   DC     XL2'CCCO'             PROGRAM IDENTIFICATION
    0A02 00                 0A02   19 SPFLGS   DC     XL1'00'               OP END INTERRUPT FLAG
    0A03 01                 0A03   20 RNUM     DC     IL1'1'                CURRENT ROUTINE NUMBER
    0A04 0000               0A05   21          DC     XL2'0000'             ADDR OF INTERRUPT HANDLER RTN
    0A06 0884               0A07   22 FRTN     DC     AL2(RTN01)            ADDRESS OF FIRST ROUTINE PREFIX
    0A08 0000               0A09   23 TABADR   DC     XL2'0000'             ADDRESS OF ERROR RECORDING TABLE
                            0A0A   24 SPUDT    EQU    *                     UNIT TABLE
    0A0A E00000             0A0C   25 X5203    DC     XL3'E00000'
    0A0D E10000             0A0F   26 X1403    DC     XL3'E10000'
    0A10 C15000             0A12   27          DC     XL3'C15000'
    0A80                           28          ORG    X'0A80'
                            0A80   29 READIN   EQU    *
    0B04                           30          ORG    READIN+132
                                   31
    0B04                    0B83   32          DS     CL128
                                   33 *
                                   34 *               ROUTINE PREFACE
                                   35 *
    0B84 01                 0B84   36 RTN01    DC     XL1'01'               ROUTINE NUMBER
    0B85 00                 0B85   37          DC     XL1'00'               ROUTINE FLAGS
    0B86 FFFF               0B87   38          DC     XL2'FFFF'             ADDRESS OF NEXT ROUTINE
                                   39
    0B88 0F 01 0209 0209           40          SLC    SBYTE0+1(2),SBYTE0+1  MAKE NO DCP SSW ARE ON.
                                   41
                                   42 * MAKE SURE TABLES ARE VALID.  DC LENGTHS MUST CORRECT AND
                                   43 *    DEVICES MUST APPEAR IN BOTH TABLES AND IN THE SAME ORDER.
    0B8E C2 01 5EF5                44          LA     TABDEL,XR1
    0B92 C2 02 5E96                45          LA     TABNAM,XR2
    0B96 6D 00 00 00               46 LOOPGM   CLC    0(1,XR1),0(,XR2)          DEVICE ID'S EQUAL?
    0B9A C0 01 0BBB                47          BNE    PGMERR                   BRANCH FO'  'R
    0B9E 7D FF 00                  48          CLI    0(,XR1),X'FF'         GO ON IF THIS _  END OF TABS.
    0BA1 C0 81 5800                49          BE     HIFF6
    0BA5 E2 02 05                  50          LA     5(,XR2),XR2              POINT AT NEXT TABNAM
                                   51
                                   52 *    POINT AT NEXT TABDEL, AFTER SKIPPING OVER $DELS
    0BA8 D2 01 01                  53          LA     1(,XR1),XR1
                                   54
    0BAB 4D 03 03 65B1             55 LOOPDD   CLC    3(4,XR1),$DEL        |
    0BB0 C0 01 0B96                56          BNE    LOOPGM               |   SKIP OVER $DEL'S
    0BB4 D2 01 50                  57          LA     80(,XR1),XR1         |
    0BB7 C0 87 0BAB                58          B      LOOPDD               |
                                   59
                            0BBB   60 PGMERR   EQU    *
    0BBB 34 08 0BD2                61          ST     PESARR,ARR            PROGRAM ERROR SAVE ARR
    0BBF 34 01 0BD4                62          ST     PESXR1,XR1            PROGRAM ERROR SAVE XR1
    0BC3 34 02 0BD6                63          ST     PESXR2,XR2            PROGRAM ERROR SAVE XR1
    0BC7 C0 87 0222                64 PHT      B      HALT                   PROGRAM ERROR IN TABLES
    0BCB FF55               0BCC   65          DC     XL2'FF55'               -->  SEE SAVED VALUES BELOW TO
    0BCD C0 87 0BC7                66          B      PHT                        HANG
    0BD1 0000               0BD2   67 PESARR   DC     XL2'0000'                     HELP ANALYZE THE ERROR.
    0BD3 0000               0BD4   68 PESXR1   DC     XL2'0000'
    0BD5 0000               0BD6   69 PESXR2   DC     XL2'0000'
```


CCCO INSTALLATION DELETE PROGRAM - MOD 12

```
ERR LOC  OBJECT CODE        ADDR STMT SOURCE STATEMENT

                                   70
                                   70
                                   70
    0BD7                    0BD8   71 STATE    DS     XL2
                            0BD9   72 SAVIDB   EQU    *
                            0BD9   73 PRTBF    EQU    SAVIDB
    0BD9                    0C38   74 SAVID    DS     XL96
                                   75
                                   76
    0C39 404040404040       0C3E   77 BLNK     DC     CL6'      '
                            0C3E   78 DGS2B    EQU    *-1
    0C3F                    0C94   79 DGSNS2   DS     XL86
                            0C95   80 DGSNSB   EQU    *
    0C95                    0CAC   81 DGSNS1   DS     XL24
                                   82 *
                                   83 *               SUBROUTINE TO SET DISK DATA FIELD TO X'00'
                                   84 *
    0CAD 34 08 0CBE                85 SETTO    ST     SETTOR+3,ARR          SAVE RETURN ADDRESS
    0CB1 3C 00 1A03                86          MVI    DDDF+255,0            ZERO OUT DDDF FIELD
    0CB5 0C FE 1A02 1A03           87          MVC    DDDF+254(255),DDDF+255
    0CBB C0 87 0000                88 SETTOR   B      *-*                   RETURN TO CALLER
                                   89
    0CBF 34 08 0CCD                90 SETO     ST     SETOR+3,ARR           STORE RETURN ADDRESS
    0CC3 7C 00 FF                  91          MVI    255(,XR1),0           ZERO OUT DDDF
    0CC6 5C FE FE FF               92          MVC    254(255,XR1),255(,XR1)
    0CCA C0 87 0000                93 SETOR    B      *-*                   RETURN TO CALLER
                                   94
                                   94
                                   94
                                   94
                                   95 *               ROUTINE PREFACE
                                   96
    0CCE 01                 0CCE   97 EDITA    DC     XL1'01'               ROUTINE NUMBER
    0CCF 00                 0CCF   98          DC     XL1'00'               ROUTINE FLAGS
    0CD0 FFFF               0CD1   99 MINUS1   DC     XL2'FFFF'             ADDRESS OF NEXT ROUTINE
                                  100
                                  101 ***********************************************************************
                                  102 ***********************************************************************
                                  103 **       $DEL                                                        **
                                  104 **                                                                   **
                                  105 **       THIS PART OF THE PROGRAM DELETES PROGRAMS ON THE CE DATA    **
                                  106 **       MODULE .                                                    **
                                  107 **                                                                   **
                                  108 ***********************************************************************
                                  109 ***********************************************************************
                                  110
                                  110
                            0CD2  111 DEL1     EQU    *                     ENTRY POINT FOR $DEL
                                  112
    0CD2 3B 0F 16F3               113          SBF    DELFG,X'0F'           RESET $DEL FLAG
    0CD6 3C 60 1887               114          MVI    ADMSG+11,C'-'         SET UP MESSAGE TO PRINT
    0CDA 0C 06 1882 187B          115          MVC    ADMSG+6(7),PGMDEL
    0CE0 1C 14 18A2 9E            116          MVC    ADMSG+38(21),158(,XR1)
    0CE5 1C 1F 18CA BF            117          MVC    ADMSG+78(32),191(,XR1)
                                  118
    0CEA C0 87 021A               119          B      PRINT                 PRINT 'XXX DELETED'
    0CEE 02                 0CEE  120          DC     XL1'02'               FLAG
    0CEF 4F                 0CEF  121          DC     AL1(ADMSGE-ADMSG)     LENGTH
    0CF0 18CA               0CF1  122          DC     AL2(ADMSGE-1)         MESSAGE ADDRESS
    0CF2 BD 6B 07                 123 DEL2     CLI    7(,XR2),C','         IS THERE ANOTHER PRGM TO DELETE
    0CF5 C0 01 5A07               124          BNE    XR1C                 IF NOT,THEN QUIT
    0CF9 E2 02 04                 125          LA     4(,XR2),XR2          INCREMENT XR2 TO HANDLE NEXT PGM
                            0CFC  126 DELPGM   EQU    *
    0CFC 3A 0F 16F3               127          SBN    DELFG,X'0F'          SET DELETE FLAG
    0D00 2C 02 15E0 06            128          MVC    SAVEID-1(3),6(,XR2)  SAVE ID OF PROGRAM TO BE DELETED
    0D05 3C 00 15B0               129          MVI    LWRT,0               ZERO LAST WRITE FLAG
    0D09 3A 0F 15C4               130          SBN    ADDFLG,X'0F'         SET FLAG TO RECORD CARD IMAGE IN
                                  131 *                                    DISK FIELD
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
    0D0D C2 01 1904            132          LA     DDDF,XR1                 LOAD  XR1
    0D11 2C 02 0D1D 06         133 RPCNT7   MVC    PRGID1(3),6(,XR2)        SCAN FOR OLD VTOC ENTRY
    0D16 C0 87 0E4D            134          B      SCNVTC                   TO SCAN VTOC SUBRT
    0D1A 00               0D1A 135 FLAG1    DC     IL1'0'
    0D1B 404040           0D1D 136 PRGID1   DC     CL3' '                   ID OF PROGRAM TO SCAN FOR
    0D1E 0C 04 1888 190C       137          MVC    ADMSG+12(5),DDDF+8       MOVE IN ID AND LEVEL INTO PRINT FLD
    0D24 3D 00 0D1A            138          CLI    FLAG1,0                  IF FLAG =0 THEN PROGRAM NOT FOUND
    0D28 F2 81 21              139          JE     PGNTF
    0D2B 0C 02 190A 1618       140          MVC    DDDF+6(3),OLD            OVERWRITE VTOC ENTRY WITH 'OLD'
                               141
    0D31 3C 00 16B2            142          MVI    DDCF,0                   ZERO NN FIELD
    0D35 C0 87 0F48            143          B      WINRW                    WRITE OLD VTOC ENTRY
    0D39 40               0D39 144          DC     XL1'40'                  WRITE FLAG
    0D3A 1904             0D3B 145          DC     AL2(DDDF)                @ OF DDDF
    0D3C 16A9             0D3D 146          DC     AL2(DDCFB)               @ OF DDCF
                               147
    0D3E 38 0F 16F3            148          TBN    DELFG,X'0F'              IS THIS $DEL PROGRAM?
    0D42 C0 10 0CD2            149          BT     DEL1                     IF SO, RETURN TO DELETE OPTION
                               150
                               150
                               150
                               150
                               151 ************************************************************************
                               152 *      HANDLE PROGRAM NOT FOUND, X ENTRY, AND INVALID CARD             *
                               153 ************************************************************************
                               154
                               154
    0D46 D7C9C4           0D48 155 PRGID    DC     CL3'PID'
    0D49 FFFD             0D4A 156 NEG3     DC     IL2'-3'
    0D4B C0               0D4B 157 DRIVE#   DC     XL1'C0'
    0D4C 0C 02 1800 0D1D       158 PGNTF    MVC    MSG02-12(3),PRGID1       MOVE IN ID OF PROGRAM NOT FOUND
    0D52 C0 87 021A            159          B      PRINT                    PRINT 'PROGRAM NOT FOUND'
    0D56 06               0D56 160          DC     XL1'06'                  FLAG
    0D57 10               0D57 161          DC     IL1'16'                  LENGTH
    0D58 18DC             0D59 162          DC     AL2(MSG02)
                               163
    0D5A 38 0F 16F3            164          TBN    DELFG,X'0F'              IS IT IN THE DELETE MODE?
    0D5E C0 10 0CF2            165          BT     DEL2                     IF YES, THEN CHECK IF ANOTHER
                               166 *                                        PROGRAM TO DELETE
    0D62 C0 87 5A07            167          B      XR1C
                               168 *************
                               169 *  STPFLD   *
                               170 ************************************************************************
                               171 *       THIS SUBRT STEPS THE DISK DRIVE CONTROL FIELD TO               *
                               172 *       THE NEXT SECTOR.                                               *
                               173 *       THE FORMAT FOLLOWS:                                            *
                               174 *                                                                      *
                               175 *       B      STPFLD                                                  *
                               176 *       DC     AL2(*-*)                THIS IS THE RIGHT END ADDRESS OF *
                               177 *                                      A FIVE BYTE FIELD CONTAINING     *
                               178 *                                      C C H H R.                       *
                               179 *                                                                      *
                               180 ************************************************************************
                               181
                               181
    0D66 0000000000       0D6A 182 DDCFX    DC     5IL1'0'
    0D6B 0000             0D6C 183 TEMP4    DC     IL2'0'
    0D6D 01               0D6D 184 ONE      DC     XL1'01'
                               185
                               185
    0D6E 34 08 0DD3            186 STPFLD   ST     STPFLR+3,ARR             SAVE ADDRESS
    0D72 0E 01 0DD3 0D6D       187          ALC    STPFLR+3(2),ONE          POINT TO FIELD ADDRESS
    0D78 0C 01 0D83 0DD3       188          MVC    MVC6+5(2),STPFLR+3       OVERLAY INSTRUCTION
    0D7E 0C 01 0D89 0000       169 MVC6     MVC    MVC3+5(2),*-*
    0D84 0C 04 0D6A 000C       190 MVC3     MVC    DDCFX(5),*-*             MOVE IN FIELD TO BE WORKED ON
    0D8A 0E 01 0DD3 0D6D       191          ALC    STPFLR+3(2),ONE          POINT TO RETURN ADDRESS
                               192
    0D90 3D 30 0D6A            193          CLI    DDCFX,48                 IS R FIELD EQUAL TO 48?
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
    0D94 F2 02 09              194          JNL    INCHD                    THEN GO TO NEW HEAD
    0D97 0E 00 0D6A 0D6D       195          ALC    DDCFX(1),ONE             INCREMENT REC #
    0D9D F2 87 24              196          J      CONTA8
                               197
    0DA0 3D 13 0D69            198 INCHD    CLI    DDCFX-1,19               IS HEAD # 19?
    0DA4 F2 02 0D              199          JNL    INCCL                    THEN INCREMENT CYLINDER
    0DA7 3C 01 0D6A            200          MVI    DDCFX,1                  RESET TO  RECORD 1
    0DAB 0E 01 0D69 0D6D       201          ALC    DDCFX-1(2),ONE           INCREMENT HEAD
    0DB1 F2 87 10              202          J      CONTA8
                               203
    0DB4 0E 01 0D67 0D6D       204 INCCL    ALC    DDCFX-3(2),ONE           INCREMENT CYLINDER
    0DBA 0C 01 0D69 165E       205          MVC    DDCFX-1(2),ZERO          HEAD 0
    0DC0 3C 01 0D6A            206          MVI    DDCFX,1                  RECORD 1
                               207
    0DC4 0C 01 0DCD 0D89       208 CONTA8   MVC    MVC4+3(2),MVC3+5         OVERLAY INSTRUCTION
    0DCA 0C 04 0000 0D6A       209 MVC4     MVC    *-*(5),DDCFX             REPLACE FIELD
                               210
    0DD0 C0 87 0000            211 STPFLR   B      *-*                      RETURN TO CALLER
                               212
                               212
                               212
                               212
                               212
                               212
                               212
                               212
                               212
                               213 *************
                               214 *   RDFAS   *
                               215 ************************************************************************
                               216 *       THIS SUBRT SEEKS TO AND READS THE FAS RECORD                   *
                               217 *       FORMAT FOLLOWS:                                                *
                               218 *                                                                      *
                               219 *       B      RDFAS                   THE RECORD READ FROM THE DISK IS *
                               220 *                                      DEPOSITED IN THE 12 BYTE FIELD : *
                               221 *                                      'FASINF'.                        *
                               222 *                                                                      *
                               223 ************************************************************************
                               224
                               224
    0DD4 34 08 0E14            225 RDFAS    ST     RDFASR+3,ARR             SAVE RETURN ADRESS
    0DD8 0C 04 16B8 1641       226          MVC    DDCFRM(5),C3H161         SET UP DDCF FIELD TO READ FAS RCRD
    0DDE 3C 00 16BC            227          MVI    DDCFR,0
    0DE2 C0 87 0F48            228          B      WINRW                    READ FAS
    0DE6 80               0DE6 229          DC     XL1'80'                  READ
    0DE7 1904             0DE8 230          DC     AL2(DDDF)                @ OF DDDR CONTENTS
    0DE9 16B3             0DEA 231          DC     AL2(DDCFRB)              @ OF DDCR CONTENTS
                               232
    0DEB 0D 02 1906 0E3C       233          CLC    DDDF+2(3),FAS            IS THIS A VIRGIN PACK?
    0DF1 F2 01 09              234          JNE    *+12                     JUMP IF IT IS.
    0DF4 0C 08 0E45 190F       235          MVC    FASINF(9),DDDF+11        MOVE INFO  TO DESIRED PLACE
    0DFA F2 87 14              236          J      RDFASR
                               237
    0DFD 0C 01 0E45 165E       238          MVC    FASINF(2),ZERO           ZERO VTOC ENTRIES
    0E03 0C 04 0E42 165F       239          MVC    FASINB+8(5),C4HOR1       PUT IN SECTOR OF FIRST FIELD
    0E09 3C 00 0E43            240          MVI    FASINB+9,0               ZERO FIELD DELIMITERS
    0E0D 3C 00 0E3D            241          MVI    FASINB+3,0
                               242
    0E11 C0 87 0000            243 RDFASR   B      *-*                      RETURN TO CALLER
                               244
                               244
                               244
                               244
                               244
                               244
                               244
                               244
                               245 *************
                               246 *   WRFAS   *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                              247 ********************************************************************
                              248 *       THIS SUBROUTINE WRITES INFO IN THE FAS REGION              *
                              249 *                                                                  *
                              250 *       FORMAT FOLLOWS:                                            *
                              251 *                                                                  *
                              252 *       B     WRFAS                 DATA STORED IN THE 12 BYTE FIELD:*
                              253 *                                   'FASINF' IS WRITTEN IN THE FAS THE*
                              254 *                                   FAS REGION ON THE DISK.        *
                              255 *                                                                  *
                              256 ********************************************************************
                              257
                              257
   0E15 34 08 0E39            258 WRFAS  ST    WRFASR+3,ARR          SAVE RETURN ADDRESS
                              259
   0E19 0C 04 1688 1641       260        MVC   DDCFRM(5),C3H161      SET UP DDCF FIELD
   0E1F 3C 00 16BC            261        MVI   DDCFR,0
   0E23 C0 87 0CAD            262        B     SETTO                 SET FIELD TO X'FF' S
   0E27 0C 0B 190F 0E45       263        MVC   DDDF+11(12),FASINF    SET UP DDDF FIELD TO PROPER INFO
                              264
   0E2D C0 87 0F48            265        B     WINRW                 WRITE INFO ON MODULE
   0E31 40              0E31  266        DC    XL1'40'               WRITE
   0E32 1904            0E33  267        DC    AL2(DDDF)             @ OF DDDR CONTENTS
   0E34 1683            0E35  268        DC    AL2(DDCFRB)           @ OF DDCR CONTENTS
                              269
   0E36 CC 87 0000            270 WRFASR B     *-*                   RETURN TO CALLER
                              271
                              271
                              271
                              271
                              271
                              271
                              271
                              272 ************
                              273 *  SCNVTC   *
                              274 ********************************************************************
                              275 *       THIS SUBROUTINE SCANS VTOC FOR THE ID IN THE PARAMETER     *
                              276 *       LIST.  IT THEN SETS A FLAG INDICATING SCAN HIT OR NOT.     *
                              277 *       THE ADDRESS OF THE HIT AND ITS CONTENTS ARE SAVED.         *
                              278 *                                                                  *
                              279 *       FORMAT FOLLOWS:                                            *
                              280 *                                                                  *
                              281 *       B     SCNVTC                                               *
                              282 *       DS    XL1                   FLAG DEPOSITED BY SUBROUTINE   *
                              283 *       DC    CL3'PID'              PROGRAM ID TO SCAN FOR IN VTOC  *
                              284 *                                                                  *
                              285 *             FLAG BYTE:            X'00'=  NO SCAN HIT THROUGH ENTIRE*
                              286 *                                           CONTENTS OF VTOC       *
                              287 *                                   X'0F'=  SCAN HIT               *
                              288 *       NOTE: ON NO SCAN HIT THE ADDRES LEFT IN THE DDCF FIELD IS  *
                              289 *             THE NEXT AVAILABLE RECORD FOR VTOC.                  *
                              290 *                                                                  *
                              291 *       NOTE: TO SCAN TO END OF VTOC, PUT '***' IN PRGID           *
                              292 *                                                                  *
                              293 ********************************************************************
                              294
                              294
                       0E3A   295 FASINB EQU   *
   0E3A C6C1E2         0E3C  296 FAS    DC    CL3'FAS'
   0E3D 0000000000000000 0E45 297 FASINF DC    9IL1'0'
   0E45 00                    297
                       0E42   298 FASINM EQU   FASINB+8
   0E46 5C5C5C         0E48  299 AST    DC    CL3'***'
   0E49 0000           0E4A  300 TEMP3  DC    IL2'0'
   0E48 00FF           0E4C  301 X255   DC    IL2'255'
                              302
                              302
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   0E4D 34 08 0F20            303 SCNVTC ST    SCNVTR+3,ARR          SAVE RETURN ADDRESS
   0E51 34 01 0E4A            304        ST    TEMP3,XR1             SAVE XR1
   0E55 35 01 0F20            305        L     SCNVTR+3,XR1          LOAD XR1
                              306
   0E59 0E 01 0F20 16DE       307        ALC   SCNVTR+3(2),X4        INCREMENT TO RETURN ADDRESS
                              308
   0E5E C0 87 0DD4            309        B     RDFAS                 GO READ FAS
   0E63 0C 04 16AE 1664       310        MVC   DDCFM(5),C2H0R1       SET DDCF
   0E69 3C 00 1682            311        MVI   DDCF,0
                              312
   0E6D 0D 01 0E45 165E       313        CLC   FASINF(2),ZERO        SEE IF VIRGIN PACK
   0E73 F2 81 87              314        JE    END1                  GO HANDLE IT
                              315
   0E76 D2 01 03              316        LA    3(,XR1),XR1           INCREMENT XR1
   0E79 34 01 0E96            317        ST    MVC1+5,XR1            OVERLAY MOVE INSTRUCTION
   0E7D 36 01 0D4A            318        A     NEG3,XR1              DECREMENT XR1 BY 3
                              319
   0E81 3C FF 1A03            320        MVI   DDDF+255,X'FF'        FILL DDDF WITH X'FF'
   0E85 0C FE 1A02 1A03       321        MVC   DDDF+254(255),DDDF+255
                              322
   0E8B 0C 03 1907 1683       323        MVC   DDDF+3(4),ACTO        PUT IN SCAN PARAMETERS
   0E91 0C 02 190A 0000       324 MVC1   MVC   DDDF+6(3),*-*
                              325
   0E97 0D 02 190A 0E48       326        CLC   DDDF+6(3),AST         IF PID DOESN'T = '***'
   0E9D F2 01 0A              327        JNE   *+13                  THEN JUMP
   0EA0 3C 00 1983            328        MVI   DDDF+127,0            OTHERWISE ZERO OUT HALF OF SCAN FLD
   0EA4 0C 7E 1982 1983       329        MVC   DDDF+126(127),DDDF+127
                              330
   0EAA 3C 00 15C0            331        MVI   LSTSCN,0
   0EAE 0C 00 0EE8 0D48       332        MVC   TIO18+1(1),DRIVE#     OVERLAY TIO INST
   0EB4 3A 03 0EE8            333        SBN   TIO18+1,X'03'
   0EB8 0C 01 15E3 0E45       334        MVC   TEMP2(2),FASINF       KEEP HEAD  OF VTOC #
                              335
   0EBE 0D 01 15E3 0E4C       336 LOOP8  CLC   TEMP2(2),X255         IS # OF RECORDS TO SCAN >255?
   0EC4 F2 04 0D              337        JNH   *+16                  SKIP IF NOT
   0EC7 0F 01 15E3 0E4C       338        SLC   TEMP2(2),X255         DECREMENT COUNTER
   0ECD 3C FE 16B2            339        MVI   DDCF,254              SET DDCF
   0ED1 F2 87 0A              340        J     *+13                  SKIP
                              341
   0ED4 0C 00 16B2 15E3       342        MVC   DDCF(1),TEMP2
   0EDA 3C FF 15C0            343        MVI   LSTSCN,X'FF'          SET LAST  SCAN FLAG
                              344
   0EDE C0 87 0F48            345        B     WINRW                 SCAN READ
   0EE2 20              0EE2  346        DC    XL1'20'
   0EE3 1904            0EE4  347        DC    AL2(DDDF)             @ OF DDDF
   0EE5 16A9            0EE6  348        DC    AL2(DDCFB)            @ OF DDCF
                              349
   0EE7 C1 00 0F04            350 TIO18  TIO   CONTE5,*-*            IS IT SCAN   HIT?
                              351
   0EEB C0 87 0D6E            352        B     STPFLD                INCREMENT SCAN DDCF FIELD
   0EEF 16AE            0EF0  353        DC    AL2(DDCFM)
                              354
   0EF1 3D FF 15C0            355        CLI   LSTSCN,X'FF'          IS LAST SCAN FLAG SET?
   0EF5 C0 01 0EBE            356        BNE   LOOP8                 RETURN IF NOT
                              357
   0EF9 34 01 0F00            358        ST    MVI1+3,XR1            OVERLAY MVI  INST
                              359
                       0EFD   360 END1   EQU   *
   0EFD 3C 00 0000            361 MVI1   MVI   *-*,0                RESET SCAN HIT FLAG
   0F01 F2 87 15              362        J     SCNVTE                RETURN
                              363
   0F04 34 01 0F0B            364 CONTE5 ST    MVI2+3,XR1            OVERLAY INSTRUCTION
   0F08 3C 0F 0000            365 MVI2   MVI   *-*,X'0F'             SET SCAN HIT FLAG
   0F0C 3C 00 16B2            366        MVI   DDCF,0                READ IN 1 RECORD
   0F10 C0 87 0F48            367        B     WINRW                 READ IN VTOC ENTRY THAT RESULTED
   0F14 80              0F14  368        DC    XL1'80'               IN THE SCAN HIT.
   0F15 1904            0F16  369        DC    AL2(DDDF)
   0F17 16A9            0F18  370        DC    AL2(DDCFB)
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                              371
    0F19 35 01 0E4A           372 SCNVTE L      TEMP3,XR1                 RELOAD XR1
    0F1D C0 87 0000           373 SCNVTR B      *-*                       RETURN TO CALLER
                              374
                              374
                              374
                              374
                              374
                              374
                              374
                              374
                              375 ***********
                              376 * WINRW   *****************************************************************
                              377 ******************************************************************      *
                              378 *   SUBROUTINE: READ, WRITE OR SCAN N RECORDS ON 3340                  *
                              379 *                     ACCESS FORMAT:                                   *
                              380 *        B       WINRW                      BRANCH TO SUBROUTINE       *
                              381 *        DC      XL1                        FLAG                       *
                              382 *        DC      AL2(*-*)                   @ OF DISK DRIVE DATA FIELD *
                              383 *        DC      AL2(*-*)                   @ OF DISK DRIVE CONTROL FIELD *
                              384 *                                                                      *
                              385 *      FLAG BITS (NO MORE THAN ONE BIT ON AT A TIME)                   *
                              386 *              BIT                                                     *
                              387 *              0-      SEEK AND READ                                   *
                              388 *              1-      SEEK AND WRITE                                  *
                              389 *              2-      SEEK AND SCAN READ                              *
                              390 *                                                                      *
                              391 *      VALUES OF BYTE 'DRIVE#:                                         *
                              392 *              DRIVE 1                 'DRIVE#'= X'C0'                 *
                              393 *              DRIVE 2                 'DRIVE#'= X'C8'                 *
                              394 *              DRIVE 3                 'DRIVE#'= X'D0'                 *
                              395 *              DRIVE 4                 'DRIVE#'= X'D8'                 *
                              396 *                                                                      *
                              397 ************************************************************************
                              398
                              398
    0F21 0000000000000000 0F2A 399 DDCFE  DC     10IL1'0'
    0F29 0000                 399
    0F2B 0000            0F2C 400 TDDDR   DC     IL2'0'
                         0F2D 401 QUITFG  EQU    *
    0F2D 0000            0F2E 402 TDDCR   DC     IL2'0'
                         0F2F 403 TDDDF   EQU    *
    0F2F 0000000000000000 0F37 404        DC     9IL1'0'
    0F37 00                   404
                         0F38 405 TDDCF   EQU    *
    0F38 0000000000      0F3C 406         DC     5IL1'0'
    0F3D 0F38            0F3E 407 TDDCF@  DC     AL2(TDDCF)
    0F3F 0F2F            0F40 408 TDDDF@  DC     AL2(TDDDF)
                         0F41 409 OUTREC  EQU    *
    0F41 0000000000      0F45 410         DC     5IL1'0'
    0F46 7064            0F47 411 LINKM@  DC     AL2(SAVDSP)
                              412
                              412
                              412
                              412
    0F48 34 08 10CE           413 WINRW   ST     WINRWR+3,ARR             SAVE ADDRESS
    0F4C 34 01 15C9           414         ST     ADDR,XR1                 SAVE XR1
    0F50 35 01 10CE           415         L      WINRWR+3,XR1             LOAD POINTER REGISTER
    0F54 0E 01 10CE 16E0      416         ALC    WINRWR+3(2),X5           SET RETURN ADDRESS TO NEXT INST
                              417
    0F5A 3C 0A 16ED           418         MVI    ICTR,10                  INITIALIZE COUNTER
    0F5E 1C 01 0F8C 04        419         MVC    MOV1+5(2),4(,XR1)        OVERLAY MVC INST
    0F63 0C 01 10CA 0F8C      420         MVC    MVI4+3(2),MOV1+5         OVERLAY MOVE INSTRUCTON
    0F69 0E 01 0F8C 16E0      421         ALC    MOV1+5(2),X5             CHANGE POINTER
    0F6F 0E 01 0F8C 16DC      422         ALC    MOV1+5(2),X3
    0F75 0C 01 0F64 0F8C      423         MVC    MVC10+3(2),MOV1+5        OVERLAY KEY AND DATA LENGTHS
    0F7B 0E 01 0F8C 0D6D      424         ALC    MOV1+5(2),ONE
    0F81 0C 02 0000 167A      425 MVC10   MVC    *-*(3),X256
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
    0F87 0C 09 0F2A 0000      426 MOV1    MVC    DDCFE(10),*-*            STORE DDCF IN ALTERNATE PLACE
    0F8D 0C 01 1064 0F8C      427         MVC    MOV2+3(2),MOV1+5         OVERLAY MOVE INSTRUCTION
    0F93 0D 03 0F25 1677      428         CLC    DDCFE-5(4),C33H18        TRYING TO ADD TOO FAR?
    0F99 C0 84 12E1           429         BH     TOOFAR
                              430
    0F9D 78 20 00             431         TBN    0(,XR1),X'20'            IS IT SCAN READ REQUEST?
    0FA0 C0 10 1085           432         BT     SCANRD
                              433                                                                *
                              434 *          THIS SECTION OVERLAYS I/O INSTRUCTIONS FOR CORRECT DRIVE *
                              435 *                                                              *
                              436 *
                              437
    0FA4 0C 00 101B 0D4B      438         MVC    SIO1+1(1),DRIVE#         OVERLAY SIO INSTRUCTION
    0FAA 0C 00 1018 0D4B      439         MVC    SIO5+1(1),DRIVE#         OVERLAY SIO INST
    0FB0 0C 00 101E 0D4B      440         MVC    TIO4+1(1),DRIVE#         OVERLAY TIO INST
    0FB6 3A 02 101E           441         SBN    TIO4+1,X'02'
    0FBA 0C 00 105B 0D4B      442         MVC    SIO7+1(1),DRIVE#         OVERLAY SIO INST
    0FC0 0C 00 105E 0D4B      443         MVC    TIO5+1(1),DRIVE#         OVERLAY TIO INST
    0FC6 3A 01 105E           444         SBN    TIO5+1,X'01'
    0FCA 0C 00 1014 0D4B      445         MVC    TIO1+1(1),DRIVE#         OVERLAY TIO INST
    0FD0 0C 00 1022 0D4B      446         MVC    TIO7+1(1),DRIVE#         OVERLAY TIO INST
                              447
    0FD6 78 40 00             448         TBN    0(,XR1),X'40'            SEE  IF READ OR WRITE REQUEST
    0FD9 F2 10 07             449         JT     *+10
    0FDC 3A 01 1018           450         SBN    SIO1+1,X'01'             OVERLAY FOR READ
    0FE0 F2 87 2A             451         J      RTRY1                    JUMP IF WRITE
    0FE3 3A 02 1018           452         SBN    SIO1+1,X'02'             OVERLAY FOR WRITE
    0FE7 0C 01 104C 0F8C      453         MVC    CLI1+3(2),MOV1+5         OVERLAY CLI INST
    0FED 0C 01 1035 0F8C      454         MVC    MOV3+3(2),MOV1+5         OVERLAY MVC INST
    0FF3 0C 00 103C 1018      455         MVC    SIO8+1(1),SIO5+1         OVERLAY SIO INST
    0FF9 0C 00 103F 1018      456         MVC    SIO9+1(1),SIO5+1         OVERLAY SIO INST
    0FFF 3A 01 103F           457         SBN    SIO9+1,X'01'             FURTHER OVERLAY SIO INST
    1003 0C 00 1042 0D4B      458         MVC    TIO8+1(1),DRIVE#         OVERLAY TIO INST
    1009 3A 02 1042           459         SBN    TIO8+1-X'02'
                              460
                         100D 461 RTRY1   EQU    *
                              462
                              462
    100D 71 C4 02             463         LIO    2(,XR1),DDDR             LOAD DISK DRIVE DATA REGISTER
    1010 71 C6 04             464         LIO    4(,XR1),DDCR             LOAD DISK DRIVE CONTROL REGISTER
                              465
    1013 C1 00 125D           466 TIO1    TIO    HALT1,*-*                TEST FOR DEVICE NOT READY
    1017 F3 00 00             467 SIO5    SIO    X'00',*-*                SEEK
                              468
                         101A 469 DRTRN2  EQU    *
                              470
    101A F3 00 00             471 SIO1    SIO    X'00',*-*                READ OR WRITE N RECORDS
    101D C1 00 101D           472 TIO4    TIO    *,*-*                    TEST FOR ADAPTER NOT BUSY
    1021 C1 00 12AF           473 TIO7    TIO    HALT2,*-*                TEST FOR NOT READY DURING INST
                              474
    1025 38 02 101B           475         TBN    SIO1+1,X'02'             IS IT WRITE INST?
    1029 F2 90 97             476         JF     WINRWT                   IF NOT, RETURN TO CALLER
                              477
    102C 0C 00 1046 0D4B      478         MVC    TIO19+1(1),DRIVE#        OVERLAY TIO
    1032 0C 09 0000 0F2A      479 MOV3    MVC    *-*(10),DDCFE
    1038 71 C4 02             480         LIO    2(,XR1),DDDR             RELOAD DDDR
    103B F3 00 00             481 SIO8    SIO    0,*-*                    SEEK
                         103E 482 DRTRN3  EQU    *
    103E F3 00 03             483 SIO9    SIO    3,*-*                    READ VERIFY
    1041 C1 00 1041           484 TIO8    TIO    *,*-*                    WAIT TILL DRIVE NOT BUSY
    1045 C1 00 107D           485 TIO19   TIO    CHK1,*-*                 UNIT CHECK?
    1049 3D FF 0000           486 CLI1    CLI    *-*,X'FF'                SUCCESSFUL READ VERIFY?
    104D F2 81 73             487         JE     WINRWT
                              488
    1050 0F 00 16ED 0D6D      489 BRTRY1  SLC    ICTR(1),ONE              IS THIS THE 10TH TIME?
    1056 C0 81 1245           490         BZ     EE2                      IF YES GO TO END ROUTINE
    105A F3 00 01             491 SIO7    SIO    X'01',*-*                RECALIBRATE
    105D C1 00 105D           492 TIO5    TIO    *,*-*                    WAIT FOR SEEK NOT BUSY
```

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ERR LOC  OBJECT CODE      ADDR STMT SOURCE STATEMENT
                            493 MOV2   MVC   *-*(10),DDCFE        RELOAD DDCF FIELD
                            494
 1061 0C 09 0000 0F2A       495         CLI   0(,XR1),X'20'       IS IT A SCAN READ?
 1067 7D 20 00              496         JE    TIO9-6              IF SO, RETURN TO THAT SECTION
 106A F2 81 3E              497         TBN   WRTVFY,X'FF'        IS IT WRITE VERIFY?
 1060 38 FF 118D            498         SBF   WRTVFY,X'FF'
 1071 38 FF 118D            499         BT    MOV3                IF SO, THAN RETURN TO THAT SECTION
 1075 C0 10 1032            500         B     RTRY1               RETRY DISK OPERATION
 1079 C0 87 100D            501
                            502 CHK1   MVI   WRTVFY,X'FF'
 107D 3C FF 118D            503         B     HALT2
 1081 C0 87 12AF            504 SCANRD MVC   SIO10+1(1),DRIVE#    OVERLAY SIO INSTR
 1085 0C 00 1089 0D4B       505         SBN   SIO10+1,X'03'
 1088 3A 03 1089            506         MVC   SIO11+1(1),DRIVE#   OVERLAY SIO INSTR
 108F 0C 00 1086 0D4B       507         MVC   TIO9+1(1),DRIVE#    OVERLAY TIO INSTR
 1095 0C 00 1082 0D4B       508         MVC   TIO10+1(1),DRIVE#   OVERLAY TIO INSTR
 1098 0C 00 108C 0D4B       509         SBN   TIO10+1,X'02'
 10A1 3A 02 108C            510         MVC   TIO11+1(1),DRIVE#   OVERLAY TIO INSTR
 10A5 0C 00 10C0 0D4B       511         LIO   2(,XR1),DDDR        LOAD DDDR
 10AB 71 C4 02              512         LIO   4(,XR1),DDCR        LOAD DDCR
 10AE 71 C6 04              513 TIO9   TIO   HALT1,*-*           TEST FOR DEVICE NOT READY
 10B1 C1 00 125D            514 SIO11  SIO   X'00',*-*           SEEK
 10B5 F3 00 00                      515 DRTRN1 EQU   *
                            1088    516 SIO10  SIO   X'0C',*-*           EXECUTE SCAN READ
 10B8 F3 00 0C              517 TIO10  TIO   *,*-*               WAIT UNTIL DONE
 10BB C1 00 10BB            518 TIO11  TIO   HALT2,*-*           TEST FOR UNIT CHECK
 10BF C1 00 12AF            519 WINRWT L     ADDR,XR1
 10C3 35 01 15C9            520 MVI4   MVI   *-*,0               ZER OUT FLAG BYTE BEFORE RETURNING
 10C7 3C 00 0000            521 WINRWR B     *-*                 RETURN TO CALLER
 10CB C0 87 0000            522
                            523 *
                            524 *       THIS SECTION FINDS THE ALTERNATE TRACK ADDRESS SEEKS TO IT      *
                            525 *       AND RETURNS CONTROL; OR, WHEN COMING OFF AN ALTERNATE TRACK,    *
                            526 *       IT GETS THE PROGRAM BACK TO THE RIGHT TRACK.                    *
                            527 *
                            528
                            529 DEFTRK ST    DEFTKR+3,ARR        SAVE ADDRESS
 10CF 34 08 10F8            530         SLC   ICTR(1),ONE         DECREMENT LOOP COUNTER
 10D3 0F 00 16ED 0D0D       531         BZ    EE2                 QUIT IF 10 TIMES
 10D9 C0 81 1245            532         CLI   DBYTE7,X'0D'        COMPARE BYTE 7
 10DD 3D 0D 0C9C            533         JE    TODTRK              IF='0D' THEN SEEK TO ALTERNATE
 10E1 F2 81 15              534
                            535         MVC   MVI5+3(2),MVI4+3    OVERLAY INTSTRUCTION TO ZERO DDCF
 10E4 0C 01 10ED 10CA       536 MVI5   MVI   *-*,0               FLAG BYTE.
 10EA 3C 00 0000            537
                            538         CLI   DBYTE7,X'0E'
 10EE 3D 0E 0C9C            539         JE    FRDTRK
 10F2 F2 81 7D              540 DEFTKR B     *-*                 RETURN TO CALLER
 10F5 C0 87 0000            541
                            542 TODTRK MVC   TIO15+1(1),DRIVE#   OVERLAY TOP ONST
 10F9 0C 00 1130 0D4B       543         MVC   SIO2+1(1),DRIVE#    OVERLAY SIO INST
 10FF 0C 00 1134 0D4B       544         SBN   SIO2+1,X'01'
 1105 3A 01 1134            545         MVC   SIO4+1(1),SIO2+1
 1109 0C 00 114C 1134       546         MVC   SIO3+1(1),DRIVE#    OVERLAY SIO INST
 110F 0C 00 1138 0D4B       547         MVC   MVC2+3(2),MOV1+5    PUT DDCF ADDRES IN MOVE INST
 1115 0C 01 1158 0F8C       548         SLC   MVC2+3(2),X5        ADJUST ADDRESS
 1118 0F 01 1158 16E0       549         MVC   TIO2+1(1),TIO15+1
 1121 0C 00 1148 1130       550
                            551
                            552         SNS   TDDDR,DDDR          SAVE CONYENTS OF DDDR
 1127 30 C4 0F2C            553         LIO   TDDDF@,DDDR         LOAD DDDR WITH TEMPORARY VALUE
 1128 31 C4 0F40            554 TIO15  TIO   HALT1,*-*           SEE IF DEVICE IS READY
 112F C1 00 125D            555 SIO2   SIO   X'01',*-*           READ HA AND RO FIELDS
 1133 F3 00 01              556 SIO3   SIO   X'00',*-*           CHANGE THE DDCF FOR SEEK
 1136 31 C6 0F40            557         MVC   OUTREC+4(5),TDDDF+4 SEEK TO ALTERNATE TPACK
 113A F3 00 00
 113D 0C 04 0F45 0F33
```



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ERR LOC  OBJECT CODE      ADDR STMT SOURCE STATEMENT
                            558         LIO   TDDDF@,DDDR
 1143 31 C4 0F40            559 TIO2   TIO   HALT1,*-*
 1147 C1 00 125D            560 SIO4   SIO   X'01',*-*           READ HA & RO OF ALT TRACK
 114B F3 00 01              561         LIO   4(,XR1),DDCR        RELOAD DDCR
 114E 71 C6 04              562         LIO   TDDDR,DDDR          RELOAD DDDR
 1151 31 C4 0F2C            563 MVC2   MVC   *-*(5),TDDDF+4      MOVE CORRECT HIGH ORDER 5 BYTES
 1155 0C 04 0000 0F33       564 *                                INTO DDCF FIELD
                            565
                            566         CLI   0(,XR1),X'20'
 115B 7D 20 00              567         BE    DRTRN1              RETURN TO SEEK IN SCANRD SECTION
 115E C0 81 1088            568         TBN   WRTVFY,X'FF'        FROM WRITE VERIFY?
 1162 38 FF 118D            569         SBF   WRTVFY,X'FF'        RESET FLAG
 1166 38 FF 118D            570         BT    DRTRN3
 116A C0 10 103E            571         B     DRTRN2              RETURN TO SEEK IN RD,WRT,OR SK SCT
 116E C0 87 101A            572
                    1172    573 FRDTRK EQU   *
 1172 7D 20 00              574         CLI   0(,XR1),X'20'       IS IT A SCAN READ?
 1175 C0 81 1081            575         BE    TIO9                IF SO, RETURN TO THAT SECTION
 1179 38 FF 118D            576         TBN   WRTVFY,X'FF'        IS IT A WRITE VERIFY?
 117D 38 FF 118D            577         SBF   WRTVFY,X'FF'
 1181 C0 10 103B            578         BT    SIO6                IF SO, RETURN TO THAT SECTION
 1185 C0 87 1013            579         B     TIO1                RETURN TO READ OR WRITE SECTION
                            580 *                                                                   *
                            581 *       SENSE DIAGNOSTIC 24 BYTES SUBROUTINE                        *
                            582 *                                                                   *
                            583 *
 1189 0C95          118A    584 DGSNS@ DC    AL2(DGSNSB)
 118B 0000          118C    585 TEM1   DC    IL2'0'
 118D 00            118D    586 WRTVFY DC    IL1'0'
                            587
 118E 34 08 11B2            588 SNS24  ST    SNS24R+3,ARR        SAVE ADDRESS
 1192 30 C5 0BD8            589         SNS   STATE,X'C5'         DIAGNOSTIC SENSE
 1196 30 C4 118C            590         SNS   TEM1,DDDR           SAVE DDDR
 119A 31 C4 118A            591         LIO   DGSNS@,DDDR         LOAD DDDR
 119E 0C 00 11A9 0D4B       592         MVC   SIO6+1(1),DRIVE#    OVERLAY INST
 11A4 3A 01 11A9            593         SBN   SIO6+1,X'01'        CONTINUE OVERLAY
 11A8 F3 00 07              594 SIO6   SIO   X'07',*-*           SENSE DIAGNOSTIC 24 BYTES
                            595
 11AB 31 C4 118C            596         LIO   TEM1,DDDR           RELOAD DDDR
 11AF C0 87 0000            597 SNS24R B     *-*                 RETURN TO CALLER
                            598
 11B3 34 08 1228            599 SNSAP  ST    SNSAPR+3,ARR        SAVE RETURN ADDRESS
 11B7 34 01 15E5            600         ST    TEMP6,XR1           SAVE INDEX REGISTERS
 11BB 34 02 0D6C            601         SY    TEMP4,XR2
 11BF C2 01 0C95            602         LA    DGSNSB,XR1          INITIALIZE ADDRESS POINTERS
 11C3 C2 02 0C40            603         LA    DGS2B+2,XR2
                            604 *
                            605 *       FOLLOWING ROUTINE UNPACKS THE 24 BYTE DIAGNOSTIC READ
                            606 *       TO BE PRINTED
                            607 *
                            608         MVI   CTR1,6              INITIALIZE DO LOOP COUNTERS
 11C7 3C 06 1625            609 LOOP13 MVI   CTR2,4
 11CB 3C 04 1626            610 LOOP14 ST    UP1,XR1             SET UNPACK ADDRESSES
 11CF 34 01 11DD            611         ST    UP2,XR2
 11D3 34 02 11DF            612         B     UNPACK              TO DCP UNPACK ROUTINE
 11D7 C0 87 021E            613         DC    IL1'1'
 11DB 01            11DB    614 UP1    DC    AL2(*-*)
 11DC 0000          11DD    615 UP2    DC    AL2(*-*)
 11DE 0000          11DF    616         MVI   1(,XR2),C' '        INSERT BLANK BETWEEN BYTES
 11E0 BC 40 01              617         LA    1(,XR1),XR1         INCREMENT ADDRESS POINTERS
 11E3 D2 01 01              618         LA    3(,XR2),XR2
 11E6 E2 02 03              619         SLC   CTR2(1),ONE         DECREMENT LOOP COUNTER
 11E9 0F 00 1626 0D6D       620         BNZ   LOOP14
 11EF C0 01 11CF            621         MVC   1(3,XR2),BLNK       INSERT 4 BLANKS BETWEEN EVERY 4
 11F3 BC 02 01 0C3E         622 *                                 BYTES
                            623         LA    3(,XR2),XR2
 11F8 E2 02 03              624         SLC   CTR1(1),ONE         DECREMENT LOOP COUNTER
 11FB 0F 00 1625 0D6D
```

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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT
                                625           BNZ   LOOP13
    1201 C0 01 11CB             626
    1205 C0 87 021A             627           B     PRINT                TO DCP PRINT RTN
    1209 02               1209  628           DC    XL1'02'              FLAG
    120A 2D               120A  629           DC    AL1(EDMS2-EDMS2B)    LENGTH
    1208 1826             120C  630           DC    AL2(EDMS2)           PRINT ADDRESS
                                631
    120D C0 87 021A             632           B     PRINT
    1211 02               1211  633           DC    XL1'02'              FLAG (NO HEADING)
    1212 56               1212  634           DC    AL1(HDG1-HDG1B)      LENGTH
    1213 17D4             1214  635           DC    AL2(HDG1)            ADDRESS
                                636
    1215 C0 87 021A             637           B     PRINT
    1219 06               1219  638           DC    XL1'06'              FLAG
    121A 56               121A  639           DC    AL1(DGSNS2-DGS2B)    LENGTH
    121B 0C94             121C  640 DGPRT@    DC    AL2(DGSNS2)          ADDRESS
                                641                                      RESTORE INDEX REGISTERS
    121D 35 01 15E5             642           L     TEMP6,XR1
    1221 35 02 0D6C             643           L     TEMP4,XR2            RETURN TO CALLER
    1225 C0 87 0000             644 SNSAPR    B     *-*
                                645
                                645
                                646 EE1       B     PRINT                PRINT 'ADAPTER CHECK'
    1229 C0 87 021A             647           DC    XL1'C2'              FLAG
    122D C2               122D  648           DC    AL1(ERMS1-ERMS1B)    LENGTH
    122E 15               122E  649           DC    AL2(ERMS1)           ADDRESS
    122F 177E             1230  650           DC    XL2'FFFF'            ID
    1231 FFFF             1232  651           B     SNS24
    1233 C0 87 118E             652           B     SNSAP
    1237 C0 87 11B3             653           B     HALT                 TO DCP HALT   ROUTINE
    123B C0 87 0222       1240  654           DC    XL2'FFFF'            FLAG
    123F FFFF                   655           B     SAVDSP               TERMINATE SECTION
    1241 C0 87 7064             656
                                656
                                657 EE2       B     PRINT
    1245 C0 87 021A       1249  658           DC    XL1'C2'              FLAG
    1249 C2               124A  659           DC    AL1(EDMS1-EDMS1B)    LENGTH
    124A 25               124C  660           DC    AL2(EDMS1)           PRINT ADDRESS
    124B 17F9             124E  661           DC    XL2'FFFE'            ID
    124D FFFE                   662           B     SNSAP
    124F C0 87 11B3             663           B     HALT                 BRANCH TO DCP HALT ROUTINE
    1253 C0 87 0222       1258  664           DC    XL2'FFFE'            HALT ID
    1257 FFFE                   665           B     SAVDSP               TERMINATE SECTION
    1259 C0 87 7064             666
                                667 *
                                668 *               DEVICE NOT READY OR ERROR SUBROUTINE
                                669 *
                                670 *
                                671
                          125D  672 HALT1     EQU   *                    STORE RETURN ADDRESS
    125D 34 08 12AE             673           ST    HALT1R+3,ARR         RETURN TO TIO INSTRUCTION THAT
    1261 0F 01 12AE 16DE        674           SLC   HALT1R+3(2),X4       CALLED IT
                                675 *                                    SENSE DIAGNOSTIC 24 BYTES
    1267 C0 87 118E             676           B     SNS24                CHECK DO SEE WHAT DRIVE UNIT CHECK
    126B 38 10 0BD7             677 HALT1A    TBN   STATE-1,X'10'        OCCURRED AND PUT IT IN MESSAGE
    126F F2 90 04               678           JF    *+7
    1272 3C F4 1751             679           MVI   ERMSG-24,C'4'
    1276 38 20 0BD7             680           TBN   STATE-1,X'20'
    127A F2 90 04               681           JF    *+7
    127D 3C F3 1751             682           MVI   ERMSG-24,C'3'
    1281 38 40 0BD7             683           TBN   STATE-1,X'40'
    1285 F2 90 04               684           JF    *+7
    1288 3C F2 1751             685           MVI   ERMSG-24,C'2'
    128C 38 80 0BD7             686           TBN   STATE-1,X'80'
    1290 F2 90 04               687           JF    *+7
    1293 3C F1 1751             688           MVI   ERMSG-24,C'1'
    1297 C0 87 021A             689           B     PRINT                TO DCP PRINT ROUTINE
    129B C6               129B  690           DC    XL1'C6'              FLAG
```


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```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT
    129C 24               129C  691           DC    AL1(ERMSG-ERMSGB)    LENGTH
    129D 1769             129E  692           DC    AL2(ERMSG)           MESSAGE ADDRESS
    129F FFFC             12A0  693           DC    XL2'FFFC'            HEADING
                                694                                      PRINT WHAT YOU HAVE SENSED
    12A1 C0 87 11B3             695           B     SNSAP
                                696                                      TO DCP HALT ROUTINE
    12A5 C0 87 0222             697           B     HALT                 HEADING
    12A9 FFFC             12AA  698           DC    XL2'FFFC'
                                699                                      RETURN TO CALLER
    12AB C0 87 0000             700 HALT1R    B     *-*
                                701
                                701
                                701
                                701
                          12AF  702 HALT2     EQU   *
    12AF C0 87 118E             703           B     SNS24                CHECK IF ANY CHECKS OCCURRED
    12B3 38 01 0BD8             704           TBN   STATE,X'01'
    12B7 C0 10 1229             705           BT    EE1
                                706                                      SEE IF DEFECTIVE TRACK. IF IT IS
    12BB 39 02 0C95             707           TBF   DBYTE0,TRKCC
    12BF 39 01 0C96             708           TBF   DBYTE1,OPINCP        THEN READ ALTERNATE TRACK LOCATION,
    12C3 C0 90 10CF             709           BF    DEFTRK               SEEK TO IT, AND CONTINUE OPERATION.
                                710 *
                                711                                      IF ANY OF THESE
    12C7 39 25 0C95             712           TBF   DBYTE0,X'25'             BITS ARE ON
    12CB 39 1C 0C96             713           TBF   DBYTE1,X'1C'                 THEN RETRY OPERATION
    12CF 39 78 0C97             714           TBF   DBYTE2,X'78'
    12D3 C0 90 1050             715           BF    BRTRY1
                                716
                                716
    12D7 0C 01 12AE 0F47        717           MVC   HALT1R+3(2),LINKM@   AFTER HALT1, TERMINATE SECTION
    12DD C0 87 126B             718           B     HALT1A               PRINT 'DEVICE NOT READY OR CHECK'
                                719
                                719
                                719
                                719
    12E1 C0 87 021A             720 TOOFAR    B     PRINT                PRINT 'NO ROOM LEFT ...'
    12E5 C6               12E5  721           DC    XL1'C6'
    12E6 4E               12E6  722           DC    AL1(ERR14-ERR14B)
    12E7 1874             12E8  723           DC    AL2(ERR14)
    12E9 FFEE             12EA  724           DC    XL2'FFEE'
    12EB C0 87 0222             725           B     HALT                 HALT   -EE-
    12EF FFEE             12F0  726           DC    XL2'FFEE'
                                727 *******************************************************************
                                728 **        $LST                                                   **
                                729 **              THIS OPTION LISTS THE PROGRAMS ON THE 3340 CE    **
                                730 **              DATA MODULE.                                     **
                                731 **                                                               **
                                732 *******************************************************************
                                733 *******************************************************************
                                734
                                734
                          12F1  735 LSTPGM    EQU   *                    IS PRINTER 132 PRINT POSITION
    12F1 38 02 0A0C             736           TBN   X5203,X'02'          JUMP IF YES
    12F5 F2 10 17               737           JT    LSPGM1               IS IT THE 1403 PRINTER
    12F8 38 20 0A0E             738           TBN   X1403-1,X'20'        JUMP IF YES
    12FC F2 10 10               739           JT    LSPGM1               SET COUNTER TO 1 IF NOT
    12FF 3C 01 133E             740           MVI   LOP12A+1,X'01'       SET COUNTER TO 1 IF NOT
    1303 3C 01 1336             741           MVI   LSPGM2+1,X'01'       SET TO BLANK
    1307 3C 40 131E             742           MVI   LSPG1A+1,X'40'       SET TO BLANK
    130B 3C 40 1322             743           MVI   LSPG1B+1,X'40'       BLANK OUT PRINT
    130F 3C 40 0C57             744 LSPGM1    MVI   PRTBF+126,C' '                        BUFFER
    1313 0C 7D 0C56 0C57        745           MVC   PRTBF+125(126),PRTBF+126
    1319 3C 60 0BDC             746           MVI   PRTBF+3,C'-'         INSERT
    131D 3C 60 0C1E             747 LSPG1A    MVI   PRTBF+69,C'-'               DASHES
                                748 *         MVC   PRTBF+64(3),AST      INSERT DIVIDER
    1321 3C 4B 0C18             749 LSPG1B    MVI   PRTBF+63,C'.'
                                750
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   1325 3C 01 16F0            751         MVI   MCTR,1              USE NEW DDCF FIELD IN SUBRT 'LSTRD'
   1329 04 02 15E1 15FB       752         ZAZ   TEMP5(3),MAXPGM(3)  SET TEMP VTOC# TO MAX # OF ENTRIES
   132F 0C 04 16AE 1664       753         MVC   DDCFM(5),C2HOR1     SET DDCF TO READ VTOC
   1335 3C 02 16EF            754 LSPGM2  MVI   KCTR,2              INITIALIZE COUNTER
                              755
   1339 C2 02 0BD9            756 LOOP12  LA    PRTBF,XR2           INITIALIZE ADDRESS POINTER
   133D 3C 02 16EE            757 LOP12A  MVI   LCTR,2              INITIALIZE COUNTER
                              758
   1341 C0 87 13CC            759 LSCNT1  B     LSTRD               READ NEXT RECORD IN VTOC
   1345 4D 02 02 1682         760         CLC   2(3,XR1),ACTO-1     ARE COL'S 1-3 'ACT'?
   134A F2 01 2F              761         JNE   LSCNT2              IF NOT, QUIT LISTING PROGRAMS
                              762
   134D 07 20 15E1 15F2       763         SZ    TEMP5(3),D1(1)      DECREMENT # OF VTOC ENTRIES LEFT
                              764
   1353 4D 02 06 1618         765         CLC   6(3,XR1),OLD        IS IT AN OLD ENTRY?
   1358 C0 81 1341            766         BE    LSCNT1              READ ANOTHER ENTRY IF IT IS
                              767
   135C 9C 02 02 06           768         MVC   2(3,XR2),6(,XR1)    PUT IN ID FIELD
   1360 9C 00 04 08           769         MVC   4(1,XR2),8(,XR1)    PUT LEVEL INTO PRINT FIELD
   1364 9C 14 1A 9F           770         MVC   26(21,XR2),159(,XR1) MOVE PN & EC INTO PRINT FIELD
   1368 9C 1F 3C BF           771         MVC   60(32,XR2),191(,XR1)  MOVE COMMENT AREA INTO PRINT FIELD
                              772
   136C 0F 00 16EE 0D6D       773         SLC   LCTR(1),ONE         DECREMENT COUNTER
   1372 F2 81 1C              774         JZ    LSCNT3              GO PRINT IF READ 2 RECORDS
   1375 F2 02 42              775         LA    66(,XR2),XR2        INCREMENT XR2
   1378 C0 87 1341            776         B     LSCNT1              READ 2ND RECORD
                              777
   137C 3D 02 16EE            778 LSCNT2  CLI   LCTR,2              LCTR=2
   1380 F2 81 22              779         JE    LSICON              THEN DON'T PRINT AT ALL
   1383 3C 40 0C57            780         MVI   PRTBF+126,C' '      IF ONE RECORD HAS BEEN READ BEFORE
   1387 0C 3C 0C56 0C57       781         MVC   PRT9F+125(61),PRTBF+126  REACHING END OF VTOC, THEN PRINT
   138D 3C 0F 15BD            782         MVI   LWRT,X'0F'          IT
                              783
   1391 C0 87 021A            784 LSCNT3  B     PRINT               PRINT LIST FIELD
   1395 01                1395 785         DC    XL1'01'             FLAG
   1396 7F                1396 786         DC    IL1'127'            LENGTH
   1397 0C57              1398 787         DC    AL2(PRTBF+126)      MESSAGE ADDRESS
                              788
   1399 3D 0F 15BD            789         CLI   LWRT,X'0F'          IS THIS THE LAST RECORD?
   139D 3C 00 15BD            790         MVI   LWRT,0
   13A1 C0 01 1339            791         BNE   LOOP12              IF NOT, THEN READ SOME MORE
                              792
   13A5 C0 87 021A            793 LSTCON  B     PRINT               SPACE 2 LINES
   13A9 12                13A9 794         DC    XL1'12'
                              795
   13AA 0F 00 16EF 0D6D       796         SLC   KCTR(1),ONE         IS THIS THE SECOND TIME?
   13B0 0C 02 1718 15E1       797         MVC   VTOC1#(3),TEMP5     SAVE # OF VTOC ENTRIES LEFT
   13B6 C0 81 140F            798         BZ    STCNT               IF SO, THEN BRANCH
                              799
   13BA 3C 01 16F0            800         MVI   MCTR,1              FORCE SUBRT 'LSTRD' TO USE NEW DDCF
   13BE 0C 04 16AE 1646       801         MVC   DDCFM(5),C3H162     SET UP DDCF FOR FAS VTOC
   13C4 3C 60 0C1E            802         MVI   PRTBF+69,C'-'       INSERT DASH IN CASE IT WAS DESTROYED
   13C8 C0 87 1339            803         B     LOOP12              GO READ THE RECORDS
                              804
                              805 *
                              806 *       SUBROUTINE TO READ 48 RECORDS OF VTOC AT A TIME AND
                              807 *       ADJUST THE ADDRESS POINTER FOR THE MAIN PROGRAM
                              808 *
                              809
   13CC 34 08 13E0            810 LSTRD   ST    LSTRDR+3,ARR        SAVE RETURN ADDRESS
   13D0 0F 00 16F0 0D6D       811         SLC   MCTR(1),ONE         DECREMENT COUNTER
   13D6 F2 81 08              812         JZ    LSTRDR+4
   13D9 36 01 167A            813         A     X256,XR1            INCR XR1 IF NOT READING NEW TRACK
   13DD C0 87 0000            814 LSTRDR  B     *-*                 RETURN TO CALLER
                              815
   13E1 3C 30 16F0            816         MVI   MCTR,48             RESTORE COUNTER
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   13E5 3C 2F 1682            817         MVI   DDCF,47              SET NN FIELD TO READ 48 RECORDS
   13E9 C2 01 1904            818         LA    DDDF,XR1            REINITIALIZE XR1
                              819
   13ED C0 87 0F48            820         B     WINRW               READ 48 RECORDS OF VTOC
   13F1 80                13F1 821         DC    XL1'80'             READ FLAG
   13F2 1904              13F3 822         DC    AL2(DDDF)
   13F4 16A9              13F5 823         DC    AL2(DDCFB)
                              824
   13F6 C0 87 0D6E            825         B     STPFLD              INCREMENT DDCF
   13FA 16AE              13FB 826         DC    AL2(DDCFM)
   13FC C0 87 13DD            827         B     LSTRDR
                              828
                              828
                              828
                              828
                              828
                              828
                              828
                              829 ************************************************************
                              830 ************************************************************
                              831 **      $CMP                                              **
                              832 **          THIS OPTION REMOVES ALL 'OLD' ENTRIES FROM THE VTOC   **
                              833 **          AND THEIR CORRESPONDING PROGRAM AREAS.        **
                              834 **                                                        **
                              835 ************************************************************
                              836 ************************************************************
                              837
                              838
                              838
                         1400 839 CMPPGM  EQU   *
   1400 C2 01 1904            840         LA    DDDF,XR1
   1404 0C 01 15C7 165E       841         MVC   VTOC#(2),ZERO       PREPARE BUFFER FOR FAS SECTOR
   140A 04 02 1718 15FB       842         ZAZ   VTOC1#(3),MAXPGM(3) PREPARE PRINT BUFFER
   1410 0C 04 16AE 1664       843         MVC   DDCFM(5),C2HOR1     SET UP DDCF TO SCAN FOR FIRST
                              844
   1416 3C 00 16B2            845 LOOP5   MVI   DDCF,0              OPERATE ON ONE RECORD
   141A C0 87 0F48            846         B     WINRW               READ A VTOC RECORD
   141E 80                141E 847         DC    XL1'80'             READ FLAG
   141F 1904              1420 848         DC    AL2(DDDF)
   1421 16A9              1422 849         DC    AL2(DDCFB)
                              850
   1423 4D 02 06 1618         851         CLC   6(3,XR1),OLD        IS THIS AN 'OLD' ENTRY?
   1428 F2 81 1E              852         JE    CMCNT1              JUMP OUT OF SEARCH ROUTINE
                              853
   142B 4D 02 02 1682         854         CLC   2(3,XR1),ACTO-1     IS THIS THE END OF THE VTOC?
   1430 F2 01 AC              855         JNE   STCNT               GO PRINT MESSAGE
                              856
   1433 0E 01 15C7 0D6D       857         ALC   VTOC#(2),ONE        INCREMENT VTOC COUNT
   1439 07 20 1718 15F2       858         SZ    VTOC1#(3),D1(1)     DECREMENT PRINT BUFFER
                              859
   143F C0 87 0D6E            860         B     STPFLD              STEP CONTROL FIELD
   1443 16AE              1444 861         DC    AL2(DDCFM)
                              862
   1445 C0 87 1416            863         B     LOOP5               RETURN TO READ ANOTHER RECORD
                              864
                              864
   1449 1C 04 16A8 0E         865 CMCNT1  MVC   NAS(5),14(,XR1)      SET UP NEXT AVAILABLE SECTOR
   144E 0C 04 16B8 16AE       866         MVC   DDCFRM(5),DDCFM       SET UP NAS IN VTOC
   1454 3C 00 16BC            867         MVI   DDCFR,0               INITIAL'ZE CONTROL FIELD
                              868
   1458 C0 87 0D6E            869 LOOP16  B     STPFLD              STEP CONTROL FIELD
   145C 16B8              145D 870         DC    AL2(DDCFRM)
                              871
   145E 3C 00 16BC            872         MVI   DDCFR,0             OPERATE ON ONE RECORD
   1462 C0 87 0F48            873         B     WINRW               READ NEXT ENTRY
   1466 80                1466 874         DC    XL1'80'             READ FLAG
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                         1468  875         DC    AL2(DDDF)
                         146A  876         DC    AL2(DDCFRB)
                               877
                               878         CLC   2(3,XR1),ACTO-1       REACHED THE END OF VTOC?
                               879         JNE   ENCMP1                IF SO PRINT MESSAGE
                               880
                               881         CLC   6(3,XR1),OLD          IS IT AN 'OLD' ENTRY?
                               882         BE    LOOP16                THEN GO READ ANOTHER RECORD
                               883
                               884         MVC   SECT#(2),21(,XR1)     STORE HOW MANY SECTORS TO MOVE
                               885         MVC   PNAS(5),14(,XR1)      STORE WHERE TO FIND PROGRAM
                               886         MVC   14(5,XR1),NAS         MOVE IN NEW PROGRAM LOCATION ADDRESS
                               887
                               888         MVI   DDCF,0                WRITE VTOC ENTRY
                               889         B     WINRW                 WRITE FLAG
                         1493  890         DC    XL1'40'
                         1495  891         DC    AL2(DDDF)
                         1497  892         DC    AL2(DDCFB)
                               893
                               894         ALC   VTOC#(2),ONE          INCREMENT NUMBER OF VTOC ENTRIES
                               895         SZ    VTOC1#(3),D1(1)       DECREMENT PRINT BUFFER
                               896
                               897         B     STPFLD                STEP VTOC LOCATION POINTER
                         14A9  898         DC    AL2(DDCFM)
                               899
                               900         B     RWRTN                 TO READ-WRITE RTN WHERE PROGRAM IS
                               901 *                                   MOVED
                               902         MVC   NAS(5),DDCFTM         UPDATE NEXT AVAILABLE SECTOR FIELD
                               903         B     LOOP16                RETURN
                               904
                               904
                               905 ENCMP1 MVI   DDCF,0                ZERO OUT RECORD BTYE
                               906         B     SETTO                 SET DDDF TO 0
                               907         B     WINRW                 WRITE RECORD OF 0'S TO SIGNIFY EOR
                         14C4  908         DC    XL1'40'               WRITE FLAG
                         14C6  909         DC    AL2(DDDF)
                         14C8  910         DC    AL2(DDCFB)
                               911
                               912         MVC   FASINB+8(5),NAS       SET UP NEW FAS SECTOR
                               913         MVC   FASINF(2),VTOC#
                               914         MVC   FASINB+2(3),FAS
                               915         B     WRFAS                 WRITE NEW FAS SECTOR
                               916
                               917 STCNT  B     RDFAS                 READ FAS RECORD
                               918        ZAZ   SPACE#(5),D0(1)       ZERO OUT # OF SECTORS LEFT BUFFER
                               919
                               920 LOOP18 CLI   FASINM-3,34           IS CYL #= 34?
                               921        JNL   STP3                  THEN QUIT AND PRINT
                               922
                               923        CLI   FASINM,1              IS REC # = 1
                               924        JE    CMCNT4                IF SO, THEN JUMP
                               925        AZ    SPACE#(5),D1(1)       INCREMENT # OF SECTS LEFT
                               926
                               927        B     STPFLD                INCREMENT FIELD
                         1502  928        DC    AL2(FASINM)
                               929
                               930        B     LOOP18                DO IT AGAIN
                               931
                               932 CMCNT4 MVI   FASINM,48             SET TO LAST RECORD
                               933        AZ    SPACE#(5),D48(2)      INCREMENT SECTORS LEFT BY 48
                               934
                               935        B     STPFLD                INCREMENT FIELD
                         1516  936        DC    AL2(FASINM)
                               937
                               938        CLI   FASINM-3,34           REACHED CYL 34?
                               939        JNL   STP3
                               940        B     CMCNT4                DO IT AGAIN
                               941
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                               942 STP3   B     PRINT                 PRINT 'XX VTOC ENTRIES LEFT ...'
                         1526  943        DC    XL1'06'               FLAG
                         1527  944        DC    AL1(VMSG-VMSGB)       LENGTH
                         1529  945        DC    AL2(VMSG)             MESSAGE ADDRESS
                               946        CLC   READIN+3(4),$LST      DOING LST OPTION
                               947        JE    STP4                  YES,GO DO COMPRESS
                               948
                               949        B     SAVDSP                RETURN TO MAIN OPTION MENU
                               950 STP4   B     DONE1                 GO DO COMPRESS
                               951 *********
                               952 * RWRTN *
                               953 ***************************************************************************
                               954 * THIS SUBROUTINE READS DATA IN FROM C C H H R FIELD IN FIELD PNAS,     *
                               955 * ANA WRITES IT ON THE SAME MODULE AT LOCATION C C H H R IN THE         *
                               956 * FIELD 'NAS'.                                                          *
                               957 ***************************************************************************
1549 34 08 15B8                153C 958 TEMP1  DC    IL2'0'
154D 0C 01 153C 1602           1542 959 VTNAS  DC    6IL1'0'
1553 3C 00 158A                1548 960 PNAS   DC    6IL1'0'
1557 0C 04 16C2 1548           1549 961 RWRTN  EQU   *
155D 0C 04 16CC 16A8                962         ST    RWRTNR+3,ARR
1563 0D 01 153C 16EA                963         MVC   TEMP1(2),SECT#        MOVE # OF SECTORS TO BE MOVED INTO
1569 F2 04 0D                       964 *                                     A BUFFER
156C 3C 2F 16C6                     965         MVI   NWRTFG,0              RESET FLAG
1570 0F 01 153C 16EA                966         MVC   DDCFSM(5),PNAS        SET UP DUAL CONTROL FIELD FOR MOVING
1576 F2 87 10                       967         MVC   DDCFTM(5),NAS         PROGRAM
1579 0C 00 16C6 153C                968 LOOP17 CLC    TEMP1(2),X48          IS # OF SECTORS < 48
157F 0F 00 16C6 0D6D                969         JNH   CMCNT2                THEN JUMP
1585 3C 0F 158A                     970         MVI   DDCFS,47              SET CONTROL FIELD TO MOVE 48 REC'S
1589 0C 00 16D0 16C6                971         SLC   TEMP1(2),X48          DECREMENT COUNTER
158F C0 87 0F48                1593 972         J     CMCNT3                JUMP
1593 80                        1595 973 CMCNT2 MVC   DDCFS(1),TEMP1        SET # OF RECORDS TO MOVE
1594 1904                      1597 974         SLC   DDCFS(1),ONE          ADJUST IT
1596 16BD                           975         MVI   NWRTFG,X'0F'          SET FLAG TO QUIT
1598 C0 87 0F48                     976 CMCNT3 MVC   DDCFT(1),DDCFS          SET BOTH FIELDS
159C 40                        159C 977         B     WINRW                 READ IN RECORDS TO MOVE
159D 1904                      159E 978         DC    XL1'80'               READ FLAG
159F 16C7                      15A0 979         DC    AL2(DDDF)
15A1 C0 87 0D6E                     980         DC    AL2(DDCFSB)
15A5 16C2                      15A6 981         B     WINRW                 WRITE RECORDS TO MOVE
15A7 C0 87 0D6E                     982         DC    XL1'40'               WRITE FLAG
15AB 16CC                      15AC 983         DC    AL2(DDDF)
15AD 3D 00 158A                     984         DC    AL2(DDCFTB)
15B1 C0 81 1563                     985         B     STPFLD                STEP CONTROL FIELD
15B5 C0 87 0000                     986         DC    AL2(DDCFSM)
                                    987         B     STPFLD                STEP CONTROL FIELD
                                    988         DC    AL2(DDCFTM)
                                    989         CLI   NWRTFG,0
                                    990         BE    LOOP17
                                    991 RWRTNR B     *-*
                                    992
                                    992
                                    992
                                    992
                                    992
                                    992
                                    992
                                    993 *********
                                    994 * DC'S  *
                                    995 ***************************************************************************
                                    996
                                    996
                                    996
15B9 00                         15B9 997 PFLAG  DC    IL1'0'                THESE
15BA 00                         15BA 998 NWRTFG DC    IL1'0'                  MUST
15BB 00                         15BB 999 CPUDFG DC    IL1'0'                  REMAIN
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   15BC 00               15BC 1000 SCDFG   DC     IL1'0'
   15BD 00               15BD 1001 LWRT    DC     IL1'0'
   15BE 00               15BE 1002 DFLAG   DC     IL1'0'
   15BF 00               15BF 1003 DCPFG   DC     IL1'0'
                         1004
   15C0 00               15C0 1005 LSTSCN  DC     IL1'0'
   15C1 00               15C1 1006 CPUFG   DC     IL1'0'
   15C2 00               15C2 1007 FSTCPU  DC     IL1'0'
   15C3 02               15C3 1008 CDIOR2  DC     IL1'2'
   15C4 00               15C4 1009 ADDFLG  DC     IL1'0'
   15C5 00               15C5 1010 CFIGFG  DC     IL1'0'
   15C6 0000             15C7 1011 VTOC#   DC     IL2'0'
   15C8 0000             15C9 1012 ADDR    DC     IL2'0'
   15CA 00               15CA 1013 CARSAV  DC     IL1'0'
   15CB 00               15CB 1014 HARSAV  DC     IL1'0'
   15CC 0000             15CD 1015 WORK    DC     IL2'0'
   15CE 0000             15CF 1016 CL3     DC     IL2'0'
   15D0 0000             15D1 1017 HL3     DC     IL2'0'
   15D2 0000             15D3 1018 CLW     DC     IL2'0'
   15D4 0000             15D5 1019 HLW     DC     IL2'0'
   15D6 0000             15D7 1020 CPW     DC     IL2'0'
   15D8 0000             15D9 1021 HPW     DC     IL2'0'
   15DA 00FF             15DB 1022 CKER    DC     XL2'00FF'
   15DC 0000             15DD 1023 COUNT   DC     IL2'0'
   15DE 40404040         15E1 1024 SAVEID  DC     CL4'    '
                         15E1 1025 TEMP5   EQU    SAVEID
   15E2 0000             15E3 1026 TEMP2   DC     IL2'0'
   15E4 0000             15E5 1027 TEMP6   DC     IL2'0'
   15E6 0000             15E7 1028 TEMP7   DC     IL2'0'
   15E8 F0F0F0F0         15EB 1029 DO      DC     CL4'0000'
   15EC C4F0             15ED 1030 DD0     DC     CL2'D0'
   15EE F0F0F0F0         15F1 1031 LSTDCD  DC     CL4'0000'
   15F2 F1               15F2 1032 D1      DC     CL1'1'
   15F3 F0F4F8           15F5 1033 D48     DC     CL3'048'
   15F6 F1F2F0           15F8 1034 D120    DC     CL3'120'
   15F9 F7F6F8           15FB 1035 MAXPGM  DC     CL3'768'
   15FC D7D5             15FD 1036 PN      DC     CL2'PN'
   15FE D4C5             15FF 1037 ME      DC     CL2'ME'
   1600 E240             1601 1038 SB      DC     CL2'S '
   1602 C3D7E440         1605 1039 CPUIDZ  DC     CL4'CPU '
   1606 616140C3C8C1C9D5 160D 1040 CHNID   DC     CL8'// CHAIN'
   160E E2E2E640         1611 1041 SSWID   DC     CL4'SSW '
   1612 E4C4E340         1615 1042 UDTID   DC     CL4'UDT '
   1616 D6D3C4           1618 1043 OLD     DC     CL3'OLD'
   1619 C3D6             161A 1044 FIGCON  DC     CL2'CO'
   1618 C3D4             161C 1045 CMPCON  DC     CL2'CM'
   161D C3F1             161E 1046 WINID   DC     CL2'C1'
   161F F0F0F0F0         1622 1047 SEQCTR  DC     CL4'0000'
   1623 0000             1624 1048 RCTR    DC     IL2'0'
   1625 00               1625 1049 CTR1    DC     IL1'0'
   1626 00               1626 1050 CTR2    DC     IL1'0'
   1627 8001             1628 1051 XREG    DC     XL2'8001'
   1629 0003             162A 1052 SVPREQ  DC     XL2'0003'
   162B C6C6C1           162D 1053 FFA     DC     CL3'FFA'
   162E C6C6C2           1630 1054 FFB     DC     CL3'FFB'
   1631 C6C6C6           1633 1055 DCPID   DC     CL3'FFF'
   1634 F06B6B40         1637 1056 DTAHDR  DC     CL4'0,,,'
   1638 00030011O2       163C 1057 C3HI72  DC     XL5'0003001102'
   163D 0003001001       1641 1058 C3HI61  DC     XL5'0003001001'
   1642 0003001002       1646 1059 C3HI62  DC     XL5'0003001002'
   1647 0003001003       164B 1060 C3HI63  DC     XL5'0003001003'
   164C 0003001004       1650 1061 C3HI64  DC     XL5'0003001004'
   1651 0003001005       1655 1062 C3HI65  DC     XL5'0003001005'
   1656 0003000001       165A 1063 C3HC    DC     XL5'0003000001'
   165B 0004000001       165F 1064 C4HOR1  DC     XL5'0004000001'
   1660 0002000001       1664 1065 C2HOR1  DC     XL5'0002000001'
   1665 000003000F       1669 1066 C3HI5   DC     XL5'000003000F'
   166A 0003001101       166E 1067 FFALOC  DC     XL5'0003001101'
```



```
                                  TOGETHER,
                                      ZEROED
                                          AT ABOUT
                                              RTRN2
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   166F 00000000030      1673 1068 CMIDLC  DC     XL5'00000000030'
   1674 00210012         1677 1069 C33H18  DC     XL4'00210012'
                         165E 1070 ZERO    EQU    C4HOR1-1
   1678 000100           167A 1071 X256    DC     IL3'256'
   1678 4A               167B 1072 X74     DC     IL1'74'
   167C 005F             167D 1073 X95     DC     IL2'95'
   167E 0200             167F 1074 X200    DC     XL2'0200'
   1680 C1C3E3           1682 1075         DC     CL3'ACT'
   1683 00               1683 1076 ACTO    DC     XL1'00'
   1684 0013             1685 1077 X19     DC     IL2'19'
                         1686 1078 VTIMB   EQU    *
   1686 C1C3E3           1688 1079         DC     CL3'ACT'
   1689 00000000000000000 16A2 1080 VTIM    DC     26IL1'0'
   1691 00000000000000000      1080
   1699 00000000000000000      1080
   16A1 0000                   1080
                         169B 1081 SCTR    EQU    VTIMB+21
   16A3 000000000000     16A8 1082 NAS     DC     6IL1'0'
                         16A9 1083 DDCFB   EQU    *
   16A9 00000000000000001 16B2 1084 DDCF    DC     XL10'00000000000000010000'
   16B1 0000                   1084
                         16AE 1085 DDCFM   EQU    DDCFB+5
                         16B3 1086 DDCFRB  EQU    *
   16B3 00000000000000001 16BC 1087 DDCFR   DC     XL10'00000000000000010000'
   16BB 0000                   1087
                         16B8 1088 DDCFRM  EQU    DDCFRB+5
                         16BD 1089 DDCFSB  EQU    *
   16BD 00000000000000001 16C6 1090 DDCFS   DC     XL10'00000000000000010000'
   16C5 0000                   1090
                         16C2 1091 DDCFSM  EQU    DDCFSB+5
                         16C7 1092 DDCFTB  EQU    *
   16C7 00000000000000001 16D0 1093 DDCFT   DC     XL10'00000000000000010000'
   16CF 0000                   1093
                         16CC 1094 DDCFTM  EQU    DDCFTB+5
   16D1 0000             16D2 1095 SECT#   DC     IL2'0'
   16D3 0000000000       16D7 1096 XLOC    DC     5IL1'0'
   16D8 00               16D8 1097 CMID    DC     IL1'0'
   16D9 0002             16DA 1098 X2      DC     IL2'2'
   16DB 0003             16DC 1099 X3      DC     IL2'3'
   16DD 0004             16DE 1100 X4      DC     IL2'4'
   16DF 0005             16E0 1101 X5      DC     IL2'5'
   16E1 0006             16E2 1102 X6      DC     IL2'6'
   16E3 0008             16E4 1103 X8      DC     IL2'8'
   16E5 000C             16E6 1104 X12     DC     IL2'12'
   16E7 002F             16E8 1105 X47     DC     IL2'47'
   16E9 0030             16EA 1106 X48     DC     IL2'48'
   16EB 0057             16EC 1107 X87     DC     IL2'87'
   16ED 00               16ED 1108 ICTR    DC     IL1'0'
   16EE 00               16EE 1109 LCTR    DC     IL1'0'
   16EF 00               16EF 1110 KCTR    DC     IL1'0'
   16F0 00               16F0 1111 MCTR    DC     IL1'0'
   16F1 00               16F1 1112 FRDRV#  DC     IL1'0'
   16F2 00               16F2 1113 TODRV#  DC     IL1'0'
   16F3 00               16F3 1114 DELFG   DC     IL1'0'
   16F4 0000             16F5 1115 TSTN    DC     XL2'0'
   16F6 C4C5             16F7 1116 DEL     DC     CL2'DE'
   16F8 C4E4             16F9 1117 DU      DC     CL2'DU'
                         16F9 1118 VMSGB   EQU    #-1
   16FA D5D64B40D6C640D7 1718 1119 VTOC1#  DC     CL31'NO. OF PGM. ENTRIES LEFT IS XXX'
   1702 C7D44B40C5D5E3D9       1119
   170A C9C5E240D3C5C6E3       1119
   1712 40C9E240E7E7E7         1119
   1719 6B40E2D7C1C3C540 173C 1120 SPACE# DC     CL36', SPACE AVAILABLE FOR PGMS. IS XXXXX'
   1721 C185C1C9D3C1C2D3       1120
   1729 C540C6D60940D7C7       1120
   1731 D4E24B40C9E240E7       1120
   1739 E7E7E7E7               1120
   173D 40E2C5C3E3D6D9E2 1745 1121 VMSG    DC     CL9' SECTORS.'
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   1745 48                     1121
                         1745 1122 ERMSGB  EQU   *-1
   1746 F3F3F4F040C4D9C9 1769 1123 ERMSG   DC    CL36'3340 DRIVE X NOT READY OR UNIT CHECK'
   174E E5C540E740D5D6E3       1123
   1756 40D9C5C1C4E840D6       1123
   175E D940E4D5C9E340C3       1123
   1766 C8C5C3D2               1123
                         1769 1124 ERMS1B  EQU   *-1
   176A C1C4C1D7E3C5D940 177E 1125 ERMS1   DC    CL21'ADAPTER CHECK ON 3340'
   1772 C3C8C5C3D240D6D5       1125
   177A 40F3F3F4F0             1125
                         177E 1126 HDG1B   EQU   *-1
   177F F0F0404040404040 17AB 1127         DC    CL45'00       03    04       07    08       11    '
   1787 40F0F340404040F0       1127
   178F F4404040404040C0       1127
   1797 F0F7404040404F8        1127
   179F 4040404040404F1        1127
   17A7 F140404040             1127
   17AC F1F2404040404040 17D4 1128 HDG1    DC    CL41'12       15    16       19    20       23'
   17B4 40F1F5404040F1         1128
   17BC F6404040404040         1128
   17C4 F1F9404040F2F0         1128
   17CC 4040404040F2F0         1128
   17D4 F3                     1128
                         17D4 1129 EDMS1B  EQU   *-1
   17D5 F3F3F4F040C6C1C9 17F9 1130 EDMS1   DC    CL37'3340 FAILED TO EXECUTE A SIO 10 TIMES'
   17DD D3C5C440E3D640C5       1130
   17E5 E7C5C3E4E3C540C1       1130
   17ED 40E2C9D640F1F040       1130
   17F5 E3C9D4C5E2             1130
                         17F9 1131 EDMS2B  EQU   *-1
   17FA E3C8C540C9D5C6D6 1826 1132 EDMS2   DC    CL45'THE INFORMATION BELOW IS THE 24 BYTE DIAG SNS'
   1802 D9D4C1E3C9D6D540       1132
   180A C2C5D3D6E640C9E2       1132
   1812 40E3C8C540F2F440       1132
   181A C2E8E3C540C4C9C1       1132
   1822 C740E2D5E2             1132
                         1826 1133 ERR14B  EQU   *-1
   1827 D5D640D9D6D6D440 1855 1134         DC    CL47'NO ROOM LEFT ON DATA MODULE - DO A $CMP BEFORE '
   182F D3C5C6E340D6D540       1134
   1837 C4C1E3C140D4D6C4       1134
   183F E4D3C5406040C4D6       1134
   1847 40C1405BC3D4D740       1134
   184F C2C5C6D6D9C540         1134
   1856 C1C4C4C9D5C740D6 1874 1135 ERR14   DC    CL31'ADDING OR REPPING ANY PROGRAMS.'
   185E D940D9C5D7D7C9D5       1135
   1866 C740C1D5E840D7D9       1135
   186E D6C7D9C1D4E24B         1135
   1875 C4C5D3C5E3C5C4   187B 1136 PGMDEL  DC    CL7'DELETED'
                         187C 1137 ADMSG   EQU   *
   187C 4040404040404040 18CA 1138         DC    79XL1'40'
   1884 4040404040404040       1138
   188C 4040404040404040       1138
   1894 4040404040404040       1138
   189C 4040404040404040       1138
   18A4 4040404040404040       1138
   18AC 4040404040404040       1138
   18B4 4040404040404040       1138
   18BC 4040404040404040       1138
   18C4 40404040404040         1138
                         18CB 1139 ADMSGE  EQU   *
   18C8 0A80             18CC 1140 READAD  DC    AL2(READIN)
   18CD 40E7E7E740D5D6E3 18DC 1141 MSG02   DC    CL16' XXX NOT ON DISK'
   18D5 40D6D540C4C9E2D2       1141
                         18DC 1142 MCTLB   EQU   *-1
   18DD C5D9D9D6D940     18E2 1143         DC    CL6'ERROR '
   18E3 C9D540D6D7E3C9D6 1903 1144 MCTL    DC    CL33'IN OPTION -- RETYPE & HIT END   '
   18EB D540606040D9C5E3       1144
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   18F3 E8D7C5405040C8C9       1144
   18FB E340C5D5C4404040       1144
   1903 40                     1144
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         0C95 1146 DBYTE0  EQU   DGSNSB
                         0C96 1147 DBYTE1  EQU   DGSNSB+1
                         0C97 1148 DBYTE2  EQU   DGSNSB+2
                         0C9C 1149 DBYTE7  EQU   DGSNSB+7
                         0002 1150 TRKCC   EQU   X'02'
                         0001 1151 OPINCP  EQU    X'01'
                         00C4 1152 DDDR    EQU   X'C4'
                         00C6 1153 DDCR    EQU   X'C6'
                         3900 1154 CARD2A  EQU   X'3900'
                         0018 1155 SIOI    EQU   X'18'
                         0020 1156 SSW22   EQU   X'20'
                         0010 1157 SSW23   EQU   X'10'
                         0008 1158 SSW24   EQU   X'08'
                         0010 1159 SSW1B   EQU   X'10'
                         00C0 1160 DR1     EQU   X'C0'
                         00C8 1161 DR2     EQU   X'C8'
                         00D0 1162 DR3     EQU   X'D0'
                         00D8 1163 DR4     EQU   X'D8'
                         0010 1164 IAR     EQU   16
                         0080 1165 SNSDR1  EQU   X'80'
                         0040 1166 SNSDR2  EQU   X'40'
                         0020 1167 SNSDR3  EQU   X'20'
                         0010 1168 SNSDR4  EQU   X'10'
                         0A07 1169 QPUDT   EQU   X'A07'
                         022F 1170 QTAB    EQU   X'22F'
                         0211 1171 RPFX    EQU   X'211'
                         020C 1172 SBYTE4  EQU   X'20C'
                         0003 1173 HI      EQU   X'03'
                         003F 1174 HA      EQU   X'3F'
                         003B 1175 HH      EQU   X'3B'
                         0C33 1176 IDLOC   EQU   SAVID-5
                         0900 1177 X900    EQU   X'900'
                         16D0 1178 WRT#    EQU   DDCFT
                         16F5 1179 DAT     EQU   TSTN
                         087C 1180 X87C    EQU   X'87C'
                         0880 1181 X880    EQU   X'880'
                         0004 1182 SSW05   EQU   X'04'

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

                                   HALT DISPLAY 1
                                   HALT DISPLAY A
                                   HALT DISPLAY H
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1184 ********************************************************************
                         1185 *     IF FLAG OCCURS ON THIS ORG YOU HAVE EXPANDED INTO X'3900'.
                         1186 *     3900-39FF IS THE BUFFER FOR SECOND CARD FOR 1442.
                         1187 *
                         1188 *
                         1189 *
                         1190 *
                   1904  1191 DDDF    EQU   *                WORK FIELD
                   4903  1192         DS    48CL256
                   1A04  1193 DDDF1   EQU   DDDF+256
                         1194         ORG   X'5800'              UPPER LIMIT OF FF6
                   5800  1195 HIFF6   EQU   *
5800 C0 07 5808    5800  1196 QUITER  BC    QUIT,X'07'           BRANCH FOR TERMINATION
5804 C0 87 580D    5804  1197         B     BEGIN                BEGIN PROGRAM
                         1198
5808 C0 87 022A    5808  1199 QUIT    B     LOAD
580C 00            580C  1200         DC    XL1'00'          SECTION TERMINATE
                         1201
                   580D  1202 BEGIN   EQU   *
580D C0 07 592A    580D  1203         BC    DOQ,X'07'            DIS ALLOW SYS RESET START
5811 3C 87 580E    5811  1204         MVI   *-3,X'87'
                         1205 *
                         1206 *     SET UP DEVICE NAMES AS PER UDT
                         1207 *
                         1208 *
                         1209 *
5815 0C 76 5847 5848     1210         MVC   DEVON+118(119),DEVON+119    CLEAR DEVICES
581B C2 01 5AD1          1211         LA    DEVON,XR1              POINT AT LINE OF DEVICE NAMES
581F C2 02 0232          1212         LA    X'232',XR2             POINT AT UDT
5823 2C 00 659F 00       1213 LOOP1   MVC   DEVUDT(1),0(,XR2)      SAVE THIS UDT DEVICE
5828 3D 00 659F          1214         CLI   DEVUDT,X'00'           IF END OF UDT ? ...
582C C0 81 5895          1215         BE    DOOFF                    GO DO DEVICES NOT ATTACHED
5830 E2 02 03            1216         LA    3(,XR2),XR2            BUMP TO NEXT UDT
5833 34 02 5854          1217         ST    XR2A+3,XR2             SAVE UDT POINTER
5837 C0 87 5859          1218         B     PUTIN
583B C0 07 5851          1219 TTB     BC    XR2A,X'07'                 FOR TEST PURPOSES
583F C0 07 584D          1220 IGBR    BC    IG1,X'07'            THIS BR TAKEN FOR IGNORABLE DEVICES
5843 6C 03 03 04         1221         MVC   3(4,XR1),4(,XR2)     PUT NAME INTO DISPLAY
5847 BC EF 00            1222         MVI   0(,XR2),X'EF'        WIPE OUT THAT ID FROM TABLE
584A D2 01 05            1223         LA    5(,XR1),XR1          POINT TO NEXT DISPLAY POSITION
584D 3C 07 5840          1224 IG1     MVI   IGBR+1,X'07'         IGNORE ONE DEVICE AT A TIME
5851 C2 02 0000          1225 XR2A    LA    *-*,XR2              RESTORE XR2 (UDT POINTER)
5855 C0 87 5823          1226         B     LOOP1
                         1227
                         1228 ************************************************************
                         1229 *  PUTIN                                                   *
                         1230 *                                                          *
                         1231 *          THIS ROUTINE MATCHES 'DEVUDT' WITH DEVICE       *
                         1232 *     'NAMES' TABLE, POINTS TO NAME WITH XR2 AND RETURNS   *
                         1233 *                                                          *
                         1234 ************************************************************
                         1235
                         1235
                         1236 **
                         1237 *
                         1238
5859 34 08 5894          1239 PUTIN   ST    PUTIR+3,ARR          SET UP RTN
585D C2 02 5E94          1240         LA    TABNOR,XR2           POINT TO IGNORE TABLE
5861 8D 00 00 659F       1241         CLC   0(1,XR2),DEVUDT      IS THIS DEVICE TO BE IGNORE
5866 C0 01 5871          1242         BNE   NOIG                 NO
586A 3C 87 5840          1243         MVI   IGBR+1,X'87'         FORCE CALLER TO NAME DEVICE
586E F2 87 20            1244         J     PUTIR                RETURN
                         1245
                   5871  1246 NOIG    EQU   *
                         1247
5871 C2 02 5E96          1248         LA    TABNAM,XR2           POINT AT FIRST NAME
5875 8D FF 00            1249 PUTINL  CLI   0(,XR2),X'FF'          END OF NAME TAB ?
5878 F2 01 07            1250         JNE   NOEND
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                          1251          LA     XXXX,XR2          POINT AT XXXX
                          1252          J      PUTIR             RETURN
                          1253 NOENT    CLC    DEVUDT(1),0(,XR2)     IS THIS TAB = DEVUDT
                          1254          JE     PUTIR
                          1255          LA     5(,XR2),XR2       NEXT NAME IN TAB
                          1256          B      PUTINL            PUTIN LOOP
                          1257 PUTIR    B      *-*               RETURN TO CALLER
                          1258
                          1259
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                          1260 *
                          1261 *     SET UP DEVICE NAMES WHICH DO   NOT   APPEAR IN UDT.
                          1262 *
                          1263 *
                          1264 *
                          1265
5895 0C 9E 5C0F 5C10      1266 DOOFF    MVC    DEVOF+158(159),DEVOF+159    CLEAR DEVICES
589B C2 01 5B71           1267          LA     DEVOF,XR1         POINT AT LINE OF DEVICE NAMES
589F C2 02 5E96           1268          LA     TABNAM,XR2        POINT AT TABLE OF NAMES
58A3 BD FF 00             1269 LOOP2    CLI    0(,XR2),X'FF'     IS THIS END OF TABLE
58A6 F2 81 14             1270          JE     DONEN1            IF YES, GO ON.
58A9 BD EF 00             1271          CLI    0(,XR2),X'EF'     IS THIS DEVICE ATTACHED  (EF = YES)
58AC F2 81 07             1272          JE     DONEXT            IF YES, GO ON.
58AF 6C 03 08 04          1273          MVC    3(4,XR1),4(,XR2)  MOVE IN DEVICE NAME
58B3 D2 01 05             1274          LA     5(,XR1),XR1       BUMP DEVICES POINTER
                          1275
58B6 E2 02 05             1276 DONEXT   LA     5(,XR2),XR2       NEXT ENTRY IN TABNAM
58B9 C0 87 58A3           1277          B      LOOP2             CONTINUE UNTIL END OF TABNAM
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1279 **********************
                         1280 *
                         1281 *      WRITE OUT FIRST MAIN DISPLAY, AND WAIT FOR 'CORRECT'
                         1282 *       RESPONSE
                         1283 *
                         1284 *
                         1285 *
                         1286 **********************
                         1287
                    58BD 1288 DOMEN1 EQU   *
 58BD C0 87 021A         1289          B     PRINT
 58C1 01                 1290          DC    XL1'01'           SPACE
 58C2 28                 1291          DC    IL1'40'           RECORD LENGTH
 58C3 5AD0               1292          DC    AL2(MENU11)       MSG @
 58C5 C0 87 021A         1293          B     PRINT
 58C9 01                 1294          DC    XL1'01'           SPACE
 58CA 28                 1295          DC    IL1'40'           RECORD LENGTH
 58CB 5AF8               1296          DC    AL2(MENU12)       MSG @
 58CD C0 87 021A         1297          B     PRINT
 58D1 01                 1298          DC    XL1'01'           SPACE
 58D2 28                 1299          DC    IL1'40'           RECORD LENGTH
 58D3 5B20               1300          DC    AL2(MENU13)       MSG @
 58D5 C0 87 021A         1301          B     PRINT
 58D9 01                 1302          DC    XL1'01'           SPACE
 58DA 28                 1303          DC    IL1'40'           RECORD LENGTH
 58DB 5B48               1304          DC    AL2(MENU14)       MSG @
 58DD C0 87 021A         1305          B     PRINT
 58E1 01                 1306          DC    XL1'01'           SPACE
 58E2 28                 1307          DC    IL1'40'           RECORD LENGTH
 58E3 5B70               1308          DC    AL2(MENU15)       MSG @
 58E5 C0 87 021A         1309          B     PRINT
 58E9 01                 1310          DC    XL1'01'           SPACE
 58EA 28                 1311          DC    IL1'40'           RECORD LENGTH
 58EB 5B98               1312          DC    AL2(MENU71)       MSG @
 58ED C0 87 021A         1313          B     PRINT
 58F1 01                 1314          DC    XL1'01'           SPACE
 58F2 28                 1315          DC    IL1'40'           RECORD LENGTH
 58F3 5BC0               1316          DC    AL2(MENU72)       MSG @
 58F5 C0 87 021A         1317          B     PRINT
 58F9 01                 1318          DC    XL1'01'           SPACE
 58FA 28                 1319          DC    IL1'40'           RECORD LENGTH
 58FB 5BE8               1320          DC    AL2(MENU73)       MSG @
 58FD C0 87 021A         1321          B     PRINT
 5901 01                 1322          DC    XL1'01'           SPACE
 5902 28                 1323          DC    IL1'40'           RECORD LENGTH
 5903 5C10               1324          DC    AL2(MENU74)       MSG @
 5905 C0 87 021A         1325          B     PRINT
 5909 01                 1326          DC    XL1'01'           SPACE
 590A 50                 1327          DC    IL1'80'           RECORD LENGTH
 590B 5C60               1328          DC    AL2(MENU76)       MSG @
 590D C0 87 021A         1329          B     PRINT
 5911 06                 1330          DC    XL1'06'           SPACE
 5912 28                 1331          DC    IL1'40'           RECORD LENGTH
 5913 5C88               1332          DC    AL2(MENU77)       MSG @
 5915 C0 87 0222         1333          B     HALT              HALT FOR OPERATOR RESPONSE
 5919 CCE1               1334          DC    XL2'CCE1'         HALT 'E1'
 5918 30 00 15CD         1335    SNS   SBN   WORK,X'00'       SENSE CPU DATA SWITCHES
 591F 3A F0 15CD         1336          SBN   WORK,X'F0'       MAKE RESPONSE NUMERIC
 5923 3D F1 15CD         1337          CLI   WORK,X'F1'       1 ENTERED
 5927 F2 81 10           1338          JE    ISCOR             IF SO, CONTINUE
                         1339 *                                IF NOT, TERMINATE.  NO MISTAKES MAY
                         1340 *                                 BE TOLERATED IN THIS PROGRAM.
 592A 3C 87 5801         1341 DOQ      MVI   QUITER+1,X'87'
 592E C0 87 021A         1342          B     PRINT             SECTION TERMINATED
 5932 06                 1343          DC    XL1'06'           ERASE
 5933 14                 1344          DC    IL1'20'
 5934 7084               1345          DC    AL2(MENU4)
 5936 C0 87 5800         1346          B     QUITER            ABORT
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                         593A 1347 ISCOR  EQU   *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1349 *  SELECT DEVICES NOT ATTACHED.  DISPLAY THEIR NAME, ETC.  AND
                         1350 *    DELETE THEM
                         1351
                         1351
                         1351
593A C2 02 5E91          1352          LA    TABNAM-5,XR2          POINT AT NAME TABLE, FIND  'EF'S
                         1353
593E E2 02 05            1354 LOOP3    LA    5(,XR2),XR2           NEXT ENTRY OF NAMTAB
5941 BD FF 00            1355          CLI   0(,XR2),X'FF'         END OF NAME TAB ?
5944 C0 81 5A13          1356          BE    DONE                  WHEN DONE, GO COMPRESS
5948 BD EF 00            1357          CLI   0(,XR2),X'EF'         DEVICE ATTACHED  (EF = YES)
594B F2 01 04            1358          JNE   PASDEL                  IF YES DON'T DELETE
594E C0 87 593E          1359          B     LOOP3
                         1360
                         1360
5952 C2 01 5EF5  5952    1361 PASDEL   EQU   *
                         1362          LA    TABDEL,XR1            POINT AT DELETE TABLE
5956 BD FF 00    5956    1363 LOOP4    EQU   *
5959 C0 81 592A          1364          CLI   0(,XR2),X'FF'         IF THIS IS END OF TABLE
                         1365          BE    DOQ                     THEN WE HAVE A PROGRAM ERROR
                         1366 *                                      BECAUSE TABLES DON'T MATCH
595D 6D 00 00 00         1367          CLC   0(1,XR1),0(,XR2)      IS THIS TABDEL ENTRY = TABNAM ENTRY
5961 D2 01 01            1368          LA    1(,XR1),XR1           POINT TO $DEL  (BUMP OVER ID)
5964 F2 81 10            1369          JE    STARTD                START DELETIONS
                         1370
                         1370
                         1371 * FLUSH BY THE $DELS
5967 4D 03 03 65B1       1372 LOOP6    CLC   3(4,XR1),$DEL         IF THIS IS $DEL BUMP AGAIN
596C C0 01 5956          1373          BNE   LOOP4                   NOT $DEL SO GO COMPARE ID
5970 D2 01 01 50         1374          LA    80(,XR1),XR1          BUMP TO NEXT $DEL
5973 C0 87 5967          1375          B     LOOP6
                         1376
                         1376
                  5977   1377 STARTD EQU   *
                         1378 *
                         1379 *    DISPLAY DEVICE NAME.  ENTER A '1' IF HE WANTS IT DELETED.
                         1380 *
                         1381
                         1381
5977 2C 03 5CA7 04       1382          MVC   DEVDEL(4),4(,XR2)     MOVE IN DEVICE NAME
597C C0 87 5A51          1383          B     EXCEPT                SEE IF THIS DEVICE IS AN EXCEPTION
5980 C0 87 021A          1384          B     PRINT
                  5984   1385          DC    XL1'01'               SPACE
                  5985   1386          DC    IL1'80'               RECORD LENGTH
                  5987   1387          DC    AL2(MENU25)           MSG @
                         1388          B     PRINT
                  598C   1389          DC    XL1'01'               SPACE
                  598D   1390          DC    IL1'80'               RECORD LENGTH
                  598F   1391          DC    AL2(MENU27)           MSG @
                         1392          B     PRINT
                  5994   1393          DC    XL1'01'               SPACE
                  5995   1394          DC    IL1'40'               RECORD LENGTH
                  5997   1395          DC    AL2(EXLINE)           MSG @
                         1396          B     PRINT
                  599C   1397          DC    XL1'06'               SPACE
                  599D   1398          DC    IL1'63'               RECORD LENGTH
                  599F   1399          DC    AL2(MENU83)           MSG @
                         1400          B     HALT                  HALT FOR OPERATOR RESPONSE
59A0 C0 87 0222          1401          DC    XL2'CCE2'             HALT 'E2'
59A4 CCE2         59A5   1402          SNS   WORK,X'00'            SENSE CPU DATA SWITCHES
59A6 3D 00 15CD          1403          SBN   WORK,X'F0'            MAKE RESPONSE NUMERIC
59AA 3A F0 15CD          1404          CLI   WORK,X'F1'            1 ENTERED
59AE 3D F1 15CD          1405          BE    LOOPD1                IF GO, THEN DO DELETES
59B2 C0 81 59CE          1406          MVC   DEVNOD(4),DEVDEL      NOTE THE FACT THAT IT WASN'T DONE.
59B6 0C 03 5DA7 5CA7     1407          B     PRINT                 PRINT MSG THAT PGM NOT DELETED
59BC C0 87 021A          1408          DC    XL1'06'
59C0 06                  1409          DC    IL1'80'
59C1 50                  1410          DC    AL2(MENU2A)
59C2 5DDF
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

59C4 C0 87 0222          1411          B     HALT
59C8 CCE3                1412          DC    XL2'CCE3'             HALT 'E3'
59CA C0 87 593E          1413          B     LOOP3
                         1414
59CE C0 87 021A  59CE    1415 LOOPD1   EQU   *
59D2 01                  1416          B     PRINT
59D3 14                  1417          DC    XL1'01'               SPACE
59D4 5DF3                1418          DC    IL1'20'               RECORD LENGTH
59D6 C0 87 021A          1419          DC    AL2(MENU3)            MSG @
59DA 04                  1420          B     PRINT
59DB 04                  1421          DC    XL1'04'               SPACE
59DC 5CA7                1422          DC    IL1'41'               RECORD LENGTH
                         1423          DC    AL2(DEVDEL)           MSG @
59DE 4D 03 03 65B1 59DE  1424 LOOPD    EQU   *
59E3 C0 01 593E          1425 CKDEL    CLC   3(4,XR1),$DEL         IF  THIS IS $DEL PASS IT TO FF6
59E7 1C 4F 0ACF 4F       1426          BNE   LOOP3                   MOVE $DEL RECORD INTO FF6 AREA
59EC 34 02 5A0E          1427          MVC   READIN+79(80),79(,XR1)  LOAD @ OF INPUT
59F0 C2 02 0A80          1428          ST    XR2C+3,XR2              PRINT THE DELETE RECORD
59F4 C0 87 021A          1429          LA    READIN,XR2
59F8 06                  1430          B     PRINT
59F9 50                  1431          DC    XL1'06'               NEXT ONE
59FA 0ACF                1432          DC    IL1'80'                SAVE XR1
59FC D2 01 50            1433          DC    AL2(READIN+79)
59FF 34 01 5A0A          1434          LA    80(,XR1),XR1          GO TO FF6 AND COME BACK
                         1435          ST    XR1C+3,XR1
5A03 C0 87 0CFC          1436
                         1437          B     DELPGM                CONTINUE TILL ALL DELS PASSED
                         1438
5A07 C2 01 0000  5A07    1439 XR1C     LA    *-*,XR1
5A0B C2 02 0000  5A0B    1440 XR2C     LA    *-*,XR2
5A0F C0 87 59DE          1441          B     LOOPD
                         1442
                         1442
                         1442
                         1442
5A13 C0 87 021A  5A13    1443 DONE     EQU   *
5A17 06                  1444          B     PRINT
5A18 28                  1445          DC    XL1'06'               ALLOW TIME TO READ, WAIT FOR ENTER
5A19 5E1B                1446          DC    IL1'40'               SPACE
5A1B 0C 03 0A83 65B5     1447          DC    AL2(MENU5)
5A21 C0 87 12F1          1448          MVC   READIN+3(4),$LST      MOVE IN CARACTERS '$LST' (LIST)
5A25 0C 03 0A83 65B9     1449          B     LSTPGM                DELETION IS IN PROCESS
5A2B C0 87 021A          1450 DONE1    MVC   READIN+3(4),$CMP      MOVE IN CARACTERS '$CMP'
5A2F 01                  1451          B     PRINT                 PRINTING OF DEVICE NAME
5A30 28                  1452          DC    XL1'01'               SPACE
5A31 5E43                1453          DC    IL1'40'               RECORD LENGTH
5A33 C0 87 021A          1454          DC    AL2(MENU61)           MSG @
5A37 06                  1455          B     PRINT
5A38 28                  1456          DC    XL1'06'               SPACE
5A39 5E6B                1457          DC    IL1'40'               RECORD LENGTH
5A3B C0 87 0222          1458          DC    AL2(MENU62)           MSG @
5A3F CCE4                1459          B     HALT
5A41 C0 87 021A          1460          DC    XL2'CCE4'             HALT 'E4'
5A45 06                  1461          B     PRINT                 GO TO COMPRESS ROUTINE
5A46 28                  1462          DC    XL1'06'               SPACE
5A47 5E93                1463          DC    IL1'40'               RECORD LENGTH
5A49 C0 87 1400          1464          DC    AL2(MENU7)            MSG @
                         1465          B     CMPPGM
                         1466
                         1466
5A4D C0 87 5A4D  5A4D    1467 DELOK    B     *                     YOU ARE HUNG HERE CUZ YOU WERE DUMB
                         1468 *                                      ENOUGH TO TRY TO DELETE DISK PGMS
                         1469 *                                      COME ON NOW, YOU GOTTA HAVE A DISK.
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              1471 *
                              1472 *
                              1473
                              1473
                              1473
                              1474 *
                              1475 *   SUBROUTINES TO TAKE CARE OF EXCEPTIONS IN DEVICE NAMES ETC.
                              1476 *
                         5A51 1477 EXCEPT EQU   *
 5A51  34 08 5AA8             1478        ST    EXRTN+3,ARR          FOR RETURN
 5A55  3D C1 0232             1479        CLI   UTAB,X'C1'           IS IT 3340 SYSTEM?
 5A59  F2 81 00               1480        JE    CK80                 IF SO, SKIP CHECK FOR 5444
 5A5C  BD 80 00               1481 CK80   CLI   0(,XR2),X'80'
 5A5F  F2 81 1F               1482        JE    IS80
 5A62  BD 88 00               1483        CLI   0(,XR2),X'88'
 5A65  F2 81 22               1484        JE    IS88
 5A68  BD 82 00               1485        CLI   0(,XR2),X'82'
 5A6B  F2 81 25               1486        JE    IS82
 5A6E  BD 87 00               1487        CLI   0(,XR2),X'87'
 5A71  F2 81 28               1488        JE    IS87
 5A74  3C 40 5D50             1489        MVI   EXLINE,C' '          BLANK EXCEPTION LINE
 5A78  DC 26 5D4F 5D50        1490        MVC   EXLINE-1(39),EXLINE
 5A7E  F2 87 24               1491        J     EXRTN
                              1492
 5A81  DC 27 5D50 65E3        1493 IS80   MVC   EXLINE(40),EX80        BSCA 1
 5A87  F2 87 1B               1494        J     EXRTN
 5A8A  DC 27 5D50 6608        1495 IS88   MVC   EXLINE(40),EX88        BSCA 2
 5A90  F2 87 12               1496        J     EXRTN
 5A93  DC 27 5D50 6633        1497 IS82   MVC   EXLINE(40),EX82        BSCA 2972
 5A99  F2 87 09               1498        J     EXRTN
 5A9C  DC 27 5D50 665B        1499 IS87   MVC   EXLINE(40),EX87        BSCA 3270
 5AA2  F2 87 00               1500        J     EXRTN
 5AA5  C0 87 0000             1501 EXRTN  B     *-*                          RETURN TO CALLER
 5AA9  C4C5E5C9C3C5E240 5AD0  1502 MENU11 DC    CL40'DEVICES LISTED BELOW ARE ON YOUR SYSTEM.'
 5AB1  D3C9E2E3C5C440C2       1502
 5AB9  C5D3D6E640C1D9C5       1502
 5AC1  40D6D540E8D6E4D9       1502
 5AC9  40E2E8E2E3C5D44B       1502
                         5AD1 1503 DEVON  EQU   *
 5AD1  4040404040404040 5AF8  1504 MENU12 DC    CL40'                                                '
 5AD9  4040404040404040       1504
 5AE1  4040404040404040       1504
 5AE9  4040404040404040       1504
 5AF1  4040404040404040       1504
 5AF9  4040404040404040 5B20  1505 MENU13 DC    CL40'                                                '
 5B01  4040404040404040       1505
 5B09  4040404040404040       1505
 5B11  4040404040404040       1505
 5B19  4040404040404040       1505
 5B21  4040404040404040 5B48  1506 MENU14 DC    CL40'                                                '
 5B29  4040404040404040       1506
 5B31  4040404040404040       1506
 5B39  4040404040404040       1506
 5B41  4040404040404040       1506
 5B49  E3C9C5E2C540C4C5 5B70  1507 MENU15 DC    CL40'THESE DEVICES ARE NOT ON YOUR SYSTEM.           '
 5B51  E5C9C3C5E240C1D9       1507
 5B59  C540D5D6E340D6D5       1507
 5B61  40E8D6E4D940E2E8       1507
 5B69  E2E3C5D44B404040       1507
                         5B71 1508 DEVOF  EQU   *
 5B71  4040404040404040 5B98  1509 MENU71 DC    CL40'                                                '
 5B79  4040404040404040       1509
 5B81  4040404040404040       1509
 5B89  4040404040404040       1509
 5B91  4040404040404040       1509
 5B99  4040404040404040 5BC0  1510 MENU72 DC    CL40'                                                '
 5BA1  4040404040404040       1510
 5BA9  4040404040404040       1510
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

 5BB1  4040404040404040       1510
 5BB9  4040404040404040       1510
 5BC1  4040404040404040 5BE8  1511 MENU73 DC    CL40'                                                '
 5BC9  4040404040404040       1511
 5BD1  4040404040404040       1511
 5BD9  4040404040404040       1511
 5BE1  4040404040404040       1511
 5BE9  4040404040404040 5C10  1512 MENU74 DC    CL40'                                                '
 5BF1  4040404040404040       1512
 5BF9  4040404040404040       1512
 5C01  4040404040404040       1512
 5C09  4040404040404040       1512
 5C11  C5D5E3C5D940C140 5C38  1513          DC    CL40'ENTER A 1 IF THE ABOVE LIST IS CORRECT I'
 5C19  F140C9C640E3C8C5       1513
 5C21  40C1C2D6E5C540D3       1513
 5C29  C9E2E340C9E240C3       1513
 5C31  D6D9D9C5C3E340C9       1513
 5C39  D540E3C8C540D9C9 5C60  1514 MENU76 DC    CL40'N THE RIGHT MOST DATA SWITCH AND RESET           '
 5C41  C7C8E340D4D6E2E3       1514
 5C49  40C4C1E3C140E2E6       1514
 5C51  C9E3C3C840C1D5C4       1514
 5C59  40D9C5E2C5E34040       1514
 5C61  E3C8C540C8C1D3E3 5C88  1515 MENU77 DC    CL40'THE HALT.                                       '
 5C69  4B4040404040404040     1515
 5C71  4040404040404040       1515
 5C79  4040404040404040       1515
 5C81  4040404040404040       1515
 5C89  C1D3D340D7D9D6C7 5CB0  1516 MENU24 DC    CL40'ALL PROGRAMS PERTAINING TO XXXX WILL BE         '
 5C91  D9C1D4E240D7C5D9       1516
 5C99  E3C1C9D5C9D5C740       1516
 5CA1  E3D640E7E7E7E740       1516
 5CA9  E6C9D3D340C2C540       1516
                         5CA7 1517 DEVDEL EQU   *-10
 5CB1  C4C5D3C5E3C5C44B 5CD8  1518 MENU25 DC    CL40'DELETED.                                        '
 5CB9  4040404040404040       1518
 5CC1  4040404040404040       1518
 5CC9  4040404040404040       1518
 5CD1  4040404040404040       1518
 5CD9  C5D5E3C5D940C140 5D00  1519          DC    CL40'ENTER A 1 IN THE RIGHT MOST DATA SWITCH         '
 5CE1  F140C9D540E3C8C5       1519
 5CE9  40D9C9C7C8E340D4       1519
 5CF1  D6E2E340C4C1E3C1       1519
 5CF9  40E2E6C9E3C3C840       1519
 5D01  C1D5C440D9C5E2C5 5D28  1520 MENU27 DC    CL40'AND RESET THE HALT.                             '
 5D09  E340E3C8C540C8C1       1520
 5D11  D3E34B4040404040       1520
 5D19  4040404040404040       1520
 5D21  4040404040404040       1520
 5D29  4040404040404040 5D50  1521 EXLINE DC    CL40'                                                '
 5D31  4040404040404040       1521
 5D39  4040404040404040       1521
 5D41  4040404040404040       1521
 5D49  4040404040404040       1521
 5D51  C4D640D5D6E34CC5 5D7A  1522          DC    CL42'DO NOT ENTER A 1 TO AVOID DELETION, RESET       '
 5D59  D5E3C5D940C140F1       1522
 5D61  40E3D640C1E5D6C9       1522
 5D69  C440C4C5D3C5E3C9       1522
 5D71  D6D56B40D9C5E2C5       1522
 5D79  E340                   1522
 5D7B  E3C8C540C8C1D3E3 5D8F  1523 MENU83 DC    CL21'THE HALT TO CONTINUE.'
 5D83  40E3D640C3D6D5E3       1523
 5D8B  C9D5E4C54B             1523
 5D90  D7D9D6C7D9C1D4E2 5DB7  1524          DC    CL40'PROGRAMS FOR DEVICE XXXX WERE NOT DELETE'
 5D98  40C6D6D940C4C5E5       1524
 5DA0  C9C3C540E7E7E7E7       1524
 5DA8  40E6C5D9C540D5D6       1524
 5DB0  E340C4C5D3C5E3C5       1524
                         5DA7 1525 DEVNOD EQU   *-17
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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT
   5DB8 C44B40D9C5E2C5E3 5DDF 1526 MENU2A DC    CL40'D. RESET THE HALT TO CONTINUE.          '
   5DC0 40E3C8C540C8C1D3      1526
   5DC8 E340E3D640C3D6D5      1526
   5DD0 E3C9D5E4C54B4040      1526
   5DD8 4040404040404040      1526
   5DE0 C4C5D3C5E3C540C9 5DF3 1527 MENU3  DC    CL20'DELETE IS IN PROCESS'
   5DE8 E240C9D540D7D9D6      1527
   5DF0 C3C5E2E2              1527
   5DF4 D7D9D6C7D9C1D440 5E18 1528 MENU5  DC    CL40'PROGRAM DELETION IS NOW COMPLETE.       '
   5DFC C4C5D3C5E3C9D6D5      1528
   5E04 40C9E240D5D6E640      1528
   5E0C C3D6D4D7D3C5E3C5      1528
   5E14 4B4040404040404040    1528
   5E1C C1405BC3D4D7404D 5E43 1529 MENU61 DC    CL40'A $CMP (COMPRESS) WILL NOW BE PERFORMED.'
   5E24 C3D6D4D7D9C5E2E2      1529
   5E2C 5D40E6C9D3D340D5      1529
   5E34 D6E640C2C540D7C5      1529
   5E3C D9C6D6D9D4C5C44B      1529
   5E44 D9C5E2C5E340E3C8 5E6B 1530 MENU62 DC    CL40'RESET THE HALT TO CONTINUE.             '
   5E4C C540C8C1D3E340E3      1530
   5E54 D640C3D6D5E3C9D5      1530
   5E5C E4C54B4040404040      1530
   5E64 4040404040404040      1530
   5E6C 405BC3D4D7404DC3 5E93 1531 MENU7  DC    CL40' $CMP (COMPRESS) IS IN PROCESS.         '
   5E74 D6D4D7D9C5E2E25D      1531
   5E7C 40C9E240C9D540D7      1531
   5E84 D9D6C3C5E2E24B40      1531
   5E8C 4040404040404040      1531
                         5E94 1532 TABNOR EQU   *
   5E94 15               5E94 1533        DC    XL1'15'                    3284 PRINTER
   5E95 FF               5E95 1534        DC    XL1'FF'
```



```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT
                          5E96 1536 TABNAM EQU   *
   5E96 89                5E96 1537        DC    XL1'89'
   5E97 4DC4C15D          5E9A 1538        DC    CL4'(DA)'
   5E9B 10                5E9B 1539        DC    XL1'10'
   5E9C F5F4F7F1          5E9F 1540        DC    CL4'5471'
   5EA0 E0                5EA0 1541        DC    XL1'E0'
   5EA1 F5F2F0F3          5EA4 1542        DC    CL4'5203'
   5EA5 E1                5EA5 1543        DC    XL1'E1'
   5EA6 F1F4F0F3          5EA9 1544        DC    CL4'1403'
   5EAA F0                5EAA 1545        DC    XL1'F0'
   5EAB F5F4F2F4          5EAE 1546        DC    CL4'5424'
   5EAF 51                5EAF 1547        DC    XL1'51'
   5EB0 F1F4F4F2          5EB3 1548        DC    CL4'1442'
   5EB4 31                5EB4 1549        DC    XL1'31'
   5EB5 F2F5F0F1          5EB8 1550        DC    CL4'2501'
   5EB9 20                5EB9 1551        DC    XL1'20'
   5EBA D4D3E3C1          5EBD 1552        DC    CL4'MLTA'
   5EBE 30                5EBE 1553        DC    XL1'30'
   5EBF E2C9D6C3          5EC2 1554        DC    CL4'SIOC'
   5EC3 35                5EC3 1555        DC    XL1'35'
   5EC4 F1F2F5F5          5EC7 1556        DC    CL4'1255'
   5EC8 3A                5EC8 1557        DC    XL1'3A'
   5EC9 F3F8F8F1          5ECC 1558        DC    CL4'3881'
   5ECD 40                5ECD 1559        DC    XL1'40'
   5ECE F3F7F4F1          5ED1 1560        DC    CL4'3741'
   5ED2 C1                5ED2 1561        DC    XL1'C1'
   5ED3 F3F3F4F0          5ED6 1562        DC    CL4'3340'
   5ED7 70                5ED7 1563        DC    XL1'70'
   5ED8 F3F4F1F1          5EDB 1564        DC    CL4'3411'
   5EDC 80                5EDC 1565        DC    XL1'80'
   5EDD C2E2C3C1          5EE0 1566        DC    CL4'BSCA'
   5EE1 82                5EE1 1567        DC    XL1'82'
   5EE2 F2F9F7F2          5EE5 1568        DC    CL4'2972'
   5EE6 87                5EE6 1569        DC    XL1'87'
   5EE7 F3F2F7F0          5EEA 1570        DC    CL4'3270'
   5EEB 88                5EEB 1571        DC    XL1'88'
   5EEC C2E2C3C1          5EEF 1572        DC    CL4'BSCA'
   5EF0 FF                5EF0 1573        DC    XL1'FF'                    LAST
   5EF1 C6C6C6C6          5EF4 1574        DC    CL4'FFFF'
                               1575
                               1575
                               1575
                               1575
                               1576 ********************************************************************
                               1577 *     READ       THIS     .........                                *
                               1578 *                                                                  *
                               1579 *    TO TEST THIS PROGRAM ALTER LOCATION 'TEST1'   TO X'07'.       *
                               1580 *    PROGRAM WILL RUN NORMALLY BUT WILL NOT ENTER FF6 / DD6 FOR THE*GC*
                               1581 *    ACTUAL DELETE.  $DEL RECORD WILL BE PRINTED FOR VISUAL        *
                               1582 *    VERIFICATION.                                                 *
                               1583 *                                                                  *
                               1584 *                                                                  *
                               1585 *    ALTER LOCATION 'TEST2' TO  X'87' AND TEST1 TO X'07' AND       *
                               1586 *    THE PROGRAM WILL ACT AS IF NO DEVICES ARE ATTACHED.  IT       *
                               1587 *    WILL TRY TO DELETE ALL DEVICES, THUS GIVING A THOROUGH        *
                               1588 *    CHECK OF THE DELETE TABLE.                                    *
                               1589 *                                                                  *
                               1590 *    WARNING:  BE SURE TO ALTER TEST1 TO  X'07'                    *
                               1591 *                                                                  *
                               1592 *                                                                  *
                               1593 *EST1  EQU   TTA+1              ALTER TO X'07'                    *
                               1594 *EST2  EQU   TTB+1              ALTER TO X'87'                    *
                               1595 *                                                                  *
                               1596 ********************************************************************
                               1597
                               1597
                               1597
   5EF5                        1598 TABDEL EQU   *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   5EF5 89                5EF5 1599        DC    XL1'89'
   5EF6 5BC4C5D3F8F9F16B  5F1D 1600        DC    CL40'$DEL891,893,894,89F,FC7,FC8                 '
   5EFE F8F9F36BF8F9F46B       1600
   5F06 F8F9C66BC6C3F76B       1600
   5F0E C6C3F84040404040       1600
   5F16 4040404040404040       1600
   5F1E 4040404040404040  5F45 1601        DC    CL40'                                            '
   5F26 4040404040404040       1601
   5F2E 4040404040404040       1601
   5F36 4040404040404040       1601
   5F3E 4040404040404040       1601
   5F46 10                5F46 1602        DC    XL1'10'
   5F47 5BC4C5D3F1F0F16B  5F6E 1603        DC    CL40'$DEL101,102,103,104,105,10F                 '
   5F4F F1F0F26BF1F0F36B       1603
   5F57 F1F0F46BF1F0F56B       1603
   5F5F F1F0C64040404040       1603
   5F67 4040404040404040       1603
   5F6F 4040404040404040  5F96 1604        DC    CL40'                                            '
   5F77 4040404040404040       1604
   5F7F 4040404040404040       1604
   5F87 4040404040404040       1604
   5F8F 4040404040404040       1604
   5F97 E0                5F97 1605        DC    XL1'E0'
   5F98 5BC4C5D3C5F0F16B  5FBF 1606        DC    CL40'$DELE01,E02,E03,E04,E05,E06,E07,E0A,E0F      '
   5FA0 C5F0F26BC5F0F36B       1606
   5FA8 C5F0F46BC5F0F56B       1606
   5FB0 C5F0F66BC5F0F76B       1606
   5FB8 C5F0C16BC5F0C640       1606
   5FC0 4040404040404040  5FE7 1607        DC    CL40'                                            '
   5FC8 4040404040404040       1607
   5FD0 4040404040404040       1607
   5FD8 4040404040404040       1607
   5FE0 4040404040404040       1607
   5FE8 E1                5FE8 1608        DC    XL1'E1'
   5FE9 5BC4C5D3C5F1F16B  6010 1609        DC    CL40'$DELE11,E12,E13,E14,E15,E16,E17,E18,E1F,'
   5FF1 C5F1F26BC5F1F36B       1609
   5FF9 C5F1F46BC5F1F56B       1609
   6001 C5F1F66BC5F1F76B       1609
   6009 C5F1F86BC5F1C66B       1609
   6011 F0F1F56BF0F1F66B  6038 1610        DC    CL40'015,016,017                                 '
   6019 F0F1F74040404040       1610
   6021 4040404040404040       1610
   6029 4040404040404040       1610
   6031 4040404040404040       1610
   6039 F0                6039 1611        DC    XL1'F0'
   603A 5BC4C5D3C6F0F16B  6061 1612        DC    CL40'$DELF01,F02,F03,F05,F0F,001,002,003,004,'
   6042 C6F0F26BC6F0F36B       1612
   604A C6F0F56BC6F0C66B       1612
   6052 F0F0F16BF0F0F26B       1612
   605A F0F0F36BF0F0F46B       1612
   6062 F0F0F56BF0F0F66B  6089 1613        DC    CL40'005,006,007,008,009,00A,00B,00C,00D,00E     '
   606A F0F0F76BF0F0F86B       1613
   6072 F0F0F96BF0F0C16B       1613
   607A F0F0C26BF0F0C36B       1613
   6082 F0F0C46BF0F0C540       1613
   608A 5BC4C5D3F0F0C56B  60B1 1614        DC    CL40'$DEL00F,010,011,013,014,021,022,023,024,'
   6092 F0F1F06BF0F1F16B       1614
   609A F0F1F36BF0F1F46B       1614
   60A2 F0F2F16BF0F2F26B       1614
   60AA F0F2F36BF0F2F46B       1614
   60B2 F0F2F56BF0F2F66B  60D9 1615        DC    CL40'025,026,027,028,029,02A,02B,02C,02D,02E     '
   60BA F0F2F76BF0F2F86B       1615
   60C2 F0F2F96BF0F2C16B       1615
   60CA F0F2C26BF0F2C36B       1615
   60D2 F0F2C46BF0F2C540       1615
   60DA 5BC4C5D3F0F2C66B  6101 1616        DC    CL40'$DEL02F,030,031,033,034                     '
   60E2 F0F3F06BF0F3F16B       1616
   60EA F0F3F36BF0F3F440       1616
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   60F2 4040404040404040       1616
   60FA 4040404040404040       1616
   6102 4040404040404040  6129 1617        DC    CL40'                                            '
   610A 4040404040404040       1617
   6112 4040404040404040       1617
   611A 4040404040404040       1617
   6122 4040404040404040       1617
   612A 51                612A 1618        DC    XL1'51'
   612B 5BC4C5D3F5F1F16B  6152 1619        DC    CL40'$DEL511,512,515,51F,088,089,08A,08B,08C,'
   6133 F5F1F26BF5F1F56B       1619
   613B F5F1C66BF0F8F86B       1619
   6143 F0F8F96BF0F8C16B       1619
   614B F0F8C26BF0F8C36B       1619
   6153 F0F8C46BF0F8C540  617A 1620        DC    CL40'08D,08E                                     '
   615B 4040404040404040       1620
   6163 4040404040404040       1620
   616B 4040404040404040       1620
   6173 4040404040404040       1620
   617B 31                617B 1621        DC    XL1'31'
   617C 5BC4C5D3F3F1F16B  61A3 1622        DC    CL40'$DEL311,312,313,31F,093,094                 '
   6184 F3F1F26BF3F1F36B       1622
   618C F3F1C66BF0F9F36B       1622
   6194 F0F9F44040404040       1622
   619C 4040404040404040       1622
   61A4 4040404040404040  61CB 1623        DC    CL40'                                            '
   61AC 4040404040404040       1623
   61B4 4040404040404040       1623
   61BC 4040404040404040       1623
   61C4 4040404040404040       1623
   61CC 20                61CC 1624        DC    XL1'20'
   61CD 5BC4C5D3F2F0F263  61F4 1625        DC    CL40'$DEL202,203,204,205,206,207,20F,FE5,FE7,'
   61D5 F2F0F36BF2F0F46B       1625
   61DD F2F0F56BF2F0F66B       1625
   61E5 F2F0F76BF2F0C66B       1625
   61ED C6C5F56BC6C5F76B       1625
   61F5 C6C6F04040404040  621C 1626        DC    CL40'FF0                                         '
   61FD 4040404040404040       1626
   6205 4040404040404040       1626
   620D 4040404040404040       1626
   6215 4040404040404040       1626
   621D 30                621D 1627        DC    XL1'30'
   621E 5BC4C5D3F3F0F16B  6245 1628        DC    CL40'$DEL301,302,303                             '
   6226 F3F0F26BF3F0F340       1628
   622E 4040404040404040       1628
   6236 4040404040404040       1628
   623E 4040404040404040       1628
   6246 4040404040404040  626D 1629        DC    CL40'                                            '
   624E 4040404040404040       1629
   6256 4040404040404040       1629
   625E 4040404040404040       1629
   6266 4040404040404040       1629
   626E 35                626E 1630        DC    XL1'35'
   626F 5BC4C5D3F3F5F16B  6296 1631        DC    CL40'$DEL351,352,353,35F                         '
   6277 F3F5F25BF3F5F36B       1631
   627F F3F5C64040404040       1631
   6287 4040404040404040       1631
   628F 4040404040404040       1631
   6297 4040404040404040  62BE 1632        DC    CL40'                                            '
   629F 4040404040404040       1632
   62A7 4040404040404040       1632
   62AF 4040404040404040       1632
   62B7 4040404040404040       1632
   62BF 3A                62BF 1633        DC    XL1'3A'
   62C0 5BC4C5D3F3C1F16B  62E7 1634        DC    CL40'$DEL3A1,3AF                                 '
   62C8 F3C1C64040404040       1634
   62D0 4040404040404040       1634
   62D8 4040404040404040       1634
   62E0 4040404040404040       1634
```

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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT
    62E8 4040404040404040 630F 1635         DC    CL40'
    62F0 4040404040404040      1635
    62F8 4040404040404040      1635
    6300 4040404040404040      1635
    6308 4040404040404040      1635
    6310 40               6310 1636         DC    XL1'40'
    6311 5BC4C5D3F4F0F16B 6338 1637         DC    CL40'$DEL401,402,403,404,40F'
    6319 F4F0F26BF4F0F36B      1637
    6321 F4F0F46BF4F0C640      1637
    6329 4040404040404040      1637
    6331 4040404040404040      1637
    6339 4040404040404040 6360 1638         DC    CL40'
    6341 4040404040404040      1638
    6349 4040404040404040      1638
    6351 4040404040404040      1638
    6359 4040404040404040      1638
    6361 C1               6361 1639         DC    XL1'C1'
    6362 5BC4C5D3C6C1F06B 6389 1640         DC    CL40'$DELFA0,FA1,FA2,FA3,FA4,FA5,FA6,FA7,C11,'
    636A C6C1F16BC6C1F26B      1640
    6372 C6C1F36BC6C1F46B      1640
    637A C6C1F56BC6C1F66B      1640
    6382 C6C1F76BC3F1F16B      1640
    638A C3F1F26BC3F1F46B 63B1 1641         DC    CL40'C12,C14,C15,C16,C17,C18,C19,C1A,C1B,C1F'
    6392 C3F1F56BC3F1F66B      1641
    639A C3F1F76BC3F1F86B      1641
    63A2 C3F1F96BC3F1C16B      1641
    63AA C3F1C26BC3F1C640      1641
    63B2 70               63B2 1642         DC    XL1'70'
    63B3 5BC4C5D3F7F0F16B 63DA 1643         DC    CL40'$DEL701,702,706,707,708,70A,70B,70E,70F,'
    63BB F7F0F26BF7F0F66B      1643
    63C3 F7F0F76BF7F0F86B      1643
    63CB F7F0C16BF7F0C26B      1643
    63D3 F7F0C56BF7F0C66B      1643
    63DB F7F1F06BF7F1F15B 6402 1644         DC    CL40'710,711,712,713,714,715,716'
    63E3 F7F1F26BF7F1F36B      1644
    63EB F7F1F46BF7F1F56B      1644
    63F3 F7F1F640404040 40     1644
    63FB 4040404040404040      1644
    6403 80               6403 1645         DC    XL1'80'
    6404 5BC4C5D3F8F0F16B 6428 1646         DC    CL40'$DEL801,802,803,804,805,806,809,80A,80E,'
    640C F8F0F26BF8F0F36B      1646
    6414 F8F0F46BF8F0F56B      1646
    641C F8F0F66BF8F0F96B      1646
    6424 F8F0C16BF8F0C56B      1646
    642C F8F0C6404040404040 6453 1647         DC    CL40'80F
    6434 4040404040404040      1647
    643C 4040404040404040      1647
    6444 4040404040404040      1647
    644C 4040404040404040      1647
    6454 82               6454 1648         DC    XL1'82'
    6455 5BC4C5D3F8F2F16B 647C 1649         DC    CL40'$DEL821,822,823,824,825,826,827'
    645D F8F2F26BF8F2F36B      1649
    6465 F8F2F46BF8F2F56B      1649
    646D F8F2F66BF8F2F740      1649
    6475 4040404040404040      1649
    647D 4040404040404040 64A4 1650         DC    CL40'
    6485 4040404040404040      1650
    648D 4040404040404040      1650
    6495 4040404040404040      1650
    649D 4040404040404040      1650
    64A5 87               64A5 1651         DC    XL1'87'
    64A6 58C4C5D3F8F7F16B 64CD 1652         DC    CL40'$DEL871,872'
    64AE F8F7F2404040404040    1652
    64B6 4040404040404040      1652
    64BE 4040404040404040      1652
    64C6 4040404040404040      1652
    64CE 4040404040404040 64F5 1653         DC    CL40'
    64D6 4040404040404040      1653
```



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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT
    64DE 4040404040404040      1653
    64E6 4040404040404040      1653
    64EE 4040404040404040      1653
    64F6 88               64F6 1654         DC    XL1'88'
    64F7 5BC4C5D3F8F8F16B 651E 1655         DC    CL40'$DEL881,882,883,884,885,886,88F'
    64FF F8F8F26BF3F8F36B      1655
    6507 F8F8F46BF8F8F56B      1655
    650F F8F8F66BF8F8C640      1655
    6517 4040404040404040      1655
    651F 4040404040404040 6546 1656         DC    CL40'
    6527 4040404040404040      1656
    652F 4040404040404040      1656
    6537 4040404040404040      1656
    653F 4040404040404040      1656
    6547 FF               6547 1657         DC    XL1'FF'          LAST
    6548 40404040         654B 1658         DC    CL4'
                               1659
                               1659
                               1660 *  EXTRA BLANK:
    654C FF               654C 1661         DC    XL1'FF'
    654D 5BC4C5D340404040 6574 1662         DC    CL40'$DEL
    6555 4040404040404040      1662
    655D 4040404040404040      1662
    6565 4040404040404040      1662
    656D 4040404040404040      1662
    6575 4040404040404040 659C 1663         DC    CL40'
    657D 4040404040404040      1663
    6585 4040404040404040      1663
    658D 4040404040404040      1663
    6595 4040404040404040      1663
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1665 ************************************
                         1666 *
                         1667 *
                         1668 *      EQU'S    AND     DC'S
                         1669 *
                         1670 ************************************
                  01BB   1671 CURSOR EQU   X'1B8'      LINE 12    POSITION FOR CURSOR
                  3FFF   1672 X3FFF  EQU   X'3FFF'
                  020D   1673 SBYTE5 EQU   X'20D'
                  0232   1674 UTAB   EQU   X'0232'
                         1675
                         1675
                         1675
                         1675
                         1675
  659D 5800              659E 1676 HIFF6@ DC    AL2(HIFF6)
  659F 00                659F 1677 DEVUDT DC    XL1'00'                  USED FOR DEVICES IN UDT NOT IN TABNAM
                         65A0 1678 XXXX   EQU   *
  65A0 C6E7E7E7E7        65A4 1679        DC    CL5'FXXXX'
  65A5 C7D6              65A6 1680 CGO    DC    CL2'GO'
  65A7 C3D6D9D9C5C3E3    65AD 1681 CORR   DC    CL7'CORRECT'
  65AE 5BC4C5D3          65B1 1682 $DEL   DC    CL4'$DEL'
  65B2 5BD3E2E3          65B5 1683 $LST   DC    CL4'$LST'
  65B6 5BC3D4D7          65B9 1684 $CMP   DC    CL4'$CMP'
  65BA 6150              65BB 1685 SLASHA DC    CL2'/&'
  65BC 40404DC2E2C3C140  65E3 1686 EX80   DC    CL40'  (BSCA 1 OR LCA
  65C4 F140D6D940D3C3C1        1686
  65CC 4040404040404040        1686
  65D4 4040404040404040        1686
  65DC 4040404040404040        1686
  65E4 40404DC2E2C3C140 660B   1687 EX88   DC    CL40'  (BSCA 2)
  65EC F25D4040404040404       1687
  65F4 4040404040404040        1687
  65FC 4040404040404040        1687
  6604 4040404040404040        1687
  660C 4040404DF2F9F7F2 6633   1688 EX82   DC    CL40'  (2972 IS AN OPTION ON BSCA)
  6614 40C9E240C1D540D6        1688
  661C D7E3C9D6D540D6D5        1688
  6624 40C2E2C3C15D4040        1688
  662C 4040404040404040        1688
  6634 4040404DF3F2F7F0 665B   1689 EX87   DC    CL40'  (3270 IS AN OPTION ON BSCA)
  663C 40C9E240C1D540D6        1689
  6644 D7E3C9D6D540D6D5        1689
  664C 40C2E2C3C15D4040        1689
  6654 4040404040404040        1689
                         665C  1690 ENTBUF EQU  *
  665C 4040404040404040  666F  1691        DC   CL20' '
  6664 4040404040404040        1691
  666C 40404040                1691
  7000                         1692        ORG  X'7000'
                               1693 *       $MULS
                               1694 *
                               1695 *
                               1696 *    MULTIPLE WAY BRANCH SUBROUTINE
                               1697 *
                               1698 *    LINKAGE EXAMPLE
                               1699 *          B     MULBR
                               1700 *          DC    XL1'00'       STANDARD CLI, BE
                               1701 *          DC    AL2(SENSE)    AREA TO BE COMPARED
                               1702 *          DC    XL1'44'       IF SENSE = 44, GO TO LABEL.
                               1703 *          DC    AL2(LABEL)
                               1704 *          DC    XL1'4B'          IF SENSE = 4B, GO TO LABEL.
                               1705 *          DC    AL2(ISS4B)
                               1706 *          DC    XL1'FF'          END.  IF NONE OF ABOVE, FALL THRU
                               1707 *          DC    XL2'FFFF'
                               1708 *
                               1709 *
                               1710 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

  7000 34 08 7063        1711 *
  7004 34 01 705F        1712 *
  7008 35 01 7063        1713 MULBR  ST    MUL200+3,ARR
                         1714        ST    MUL101+3,XR1
  700C 78 80 00          1715        L     MUL200+3,XR1
  700F F2 90 0C          1716
                         1717        TBN   0(,XR1),X'80'
                         1718        JF    MUL15
  7012 3C 87 7031        1719
  7016 1C 01 7047 02     1720        MVI   MUL48+1,X'87'
  701B F2 87 09          1721        MVC   MUL53+3(2),2(,XR1)
                         1722        J     MUL16
  701E 3C 07 7031        1723 MUL15  EQU   *
  7022 1C 01 7036 02     1724        MVI   MUL48+1,X'07'
                         1725        MVC   MUL50+3(2),2(,XR1)
  7027 D2 01 03          1726 MUL16  EQU   *
  702A 7D FF 01          1727
  702D F2 81 25          1728 MUL40  LA    3(,XR1),XR1
                         1729        CLI   1(,XR1),X'FF'
  7030 F2 07 0C          1730        JE    MULRNN
                         1731
  7033 1D 00 0000 00     1732 MUL48  JC    MUL52,X'07'
  7038 F2 81 14          1733
  703C C0 87 7027        1734 MUL50  CLC   *-*(1),0(,XR1)
                         1735        JE    MULRTN
  703F 1C 00 7045 00     1736        B     MUL40
  7044 38 00 0000        1737
  7048 F2 10 04          1738 MUL52  MVC   MUL53+1(1),0(,XR1)
  704B C0 87 7027        1739 MUL53  TBN   *-*,*-*
                         1740        JT    MULRTN
                         1741        B     MUL40
  704F 75 01 02          1742
  7052 F2 87 03          1742
  7055 D2 01 03          1743 MULRTN L     2(,XR1),XR1
  7058 34 01 7063        1744        J     MUL99
  705C C2 01 0000        1745 MULRNN LA    3(,XR1),XR1
  7060 C0 87 0000        1746 MUL99  ST    MUL200+3,XR1
                         1747 MUL101 LA    *-*,XR1
                         1748 MUL200 B     *-*
                         1749 *** END OF EXPANSION **
                         1750 *       DCPE
                         1751
                         1751
                         1752 ************************************
                         1753 *      STANDARD DCP EQUATES        *
                         1754 ************************************
                  0222   1755 HALT   EQU   X'222'
                  0216   1756 LINK   EQU   X'216'
                  021A   1757 PRINT  EQU   X'21A'
                  0212   1758 TEST   EQU   X'212'
                  021E   1759 UNPACK EQU   X'21E'
                  0020   1760 PIAR   EQU   X'20'
                  0004   1761 PSR    EQU   X'04'
                  0001   1762 XR1    EQU   01
                  0002   1763 XR2    EQU   02
                  0008   1764 ARR    EQU   X'08'
                  00C0   1765 IAR1   EQU   X'C0'
                  0084   1766 IAR5   EQU   X'84'
                  0020   1767 PIIAR  EQU   X'20'
                  0200   1768 SYSTEM EQU   512
                  0226   1769 PACK   EQU   X'226'
                  022A   1770 LOAD   EQU   X'22A'
                  0080   1771 BIT0   EQU   X'80'
                  0040   1772 BIT1   EQU   X'40'
                  0020   1773 BIT2   EQU   X'20'
                  0010   1774 BIT3   EQU   X'10'
                  0008   1775 BIT4   EQU   X'08'
                  0004   1776 BIT5   EQU   X'04'
```

POINT AT PARMS

IS THIS A TBN,BT CASE
IF NOT, GO SET UP CLI,BE

DO JUMP TO TBN CASE
SET UP COMPARE ADDR

SET UP FOR CLC,BE
NOOP JUMP
SET UP COMPARE ADDR

POINT AT NEXT PARMS
LAST ENTRY ?
IF SO, RETURN NONE EQUAL

CHECK FOR EQUAL

CHECK FOR BIT ON

LOAD XR1 TO 'GO TO' ADDRESS

POINT AT RETURN ADDR FOR NO EQUA

RESTORE XR1
GO TO PROPER PLACE

PROGRAM INSTRUCTION ADDRESS REGI

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         0002 1777 BIT6   EQU   X'02'
                         0001 1778 BIT7   EQU   X'01'
                         0208 1779 SBYTE0 EQU   X'0208'          SENSE SWITCH BYTE 2
                         020A 1780 SBYTE2 EQU   X'020A'          SENSE SWITCH BYTE 3
                         0208 1781 SBYTE3 EQU   X'0208'          MANUAL INTERVENTION
                         0020 1782 SSW02  EQU   X'20'            BYPASS NON-ERROR PRINTING (DCP)
                         0008 1783 SSW04  EQU   X'08'            LOAD AND GO (DCP)
                         0001 1784 SSW07  EQU   X'01'
                         0080 1785 SSW10  EQU   X'80'
                         0040 1786 SSW11  EQU   X'40'
                         0020 1787 SSW12  EQU   X'20'
                         0010 1788 SSW13  EQU   X'10'
                         0008 1789 SSW14  EQU   X'08'
                         0004 1790 SSW15  EQU   X'04'
                         0002 1791 SSW16  EQU   X'02'
                         0001 1792 SSW17  EQU   X'01'
                         0080 1793 SSW18  EQU   X'80'
                         0040 1794 SSW19  EQU   X'40'
                         0020 1795 SSW1A  EQU   X'20'
                         0001 1796 SSW2F  EQU   X'01'
                              1797
                         0879 1798 CRTFLG EQU   X'0879'          FLAG BYTE TO INDICATE MICROCODE
                         0000 1799 L1     EQU   00
                         0028 1800 L2     EQU   40
                         0050 1801 L3     EQU   80
                         0078 1802 L4     EQU   120
                         00A0 1803 L5     EQU   160
                         00C8 1804 L6     EQU   200
                         00F0 1805 L7     EQU   240
                         0118 1806 L8     EQU   280
                         0140 1807 L9     EQU   320
                         0168 1808 L10    EQU   360
                         0190 1809 L11    EQU   400
                         01B8 1810 L12    EQU   440
                              1811
                              1812 *** END OF EXPANSION **
 7064 C0 87 021A              1813 SAVDSP  B     PRINT
 7068 06                 7068 1814         DC    XL1'06'
 7069 14                 7069 1815         DC    IL1'20'
 706A 7084               7068 1816         DC    AL2(MENU4)
 706C C0 87 022A              1817         B     LOAD
 7070 00                 7070 1818         DC    XL1'00'
 7071 E2C5C3E3C9D6D540   7084 1819 MENU4  DC    CL20'SECTION TERMINATE'
 7079 E3C5D9D4C9D5C1E3        1819
 7081 C5404040                1820         TREP
                              1821         TREP
                              1822         TREP
                              1823         TREP
                              1824         TREP
                              1825         TREP
                              1826         TREP
                              1827         TREP
                              1828         TREP
                              1829         TREP
                              1830         TREP
                              1831         TREP
                              1832         TREP
                              1833         TREP
                              1834         TREP
                              1835         TREP
                              1836         TREP
                              1837         TREP
                              1838         TREP
                              1839         TREP
                              1840         TREP
                              1841         TREP
                              1842         TREP
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              1843         TREP
                              1844         TREP
                              1845         TREP
                              1846         TREP
                              1847         TREP
                              1848         TREP
                              1849         TREP
                              1850         TREP
                              1851         TREP
                              1852         TREP
                              1853         TREP
                              1854         TREP
                              1855         TREP
                              1856         TREP
                              1857         TREP
                              1858         TREP
                              1859         TREP
                              1860         TREP
                              1861         TREP
                              1862         TREP
                              1863         TREP
                              1864         TREP
                              1865         TREP
                              1866         TREP
                              1867         TREP
                              1868         TREP
                              1869         TREP
                              1870         TREP
                              1871         TREP
                              1872         TREP
                              1873         TREP
                              1874         TREP
                              1875         TREP
                              1876         TREP
                              1877         TREP
                              1878         TREP
                              1879         TREP
                              1880         TREP
                              1881         TREP
                              1882         TREP
                         FFFF 1883         END
```

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
$CMP	A	004	65B9	1684	1450
$DEL	A	004	6581	1682	0055 1372 1425
$LST	A	004	65B5	1683	0946 1448
ACTO	A	001	1683	1076	0323 0760 0854 0878
ADDFLG	A	001	15C4	1009	0130*
ADDR	A	002	15C9	1012	0414* 0519
ADMSG	A	001	187C	1137	0114* 0115* 0116* 0117* 0121 0137*
ADMSGE	A	001	18CB	1139	0121 0122
ARR	C	001	0008	1764	0061 0085 0090 0186 0225 0258 0303 0413 0529 0588 0599 0673 0810 0962 1239 1478 1713
AST	A	003	0E48	0299	0326
BEGIN	A	001	580D	1202	1197
BIT0	C	001	0080	1771	
BIT1	C	001	0040	1772	
BIT2	C	001	0020	1773	
BIT3	C	001	0010	1774	
BIT4	C	001	0008	1775	
BIT5	C	001	0004	1776	
BIT6	C	001	0002	1777	
BIT7	C	001	0001	1778	
BLNK	A	006	0C3E	0077	0621
BRTRY1	A	006	1050	0489	0715
CARD2A	C	001	3900	1154	
CARSAV	A	001	15CA	1013	
CD10R2	A	001	15C3	1008	
CFIGFG	A	001	15C5	1010	
CGO	A	002	65A6	1680	
CHK1	A	004	107D	0502	0485
CHNID	A	008	160D	1040	
CKDEL	A	005	59DE	1425	
CKER	A	002	15DB	1022	
CKBO	A	003	5A5C	1481	1480
CLI1	A	004	1049	0486	0453*
CLW	A	002	15D3	1018	
CL3	A	002	15CF	1016	
CMCNT1	A	005	1449	0865	0852
CMCNT2	A	006	1579	0973	0969
CMCNT3	A	006	1589	0976	0972
CMCNT4	A	004	1507	0932	0924 0940
CMID	A	001	16D8	1097	
CMIDLG	A	005	1673	1068	
CMPCON	A	002	161C	1045	
CMPPGM	A	001	1400	0839	1465
CONTA8	A	006	0DC4	0208	0196 0202
CONTE5	A	004	0F04	0364	0350
CORR	A	007	65AD	16A1	
COUNT	A	002	15DD	1023	
CPUDFG	A	001	15BB	0999	
CPUFG	A	001	15C1	1006	
CPUIDZ	A	004	1605	1039	
CPW	A	002	15D7	1020	
CRTFLG	C	001	0879	1798	
CTR1	A	001	1625	1049	0608* 0624*
CTR2	A	001	1626	1050	0609* 0619*
CURSOR	C	001	0188	1671	
C2HOR1	A	005	1664	1065	0310 0753 0843
C3HO	A	005	165A	1063	
C3H15	A	005	1669	1066	
C3H161	A	005	1641	1058	0226 0260
C3H162	A	005	1646	1059	0801
C3H163	A	005	164B	1060	
C3H164	A	005	1650	1061	
C3H165	A	005	1655	1062	
C3H172	A	005	163C	1057	
C3H18	A	004	1677	1069	0428
C4HOR1	A	005	165F	1064	0239 1070

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
DAT	A	002	16F5	1179	
DBYTE0	A	001	0C95	1146	0707 0712
DBYTE1	A	001	0C96	1147	0708 0713
DBYTE2	A	001	0C97	1148	0714
DBYTE7	A	001	0C9C	1149	0532 0538
DCPFG	A	001	15BF	1003	
DCPID	A	003	1633	1055	
DDCF	A	010	16B2	1084	0142* 0311* 0339* 0342* 0366* 0817* 0845* 0888* 0905*
DDCFB	A	001	16A9	1083	0146 0348 0370 0823 0849 0892 0910 1085
DDCFE	A	001	0F2A	0399	0426* 0428 0479 0493
DDCFM	A	001	16AE	1085	0310* 0353 0753* 0801* 0826 0843* 0861 0866 089R
DDCFR	A	010	16BC	1087	0227* 0261* 0867* 0872*
DDCFRB	A	001	16B3	1086	0231 0268 0876 1088
DDCFRM	A	001	16B8	1088	0226* 0260* 0866* 0870
DDCFS	A	010	16C6	1090	0970* 0973* 0974* 0976
DDCFSB	A	001	16BD	1089	0980 1091
DDCFSM	A	001	16C2	1091	0966* 0986
DDCFT	A	010	16D0	1093	0976* 1178
DDCFTB	A	001	16C7	1092	0984 1094
DDCFTM	A	001	16CC	1094	0902 0967* 0980
DDCFX	A	001	0D6A	0182	0190* 0193 0195* 0198 0200* 0201* 0204* 0205* 0206* 0209
DDCR	C	001	00C6	1153	0464* 0512* 0555* 0561*
DDDF	A	001	1904	1191	0086* 0087 0087* 0132 0137 0140* 0145 0230 0233 0235 0263* 0267 0320* 0321 0321* 0323* 0324* 0326 0328* 0329* 0347 0369 0818 0822 0840 0848 0875 0891 0909 0979 0983 1193
DDDF1	A	001	1A04	1193	
DDDR	C	001	00C4	1152	0463* 0480* 0511* 0551 0552* 0558* 0562* 0590 0591* 0596*
DDO	A	002	15ED	1030	
DEFTKR	A	004	10F5	0540	0729*
DEFTRK	A	004	10CF	0529	0709
DEL	A	002	16F7	1116	
DELDK	A	004	5A4D	1467	
DELFG	A	001	16F3	1114	0113* 0127* 0148 0164
DELPGM	A	001	0CFC	0126	1437
DEL1	A	001	0CD2	0111	0149
DEL2	A	003	0CF2	0123	0165
DEVDEL	A	001	5CA7	1517	1382* 1406 1423
DEVNOD	A	001	5DA7	1525	1406*
DEVOF	A	001	5B71	1508	1266 1266* 1267
DEVON	A	001	5AD1	1503	1210 1210* 1211
DEVUDT	A	001	659F	1677	1213* 1214 1241 1253
DFLAG	A	001	15BE	1002	
DGPRT@	A	002	121C	0440	
DGSNS@	A	002	118A	0584	0591
DGSNSB	A	001	0C95	0080	0584 0602 1146 1147 1148 1149
DGSNS1	A	024	0CAC	0081	
DGSNS2	A	086	0C94	0079	0639 0640
DGS2B	A	001	0C3E	0078	0603 0639
DOMEN1	A	001	58BD	1288	1270
DONE	A	001	5A13	1443	1356
DONEXT	A	003	5886	1276	1272
DONE1	A	006	5A25	1450	0950
DOOFF	A	006	5895	1266	1215
DOQ	A	004	592A	1341	1203 1365
DRIVE@	A	001	0D4B	0157	0332 0438 0439 0440 0442 0443 0445 0446 0458 0478 0504 0506 0507 0508 0510 0542 0543 0546 0592
DRTRN1	A	001	1088	0515	0567
DRTRN2	A	001	101A	0469	0571
DRTRN3	A	001	103E	0482	0570
DR1	C	001	00C0	1160	
DR2	C	001	00CB	1161	
DR3	C	001	00D0	1162	
DR4	C	001	00D8	1163	
DTAHDR	A	004	1637	1056	
DU	A	002	16F9	1117	
DO	A	004	15E8	1029	0918

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
D1	A	001	15F2	1032	0763 0858 0895 0925
D120	A	003	15F8	1034	
D48	A	003	15F5	1033	0933
EDITA	A	001	0CCE	0097	
EDMS1	A	037	17F9	1130	0659 0660
EDMS1B	A	001	17D4	1129	0659
EDMS2	A	045	1626	1132	0629 0630
EDMS2B	A	001	17F9	1131	0629
EE1	A	004	1229	0646	0705
EE2	A	004	1245	0657	0490 0531
ENCMP1	A	004	14B8	0905	0879
END1	A	001	0EFD	0360	0314
ENTBUF	A	001	665C	1690	
ERMSG	A	036	1769	1123	0679* 0682* 0685* 0688* 0691 0692
ERMSG8	A	001	1745	1122	0691
ERMS1	A	021	177E	1125	0648 0649
ERMS1B	A	001	1769	1124	0648
ERR14	A	031	1874	1135	0722 0723
ERR14B	A	001	1826	1133	0722
EXCEPT	A	001	5A51	1477	1383
EXLINE	A	040	5D50	1521	1395 1489* 1490 1490* 1493* 1495* 1497* 1499*
EXRTN	A	004	5AA5	1501	1478* 1491 1494 1496 1498 1500
EX80	A	040	65E3	1686	1493
EX82	A	040	6633	1688	1497
EX87	A	040	665B	1689	1499
EX88	A	040	6608	1687	1495
FAS	A	003	0E3C	0296	0233 0914
FASINB	A	001	0E3A	0295	0239* 0240* 0241* 0298 0912* 0914*
FASINF	A	001	0E45	0297	0235* 0238* 0263 0313 0334 0913*
FASINM	A	001	0E42	0296	0920 0923 0928 0932* 0936 0938
FFA	A	003	162D	1053	
FFALOC	A	005	166E	1067	
FFB	A	003	1630	1054	
FIGCON	A	002	161A	1044	
FLAG1	A	001	0D1A	0135	0138
FRDRV#	A	001	16F1	1112	
FRDTRK	A	001	1172	0573	0539
FRTN	A	002	0A07	0022	
FSTCPU	A	001	15C2	1007	
HA	C	001	003F	1174	
HALT	C	001	0222	1755	0064 0653 0663 0697 0725 1333 1400 1411 1459
HALT1	A	001	125D	0672	0466 0513 0553 0559
HALT1A	A	004	126B	0677	0718
HALT1R	A	004	12AB	0700	0673* 0674* 0717*
HALT2	A	001	12AF	0702	0473 0503 0518
HARSAV	A	001	15CB	1014	
HDG1	A	041	17D4	1128	0634 0635
HDG1B	A	001	177E	1126	0634
HH	C	001	003B	1175	
HIFF6	A	001	5B00	1195	0049 1676
HIFF6@	A	002	659E	1676	
HLW	A	002	15D5	1019	
HL3	A	002	15D1	1017	
HPW	A	002	15D9	1021	
HI	C	001	0003	1173	
IAR	C	001	0010	1164	
IAR1	C	001	00C0	1765	
IAR5	C	001	0084	1766	
ICTR	A	001	16ED	1108	0418* 0489* 0530*
IDLOC	A	096	0C33	1176	
IGBR	A	004	583F	1220	1224* 1243*
IG1	A	004	584D	1224	1220
INCCL	A	006	0DB4	0204	0199
INCHD	A	004	0DA0	0198	0194
ISCOR	A	001	593A	1347	1338
IS80	A	006	5A81	1493	1482

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
IS82	A	006	5A93	1497	1486
IS87	A	006	5A9C	1499	1488
IS88	A	006	5A8A	1495	1484
KCTR	A	001	16EF	1110	0754* 0796*
LCTR	A	001	16EE	1109	0757* 0773* 0778
LINK	C	001	0216	1756	
LINKM@	A	002	0F47	0411	0717
LOAD	C	001	022A	1770	1199 1817
LOOPD	A	001	59DE	1424	1441
LOLPDD	A	005	0BA8	0055	0058
LOOPD1	A	001	59CE	1415	1405
LOOPGM	A	004	0B96	0046	0056
LOOP1	A	005	5823	1213	1226
LOOP12	A	004	1339	0756	0791 0803
LOOP13	A	004	11CB	0609	0625
LOOP14	A	004	11CF	0610	0620
LOOP16	A	004	1458	0869	0882 0903
LOOP17	A	006	1563	0968	0990
LOOP18	A	004	14E9	0920	0930
LOOP2	A	003	5BA3	1269	1277
LOOP3	A	003	593E	1354	1359 1413 1426
LOOP4	A	001	5956	1363	1373
LOOP5	A	004	1416	0845	0863
LOOP6	A	005	5967	1372	1375
LOOP8	A	006	0EBE	0336	0356
LOP124	A	004	133D	0757	0740*
LSCNT1	A	004	1341	0759	0766 0776
LSCNT2	A	004	137C	0778	0761
LSCNT3	A	004	1391	0784	0774
LSPGM1	A	004	130F	0744	0737 0739
LSPGM2	A	004	1335	0754	0741*
LSPG1A	A	004	131D	0747	0742*
LSPG1B	A	004	1321	0749	0743*
LSTCON	A	004	13A5	0793	0779
LSTDCD	A	004	15F1	1031	
LSTPGM	A	001	12F1	0735	1449
LSTRD	A	004	13CC	0810	0759
LSTRDR	A	004	13DD	0814	0810* 0812 0827
LSTSCN	A	001	15C0	1005	0331* 0343* 0355
LWRT	A	001	15BD	1001	0129* 0782* 0789 0790*
L1	C	001	0000	1799	
L10	C	001	0168	1808	
L11	C	001	0190	1809	
L12	C	001	0188	1810	
L2	C	001	0028	1800	
L3	C	001	0050	1801	
L4	C	001	0078	1802	
L5	C	001	00A0	1803	
L6	C	001	00C8	1804	
L7	C	001	00F0	1805	
L8	C	001	0118	1806	
L9	C	001	0140	1807	
MAXPGM	A	003	15FB	1035	0752 0842
MCTL	A	033	1903	1144	
MCTLB	A	001	18DC	1142	
MCTR	A	001	16F0	1111	0751* 0800* 0811* 0816*
ME	A	002	15FF	1037	
MENU11	A	040	5AD0	1502	1292
MENU12	A	040	5AF8	1504	1296
MENU13	A	040	5B20	1505	1300
MENU14	A	040	5B48	1506	1304
MENU15	A	040	5B70	1507	1308
MENU2A	A	040	5DDF	1526	1410
MENU24	A	040	5CB0	1516	
MENU25	A	040	5CD8	1518	1387
MENU27	A	04C	5D28	1520	1391

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
MENU3	A	020	5DF3	1527	1419
MENU4	A	020	7084	1819	1345 1816
MENU5	A	040	5E1B	1528	1447
MENU61	A	040	5E43	1529	1454
MENU62	A	040	5E6B	1530	1458
MENU7	A	040	5E93	1531	1464
MENU71	A	040	5B98	1509	1312
MENU72	A	040	5BC0	1510	1316
MENU73	A	040	5BE8	1511	1320
MENU74	A	040	5C10	1512	1324
MENU76	A	040	5C60	1514	1328
MENU77	A	040	5C88	1515	1332
MENU83	A	021	5D8F	1523	1399
MINUS1	A	002	0CD1	0099	
MOV1	A	006	0F87	0426	0419* 0420 0421* 0422* 0423 0424* 0427 0453 0454 0547
MOV2	A	006	1061	0493	0427*
MOV3	A	006	1032	0479	0454* 0499
MSG02	A	016	18DC	1141	0158* 0162
MULBR	A	004	7000	1713	
MULRNN	A	003	7055	1745	1730
MULRTN	A	003	704F	1743	1735 1740
MUL101	A	004	705C	1747	1714*
MUL15	A	001	701E	1723	1718
MUL16	A	001	7027	1726	1722
MUL200	A	004	7060	1748	1713* 1715 1746*
MUL40	A	003	7027	1728	1736 1741
MUL48	A	003	7030	1732	1720* 1724*
MUL50	A	005	7033	1734	1725*
MUL52	A	005	703F	1738	1732
MUL53	A	004	7044	1739	1721* 1738*
MUL99	A	004	7058	1746	1744
MVC1	A	006	0E91	0324	0317*
MVC10	A	006	0F81	0425	0423*
MVC2	A	006	1155	0563	0547* 0548*
MVC3	A	006	0D84	0190	0189* 0208
MVC4	A	006	0DCA	0209	0208*
MVC6	A	006	0D7E	0189	0188*
MVI1	A	004	0EFD	0361	0358*
MVI2	A	004	0F08	0365	0364*
MVI4	A	004	10C7	0520	0420* 0535
MVI5	A	004	10EA	0536	0535*
NAS	A	001	16A8	1082	0865* 0886 0902* 0912 0967
NEG3	A	002	0D4A	0156	0318
NOEND	A	005	5882	1253	1250
NOIG	A	001	5871	1246	1242
NWRTFG	A	001	15BA	0998	0965* 0975* 0989
OLD	A	003	1618	1043	0140 0765 0851 0881
ONE	A	001	0D6D	0184	0187 0191 0195 0201 0204 0424 0489 0530 0619 0624 0773 0796 0811 0857 0894 0974 0708
OPINCP	C	001	0001	1151	0557*
OUTREC	A	001	0F41	0409	
PACK	C	001	0226	1769	
PASDEL	A	001	5952	1361	1358
PESARR	A	002	0BD2	0067	0061*
PESXR1	A	002	0BD4	0068	0062*
PESXR2	A	002	0BD6	0069	0063*
PFLAG	A	001	15B9	0997	
PGMDEL	A	007	187B	1136	0115
PGMERR	A	001	0BBB	0060	0047
PGNTF	A	006	0D4C	0158	0139
PHT	A	004	68C7	0064	0066
PIAR	C	001	0020	1760	
PN	A	002	15FD	1036	
PNAS	A	001	1548	0960	0885* 0966
PRGID	A	003	0D48	0155	
PRGID1	A	003	0D1D	0136	0133* 0158

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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
PRINT	C	001	021A	1757	0119 0159 0627 0632 0637 0646 0657 0689 0720 0784 0793 0942 1289 1293 1297 1301 1305 1309 1313 1317 1321 1325 1329 1342 1384 1388 1392 1396 1407 1416 1420 1430 1444 1451 1455 1461 1813
PROGID	A	002	0A01	0018	
PRTBF	A	001	0BD9	0073	0744* 0745 0745* 0746* 0747* 0749* 0756 0780* 0781 0781* 0787 0802*
PSR	C	001	0004	1761	
PUTIN	A	004	5859	1239	1218
PUTINL	A	003	5875	1249	1256
PUTIR	A	004	5891	1257	1239* 1244 1252 1254
PIIAR	C	001	0020	1767	
QPUDT	C	001	0A07	1169	
QTAB	C	001	022F	1170	
QUIT	A	004	5808	1199	1196
QUITER	A	004	5800	1196	1341* 1346
QUITFG	A	001	0F2D	0401	
RCIR	A	002	1624	1048	
RDFAS	A	004	0DD4	0225	0309 0917
RDFASR	A	004	0E11	0243	0225* 0236
READAD	A	002	18CC	1140	
READIN	A	001	0A80	0029	0030 0946 1140 1427* 1429 1433 1448* 1450*
RNUM	A	001	0A03	0020	
RPCNT7	A	005	0D11	0133	
RPFX	C	001	0211	1171	
RTN01	A	001	0B84	0036	0022
RIRYI	A	001	100D	0461	0451 0500
RWRTN	A	001	1549	0961	0300
RWRTNR	A	004	15B5	0991	0962*
SAVDSP	A	004	7064	1813	0411 0655 0665 0949
SAVEID	A	004	15E1	1024	0128* 1025
SAVID	A	096	0C38	0074	1176
SAVIDB	A	001	0BD9	0072	0073
SB	A	002	1601	1038	
SBYTE0	C	001	0208	1779	0040 0040*
SBYTE2	C	001	020A	1780	
SBYTE3	C	001	020B	1781	
SBYTE4	C	001	020C	1172	
SBYTE5	C	001	020D	1673	
SCANRD	A	006	1085	0504	0432
SCDFG	A	001	15BC	1000	
SCNVTC	A	004	0E4D	0303	0134
SCNVTE	A	004	0F19	0372	0362
SCNVTR	A	004	0F1D	0373	0303* 0305 0307*
SCTR	A	001	169B	1081	
SECT#	A	002	16D2	1095	0884* 0963
SEQCTR	A	004	1622	1047	
SETTO	A	004	0CAD	0085	0262 0906
SETTOR	A	004	0C8B	0088	0085*
SETO	A	004	0CBF	0090	
SETOR	A	004	0CCA	0093	0090*
SIOI	C	001	0018	1155	
SIO1	A	003	101A	0471	0438* 0450* 0452* 0475
SIO10	A	003	1038	0516	0504* 0505*
SIO11	A	003	10B5	0514	0506*
SIO2	A	003	1133	0554	0543* 0544* 0545
SIO3	A	003	113A	0556	0546*
SIO4	A	003	1148	0560	0545*
SIO5	A	003	1017	0467	0439* 0455 0456
SIO6	A	003	11A8	0594	0592* 0593*
SIO7	A	003	105A	0491	0442*
SIO8	A	003	103B	0481	0455* 0578
SIO9	A	003	103E	0483	0456* 0457*
SLASHA	A	002	65BB	1685	
SNSAP	A	004	11B3	0599	0652 0662 0695
SNSAPR	A	004	1225	0644	0599*
SNSDR1	C	001	0080	1165	

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
SNSDR2	C	001	0040	1166	
SNSDR3	C	001	0020	1167	
SNSDR4	C	001	0010	1168	
SNS24	A	004	11BE	0588	0651 0676 0703
SNS24R	A	004	11AF	0597	0588*
SPACE#	A	036	173C	1120	0918* 0925* 0933*
SPFLGS	A	001	0A02	0019	
SPUDT	A	001	0A3A	0024	
SSWID	A	004	1611	1041	
SSW02	C	001	0020	1782	
SSW04	C	001	0008	1783	
SSW05	C	001	0004	1182	
SSW07	C	001	0001	1784	
SSW1A	C	001	0020	1795	
SSW1B	C	001	0010	1159	
SSW10	C	001	0080	1785	
SSW11	C	001	0040	1786	
SSW12	C	001	0020	1787	
SSW13	C	001	0010	1788	
SSW14	C	001	0008	1789	
SSW15	C	001	0004	1790	
SSW16	C	001	0002	1791	
SSW17	C	001	0001	1792	
SSW18	C	001	0080	1793	
SSW19	C	001	0040	1794	
SSW2F	C	001	0001	1796	
SSW22	C	001	0020	1156	
SSW23	C	001	0010	1157	
SSW24	C	001	0008	1158	
STARTD	C	001	5977	1377	1369
STATE	A	002	0B08	0071	0589* 0677 0680 0683 0686 0704
STCNT	A	004	14DF	0917	0798 0855
STPFLD	A	004	0D6E	0186	0352 0825 0860 0869 0897 0927 0935 0985 0987
STPFLR	A	004	0DD0	0211	0186* 0187* 0188 0191*
STP3	A	004	1522	0942	0921 0939
STP4	A	004	1537	0950	0947
SVPREQ	A	002	162A	1052	
SYSTEM	C	001	0200	1768	
TABADR	A	002	0A09	0023	
TABDEL	A	001	5EF5	1598	0044 1362
TABNAM	A	001	5E96	1536	0045 1248 1268 1352
TABNOR	A	001	5E94	1532	1240
TDDCF	A	001	0F38	0405	0407
TDDCF@	A	002	0F3E	0407	
TDDCR	A	002	0F2E	0402	
TDDDF	A	001	0F2F	0403	0408 0557 0563
TDDDF@	A	002	0F40	0408	0552 0555 0558
TDDDR	A	002	0F2C	0400	0551* 0562
TEMP1	A	002	153C	0958	0963* 0968 0971* 0973
TEMP2	A	002	15E3	1026	0334* 0336 0338* 0342
TEMP3	A	002	0E4A	0300	0304* 0372
TEMP4	A	002	0D6C	0183	0601* 0643
TEMP5	A	004	15E1	1025	0752* 0763* 0797
TEMP6	A	002	15E5	1027	0600* 0642
TEMP7	A	002	15E7	1028	0590* 0596
TEM1	A	002	118C	0585	
TEST	C	001	0212	1758	0445* 0579
TIO1	A	004	1013	0466	0508* 0509*
TIO10	A	004	10BB	0517	0510*
TIO11	A	004	10BF	0518	0542* 0549
TIO15	A	004	112F	0553	0332* 0333*
TIO18	A	004	0EE7	0350	0478*
TIO19	A	004	1045	0485	0549*
TIO2	A	004	1147	0559	0440* 0441*
TIO4	A	004	101D	0472	0443* 0444*
TIO5	A	004	105D	0492	

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
TIO7	A	004	1021	0473	0446*
TIO8	A	004	1041	0484	0458* 0459*
TIO9	A	004	10B1	0513	0496 0507* 0575
TODRV#	A	001	16F2	1113	
TODTRK	A	006	10F9	0542	0533
TODFAR	A	004	12E1	0720	0429
TRKCC	C	001	0002	1150	0707
TSTN	A	002	16F5	1115	1179
TTB	A	004	583B	1219	
UDTID	A	004	1615	1042	
UNPACK	C	001	021E	1759	0612
UP1	A	002	11DD	0614	0610*
UP2	A	002	11DF	0615	0611*
UTAB	C	001	0232	1674	1479
VMSG	A	009	1745	1121	0944 0945
VMSGB	A	001	16F9	1118	0944
VTIM	A	001	16A2	1080	
VTIMB	A	001	1686	1078	1081
VTNAS	A	001	1542	0959	
VTOC#	A	002	15C7	1011	0841* 0857* 0894* 0913
VTOC1#	A	031	1718	1119	0797* 0842* 0858* 0895*
WINID	A	002	161E	1046	
WINRW	A	004	0F48	0413	0143 0228 0265 0345 0367 0820 0846 0873 0889 0907 0977 0981
WINRWR	A	004	10CB	0521	0413* 0415 0416*
WINRWT	A	004	10C3	0519	0476 0487
WORF	A	002	15CD	1015	1335* 1336* 1337 1402* 1403* 1404
WRFAS	A	004	0E15	0258	0915
WRFASR	A	004	0E36	0270	0258*
WRT#	A	010	16D0	1178	0497 0498* 0502* 0568 0569* 0576 0577*
WRTVFY	A	001	11B0	0586	
XCCC	A	001	0000	0005	
XLOC	A	001	16D7	1096	
XREG	A	002	1628	1051	0044* 0046 0048 0053 0053* 0055 0057 0057* 0062 0091 0092 0092
XR1	C	001	0001	1762	0116 0117 0132* 0304 0305* 0316 0316* 0317 0318* 0258 0264 0372*
					0414 0415* 0419 0431 0448 0463 0464 0480 0495 0511 0512 0519*
					0561 0566 0574 0600 0602* 0610 0617 0617* 0642* 0760 0765 0768
					0769 0770 0771 0813* 0818* 0840* 0851 0854 0865 0878 0881 0884
					0885 0886 1211* 1221 1223 1223* 1267* 1273 1274 1274* 1362* 1367
					1368 1368* 1372 1374 1374* 1425 1427 1434 1434* 1435 1439* 1714
					1715* 1717 1721 1725 1728 1728* 1729 1734 1738 1743 1743* 1745
					1745* 1746 1747*
XR1C	A	004	5A07	1439	0124 0167 1435*
XR2	C	001	0002	1763	0045* 0046 0050 0050* 0063 0123 0125 0125* 0128 0133 0601 0603*
					0611 0616 0618 0618* 0621 0623 0623* 0643* 0758* 0768 0769 0770
					0771 0775 0775* 1212* 1213 1216 1216* 1217 1221 1222 1225* 1240*
					1241 1248* 1249 1251* 1253 1255 1255* 1268* 1269 1271 1273 1276
					1276* 1352* 1354 1354* 1355 1357 1364 1367 1382 1428 1429* 1440*
XR2A	A	004	5851	1225	1481 1483 1485 1487
XR2C	A	004	5A0B	1440	1217* 1219
XXXX	A	001	65A0	1678	1428*
X12	A	002	16E6	1104	1251
X1403	A	003	0A0F	0026	
X19	A	002	1685	1077	0738
X2	A	002	16DA	1098	
X200	A	002	167F	1074	
X255	A	002	0E4C	0301	0336 0338
X256	A	003	167A	1071	0425 0813
X3	A	002	16DC	1099	0422
X3FFF	C	001	3FFF	1672	
X4	A	002	16DE	1100	0307 0674
X47	A	002	16E8	1105	
X48	A	002	16EA	1106	0968 0971
X5	A	002	16E0	1101	0416 0421 0548
X5203	A	093	0A0C	0025	0736

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
X6	A	002	16E2	1102	
X74	A	001	167B	1072	
X8	A	002	16E4	1103	
X87	A	002	16EC	1107	
X87C	C	001	087C	1180	
X880	C	001	0880	1181	
X900	C	001	0900	1177	
X95	A	002	167D	1073	
ZERO	A	005	165E	1070	0205 0238 0313 0841

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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	48226°EC°827804°	CCC°-°INSTALLATI	ON°AID°°°°MOD°12	84a084aa°°°°°°°°	°°°°°°°°CCC00000
TD-YK3<°°°&°°B8&	°°+°°°+D°°<E&°°°	°°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°°	°°°°°:L8CCC00001
T+->=°&C""0a°-U	BB*HAP?PB°V:0$&°	°°<°AB#_'"0C°-N-	°8-HE4-DAL&<CR$G	°°&>04-E&0H*.D3&	HB'H°&#MCCC00002
TE0?0(°D.5C&BB'$	°/0HS"5P°/0?G°°°	°°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°°	°°°°°QS°CCC00003
TA&0=&DA°&DA°°°°	°°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°°	°°°°°3&0CCC00004
T+-3X(°-<?T0°F-<	<"/YBF-|°/0°°(°-	<3P0°"53="?"°/0°	°°&C""3%|E?<a0AS	GC°QQ-//#GA&QYZ8	*G1-°&/QCCC00005
T+-4S2,"°/0HE°Ua	Q2,5,Aa°A0-¬S°-&	:C1$3.°HN8°Qa°AO	'+-aN1<HAF&&%°-4	)A%BGCU4°&DA°C°&	QSAU°JLOCCC00006
T+-5)CC4°CJ,2-KD	<°/UHE/-a°AE2OH*	|KD°RAAEZ+°a0aa°	&C(.P2*L""*°<°/T	&CJ7°/0HEA/°Q7C-	|E?<°NC<CCC00007
T+-6Q0A°<a%8GO-*	°°°°°°°°°°L&HC)<	+°&7LCO4<°&6CC)<	<°&6I°°°<A°5D°°°	+°&7LCO4'<°5Da-H	IC-°°°'R4CCC00008
T+-7LCOY($¬RGIC4	LCOX2°-4a°&5DC-D	(E&5_aY*&C-D(R05	_C°D(EJR;|°D(E-0	AC*4(S&0D°°°(E%B	G°°°°#/YCCC00009
T+-8+(°-+E°0DE,-	O&LO°E,3°/O'H-AU	DE,<(°/UFCT32°&U	<B°9EF&"2/1&<°&9	EEV8<A°9BEVaa°°9	C|°°°3HaCCC00010
T+-9ICT7°/O°°(°-	++&0DE,-O&LO°E,3	°/02_C°%RCO9EOH*	|KD°RAAE3OH*°°<$	A8-°°°°°°°°°°E1	*P°°°8,YCCC00011
T+-:D°°C"(°-|HC&	ACUY5°&a-C-D|HA$	;OH*(5°0DED8ORC0	°E,H(°&9EEV#2-Q¬	K°&<4°&:O(-D(KT3	"F-<°¬B0CCC00012
T+-:"C|8E°/YCC°<	RA1ECC°HR8-°°C&H	R8-9Ha-DH|°°R-01	=FQHR-30°E*°<°°#	YCM%:°O#YC°DN809	EC&D°KRUCCC00013
T+-#:E;<+L|HDC&a	AE;<+LC3=E,.2/0Y	<°aE2E;<a"1P°OH*	|K8°RAAEZO&°|A<8	GC080,T7"E*C°°&:	=(°D°N.8CCC00014
T+-a5CO°a°°°°aY*	N(°D|B30|°°°a°AE	2OH*|KH°RAAEZ(&D	+K%BG°°°°°°°°°°	°°°°°°°°°°°°°°°°	°°°°°*LYCCC00015
T+-'0°°°°°°°°°a	8C2a°°°°°°GAU(°-	&3T&AE*U5°JC+C-D	&3/$-|°YO#JOAC80	DC°D&2-=<C-D|TA$	-C-D°JD%CCC00016
T+-=,C80O7°0AC8&	|T°8AC80(&0B°°°	O;-OIC2Y°°°0ADF&	|T°4CC2MO)aBDD>E	8H°C°DABEC°°&FO5	.C°°°'BDCCC00017
T+-"WDA-(K00°DA8	(K3YBDA8<°AA$CM%	<°AA;CM%:°JA;C°°	&E°5.C°°&H-5.;D°	°a/°G+-D&F"RGRTY	BDA%°"/&CCC00018
T+/°/C°D&L°=<C°D	&(&=<C°°&|A°QC°°	&|1°Q+-D&|GO°DDH	(K3YBDDI11°I11-L	A°AI)a0°°a0°°O&°	&G*D°P8&CCC00019
T+/A*°AR?+°H&F"R	&VOO°DDQ(K00I°°°	|RxGD°?<°°|<°°aD	°DDGA°AA'|¬a°°|R	A*Oa°E>4($*BADUP	3°°D°LCYCCC00020

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+/8PO&°&P&OI°°°	|R̄X4-°|R̄A|TT"DQ4	#"1F(OA°&<%BGD°4	a"1F(OH*K,OO°D.U	(K3YCD.U<°AB6CM%	<°A°°JBa@CCC00021
T+/CK%-5.C°°&?°5	.+-H&?°O°D<°(K7G	D°XGFA<D°DV73°°C	3°°3A°AB#O&°K,3M	AE*Ua°°°°OH*°°C&	HD|-°38DCCC00022
T+/D(CO°O#&5_OHD	KJL4(CI32-JH<°JC	_D<Ya°°°°|&8<X|R̄	A¬*BG°°°<°ADOCM%	<°AD4CM%:°JD4C°°	JLAD°;/YCCC00023
T+/EH(°C°DL%(KOO	ADN-|T°aADN-O8°O	°DM-J<CCDC2011'°	°O&°KP¬<°°LGFC4C	3°°°<A°'EC3<11'°	°O&°°:S%CCC00024
T+/FCDV73°°E11-&	11°a%C°&°°°a3¬K°	°OHD&>CT"DQ4#"1F	(OA°&|%BGDAZ'H°C	°-JB1+|aJTL?"DQ7	°DA°°3/&CCC00025
T+/F=+aBGDA<<V&°	°°C&HD$HO1&?Q<<&	JTCGDDQY<°AFZCM%	:°JFZaO°G<*&JT<B	G°°°4BAHY(°DN9L&	BCOO°"T4CCC00026
T+/G9O-D<V*HBCD°	aA/QV|°&OIT&AD)4	4°/G¬OH*BG-D°°°°	°?D°A4-DA8-HCCO°	OI-5_O°DJ38OB°&O	=8-H°)8*CCC00027
T+/H4°Oa°ESM($*°	AD*?°/OHE°S4QI%B	G°/YBN/¬MOH*BF-R	OCI&5°JPV(&H($<B	G°°C°/OHEO/MP¬?"	"OH*°QL4CCC00028
T+/I?DQ#°/1F3OH*	BH?""OH)OR<BG°/,	BIJ¬9""#°/1F3OH*	BH?"=OH)ORC&HDD8	|°JH>E_#°/1F++A°	.5"H°JLMCCC00029
T+/H5U°&a'A)J+B°	.5"H&AC33E5D8&°?	PaZ°D||HPMLS°B'¬	2U°&aaJ)JOH*BF%Q	UE6X""<BGD$|°/OH	S""O°M/%CCC00030
T+/.VOH*°°<BGDQ8	8°&?QOA°KH̄LUBCIM	9°&2OOI°&33UVCIM	9G°2O+P-<V@B&DE°	<°JH>C4¬°/1I,OH*	8F%Q°63MCCC00031
T+/<-L//4"=#°/OH	S"=88°-Y<a/°P+B°	H̄C?H&DCOAD3&a°J<	6|D°LGT1°D2Ha&°1	PCG4<N-1P|F°.7C1	-CA8°R8%CCC00032
T+/($|D%<FCOAE?°	D°/P/E¬%<AAE>EW&	a°/$?O-H.6LOBE>#°	°/1|<L&HBEY.2°Ka	GHAP/E¬I(°-QOF<B	AD4D°6-°CCC00033
T+/+OX°HBAZO°A°S	*EAD¬XAaa?Oa°E>8	($¬H̄AG+HB&%BGD4D	°°/$>aYDS|D°<NOO	aCEQ<N3O|E$7°/OH	E°Pa°aTQCCC00034
T+/|JCE*'C1O'|°°	N?*°AD3X°/OHED-a	°E>a($&OBE1-N8*B	AE(aa°J$OC°&O,/R	F|F°<G%BGD3U4BA|	-CO°°K8MCCC00035
T+/&<E?°($¬H̄ABCQ	AEX,°/O°°|C°OaCO	?E,.B°JUDOH*|KH°	RAAEZOH*($/E>OH*	L7*HAF&&<°JPGEV8	D°/*°6L-CCC00036
T+/JGFAP#C°&O,/R	U|°°O%%BGC4S°F&&	OD̄M4BA/QQaYD;L&H	BEY.2°EO+°JPGCO4	GHA*QE¬.°/O5>ED̄#	°/1&°G8OCCC00037
T+/KBE/ODED̄-+C°&	O>AE>|°°O?<BGCO8	O>CO°E,3°/O'H-AU	DE,((°-HO-?HAJM4	BA/QQOHDMOAOAE_H	NG°&°"BMCCC00038
T+/K'EM-+L°&+ED̄-	a°AE2OH*|KD°RAAE	ZC-DN1O5_A2°PFAP	2OH*($/E>OH*NK&O	DED̄-O3<BGEE-a°AE	2OH*°':4CCC00039
T+/L8CH̄7°/O'H&AU	DED̄U<A°9BED̄-<°&9	EE**<°-8aCT3°/O8	NOH*(5°J°E3ON:34	SCT"2°TH'°&9B&YD	&AU°°R3-CCC00040
T+/H3E3ONa%BGCO8	+&%BGE+Ua<°9BATD	P|AP5OH*($-9B|KH	+|"HBA<BGE&¬°/OH	EAUOPJ&4CBY(V_¬H̄	AA<°°*8°CCC00041
T+/N>/7AUOH)EI&°	°°°°°°°°°°°°°°°°	°(°-N>°OAELOO4TO	°E$Y<AA$BEM-<AA$	<ED̄-(°JMaE>,2A°4	a.1Q°:14CCC00042

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+/OZ1-aAELOO:?H̄	GD°O°E%QN|°a°E%Q	($LO\|E$Y<°A$&E%$	°/O'H-AUDE.7°/O'	H&AUDE%¬°/O5>E%.	°/O4°2C<CCC00043
T+/PU$/$<|&°N>%b	AEO|°/O°°°°°°°°	°°°°°°°H°°°°°°°°	°°°°°°°°°°°°°°°	°°°°°°|a°°DA°&D°	°°°°°LY<CCC00044
T+/Q¬°°°°a|COa<L	Oa|COa|GO'|T1a?C	7'?TP5)LE8UCC5=J	°QOE°OaTA2)PS8>R	°9<LT&($L1<|OO'L	Ca¬°°)$-CCC00045
T+/RE̲a|CO°°°°H°	A°°|F1%GF1%.F1%$	OE6_°°°<°D&H°°O°	&°&°C°A°B°°<°D'<	°°O°&A°°C°A°E°°<	°°°D°OQ8CCC00046
T+/E̲N°°&°°°D°°-°	°°&°°°O°|°°<°D&D	°°°°°<°°/°AH°°&A	H°EaB°<GC80°°DaG	C80°°°°°°°°°°°°°	°°°°°&&MCCC00047
T+/$&°°°°°°°°°°	°°°°°°°°°°°°°°°	°°°°°°°°A°°°°°°°	°°°°°°&°°°°°°°°°	°°°D°°°°°°°°°°°°	A°°°°1DYCCC00048
T+/*.°°°°°°°°°°	°°-°C°°&°A&°F°°-	°C°°?°C°°NO°°°°°	°°°°°°<LE1+LN5U_	°5%R°5a¬MK4CE5:|	R2*M°¬H̄4CCC00049
T+/)F8UCL1*$T&<X	S&+¬X96_°8_¬AO&N	°O;PA2)|AO_|E&<$	O6MCP1'LSK4CI8UC	X9=¬X94CS1*|T5_X	SK"<°=:HCCC00050
T+/;Aa"LO&<LR2;P	E&+)°5)$T&(XEO*L	Y&($R&+LN2:(°OaT	EO'.A1<GP8aPR&<|	H1*|K&($N&||3'|C	OaD°°)H̄4CCC00051
T+/;a&DA°&DA°a|(	°&DA°a|J°&DA°&DA	°a|)°&DA°a|/°&DA	°&DA°a¬E°&DA°a¬I	°&DA°&DA°a¬N°&DA	°a¬Q°=8°CCC00052
T+/¬7&DA°&DA°&|G	9&DA°&|.O&DA°&DA	°&|.3a"|4aDCFO*X	L1*J°8'R°1;¬EO=L	T1MCA&+.I5UC1aDC	T2)&°7L=CCC00053
T+/-21;.T2<N°2)P	F5_XMO;|I5_N°O%P	L5>R°2;I°8aTE&|.	4&<.Y8aN°1<XA14C	S5;.N5UCR5_$M&(|	E1><°;8YCCC00054
T+//_&($N&<LA8aE	°5($D9(|E&FA°1|R	°OMA$O'LP&<.E1_$	R1MCA1<LI5*)°5_V	°6*PP5aXN14CA5:/	°5'U°1HHCCC00055
T+/SY5%¬RO)LSKaL	E4aPT1*J°&DA°&DA	°&DA°&DA°&DA°&DA	°&DA°&DA°&DA°&DA	°&DA°&DA°&DA°&DA	°&D°°6OHCCC00056
T+/TT&DA°&DA°&DA	°&DA°&DA°&DA°&DA	°&DA°&DA°&DA°&DA	°&°D°&+¬X94CN5>(	°5_N°1<XS4%PR6)$	R&<U°="UCCC00057
TG1UC5%CO5=|I5_N	°QFA°6*PT:(¬E&EA	°2<XT&<PN1DA°&D°	°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°	°°°°°LYYCCC00058
T+V-:O°)QB<BGO°7	°/OHD°<°GOKYa/5-	+CGR$J5_HO-EE4*H	B°TH%°FO¬°C4°RR"	°-NSN8-HC(°IQM<B	GOEU°:.8CCC00059
T+V/5O°)QM*°GOD5	%°O<D?+a°4-DE|°)	Q&<HB°°C°/5-T(°/	QV<HBPZK(°°AVXa°	AOGDa/5/°aY*-O-I	;V,4"=AUCCC00060
T+VSO"OC2°&¬B°WO	-aY*|.&AVXOC2-&¬	S°-P°/5/5OH*°°°2	;P°'*D<HAO7GB°V:	O?¬a°aYDM?;a°a'D	G$°<°)OUCCC00061
T+VT,°OLK°&PS°-P	°/5STOH*BF-DYO_C	°/OHE°K/E=<BG°/Y	AH̄E%-OH*BF-DYO4T	°/OHE°K/$*<BG°/Y	AH̄E%°)QBCCC00062
T+VUWW<BG°/YAH̄E?	°OH*BF-DYO=T°/OH	E°K/*D<BG°/YAME1	-OH*BF-QYPHT°/OH	S3+DO°AP(+?°N3L7	1E*4°aAaCCC00063
T+VV/aYD&|H)Q°*B	G°/YFEGBDOH)Q°<H	BPZGS°-O'"OC°-NY	L?;a°a-DDOH)RJ%H	AP?O'"OC°-NUD$&°	°°(H°)H̄*CCC00064

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+VW*&G2-JA(0(	V%*AON$KNC/5V	X.(*ZOL/5ZJOH*	BF-E&P(T/OHE NA	)R<BG/YAHE5&OH*	BF-Q Q3UCCC00065
T+VXP|56|OH*BH%3	S<N3L,0E*4'@JP	(OHER3-OCPE)*Z@B	G/YFME7¬OH*BH%3	TOH)R|%BG/YAEE7	30H*@KDCCC00066
T+VYK/YDAE2XL&<	CR$GNU=GD@H34@	4VY+0-HH-<BG/Y	FM,|4-E&(EEB%B	GC|3E&O-H<B	GD)8@BCCC00067
T+VZ(OH*BF-QYP/%	<OBCR$P/1.1C<	H-6O90H*BF-DYPU|	/OHEAS/;E@BG S.	<9<BG/YFHE:LOH*	M<O.%CCC00068
T+VB H/5Z((/EBC7	A T.2-&B'-C2-J=	'S C2-KH'--C2-KO	'/OC2-K-@&E5&CBR	)L55&@Y*UCB))MFP	T@Y*)8%CCC00069
T+V,CFOOXPNAWB"H	GD-OXPNAW<"HGB&O	XPNAWO"HG<BG C	D1;PIO@PS&(|I8>|	E1DCB1)|O9UCA6*N	5_M 7T8CCC00070
T+V,=&+TO9(V 8>T	S8@PMK4A&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&D "YaCCC00071
T+V%9&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&D "=IHCCC00072
T+V_4&DA&DA&DA	&DA&DA8@TE8%N	1<PV2*|E8UCA6*N	5)$T&(\|$N&+TO9(V	8>TS8@PMK4A&DA	&D "3Z%CCC00073
T+V>?&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&D "$ZQCCC00074
T+V?B&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&D "4RQCCC00075
T+VOV&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DCE5;|E6MC	A&|E 2*R 8@TE&<G	B5>M OQ&CCC00076
T+V1-1MCL2;.T&<X	S&<|O6)XEO=(2)N	8@TE&(XI1@TT&(L	O8>(1<GTOMCS9%X	TO@/O)PD&(XE8%P	T&D "*88CCC00077
T+V2$8@TE&<TA4=(	.&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&<GL44C	P6)$G6*GM8UCP1)X	TO4U RI<CCC00078
T+V3O5*XN14CT5UC	X9=¬X&+$I4'(O%N	1<PL1;|E1D_&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&D "1KMCCC00079
T+V4J&DCE5;|E6MC	A&|E 2)N 8@TE&(X	I1@TT&(LO8>(1<G	TO&CS9%XT0@/O)P	D&(XE8%PT&+|H1MC	HO)< R-%CCC00080
T+V5<84_&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&D "*-OCCC00081
T+V6G&DA&<LO&(P	O84CE5;|E6MCA&|E	8'R O;PO2*J 1<P	L1;|I5_M,&(XE8%P	T&+|H1MCHO)|T&+|	O&<< #HUCCC00082
T+V7B5_PT2)PU1M?	P6)$G6*GM8UCF5_V	1<PV2*|E&+¬X9=)	9%PR1MCN5>(1<P	L1;|E1D_6*PS1;(	8@-1CHCCC00083
T+V7'1MCHO)|T&+|	O&<|O5;|I5;LEK4A	&DA&DA&DCD1)|	E8@N 2;I 2)N 5'X	OO2PSS_¬R5%¬RO1J	1<M :EOCCC00084
T+V884@PT2)$N&<X	S&(PO9UCC5_LP4@P	T1M_&DA&DAOMA	SO'LP&D7C5_LP6*P	S8V5 9%XL44CN5>R	O%N PS*CCC00085
T+V93&(¬E6*$06)L	E1D?R1;.E84CT2<N	2<GL84CT5UCC5_P	T2)PU1M_&DA&DA	&DA&DA&E?C5()	L*< 8POCCC00086

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+V:>5_LP6*PS8V5	2;I 2)N 5'XOO@P	S8U_&DA&DA&D	N"8V(1<E)D|P4'"G	-'¬.O@=G1'|C3@|P	4@?&K/MCCC00087
T+V#ZM¬G4'|H1@?P	O@KCM4=|A<+.I5%<	5@¬.5'L,3=|T1&||	7'|GA@"|4@GC3'|G	1-<.SO@FB@?X7@Y¬	3@?*)J<CCC00088
T+V@U@HTB8%|A"@$	F1%EI0@LE4"T9@O?	8=¬(,=|X4E"T91W?	FO"),1%|8&DA&DA	&DA&DA&DA&DA&DA	&D "$S CCC00089
T+V'¬&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	DE?D1)|1@|E,@¬C	2E"GO@6?1@|J,@¬C	5E"D 20 CCC00090
T+V=E@<R&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&A	$1<M 1HHCCC00091
T+V"N4@PO@O?E@|I	,1¬C3E@PO'F?E@|N	,1¬C6E@PO'6?E@<E	,1¬CF&DA&DA&DA	&DA&DA&DA&DA	&D "3SQCCC00092
T+W &&DA&DA&DA	&DA&DA&DA 8N?	D1;|E@¬E,1¬G2E@P	1@6?E@¬J,1¬G5E@P	1'W?E@¬),1¬G8E@P	11W% ;-MCCC00093
T+WA.@|G5E"C1'W?	O@¬) &DA&DA&DA	&DA&DA&DA&DA	&DA&DA&|A$1<P	L1?C1E@$O@W?F@|(	,1? "LB@CCC00094
T+WBF'O?F@<R,@|C	1E"CO@W?O@|(,@|C	4E"CO'O?O@|R,@|C	7E"CO=F?O@|V,@|C	AE"COOW?O@<(,@|C	DE" "EJ%CCC00095
T+WCA@<N D@LE4"C	O1W?O@.A,@|G1E"C	1@6?O@¬J,@|.1E"C	2@W?O@?(,@|.4E"C	2'O?O@?R,@|.7E"C	2=F% M$MCCC00096
T+WC@@|.9E"C20O?	O@%I,@|.CE"C21F?	O@%N O@LE4"C21W?	C@"A,@||1E"C3@6?	O@"J &DA&DA&DA	&D "LB CCC00097
T+WD7&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	"MN?D1)|5@¬E,'¬G	2E"H QR-CCC00098
T+WE2@¬N,'¬GFE"C	8=F?O=|V,@|TAE"C	8OW?O=<(,@|TDE"C	81MA&DA&DA&DA	&DA&DA&DA&DA	&D "RDOCCC00099
T+WF_&DA&DA&D	1O@LE4"|1@O?3@¬I	,@"C3E"|11W?O=¬(	,@|X4&DA&DA&DA	&DA&DA&DA&DA	&D "@H%CCC00100
T+WGY&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA HE?	D1)|2@|I,@?C3E"-	O'F?2@|N,@?C6E"-	0'6% 1.OCCC00101
T+WHT@?CFE@$E'O?	F1¬),1%$O&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&CA$1<P	L@")Z*CCC00102
T+WI;@O?3@|I,@"C	3&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&D "M,@CCC00103
T+WHR&DA&DA&DA	&DA&DA(N?D1)|	3'¬E,@"P2E"|5@6?	3'*R &DA&DA&DA	&DA&DA&DA&DA	&D "3E@CCC00104
T+W.M&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&C2$1<PL2@6	1E"|A1UA&DA&DA	&D "1K<CCC00105
T+WK|&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	FDA&DA&DA&DA	&D "K,*CCC00106
T+W(HE?D1)|4@|E	,'|C2E"LO@6?4@|J	,'|CF&DA&DA&DA	&DA&DA&DA&DA	&DA&DA&DA&DA	&D "P,-CCC00107
T+W+E&DA&DA&DA	&DA&DA&DA&DA	&<E$1<PL1%C0E@$	A@O?FO¬I,1%G3E@$	A*F?FO¬N,1%G6E@$	A'6% LS<CCC00108

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+W|`0"G1Ea|1aW?	Ca¬J,0"G5Ea|1'W?	Ca¬),0"G8Ea|1=0?	Ca*E,0"G8Ea|11UA	00aLE4"¬0a0?7a|I	,'"`&JYCCC00109
T+W|#'W??a|),'"C	8E"¬000??7a<I,'"C	EE"¬01W??7a¬A,'"G	1E"¬1a0W??7a¬(,'"G	4E"¬1'0??7a¬R`&DA	`&D``K/4CCC00110
T+W&6&DA`&DA`&HA	$1<PL=|C1E"T0aW?	8a|(,=|C4E"T0'0?	8a|R,=|C9E"T000?	8a<N,=|CF&DA`&DA	`&D``'Z`CCC00111
T+WJ1&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`&DA`&DBB0aL	E4"T2a0?8a?I,=|.	3E"T2'F?8a?N,=|.	6E"-`9B`CCC00112
T+WK%a?)`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`&DA`/5?D1)|	8'"D`#HMCCC00113
T+WLXE"T7aUA`&DA	`&DA`&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&D``328CCC00114
T+WMS&DA`&DA`&DA	`&DA`&DBH0a&LE4"T	8a0?8=|I,=|T3E"T	8'F?8=|N,=|T6E"T	81UA`&DA`&DA`&DA	`&D``RQDCCC00115
T+WN)&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`"4A`&DC"0a0L	E44A`&DA`&DA`&DA	`&D``03<CCC00116
T+WOQ&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&D``7B0CCC00117
T+WPL&DA`&E-``<$	X9=¬X1'$C5_XR1*|	T0aLE45?L8>($0'L	PQNA`&D7B8%|A&|E	5_V`4a|A&DA`&DA	`&D``)1QCCC00118
T+WQ+&DA`&DA`&DA	`&DA`&DA`&DA`L*.	S0a&E`aV5`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&D``:RUCCC00119
T+WRIL¬.9'"I`2;I	`0)N`5_¬T2)$N&(($	N&<.S0a&E)&DA`&DA	`&DA`&DA`&D73a?¬	0&<XS&<GN&($P8aX	O5M``¬,&CCC00120
TIOR?5_N`0>.CON5	`&DA`&DA`&DA`&DA	`&DA`&DA`&DA`&DA	`&DA`&D``````````	``````````````````	`````LLOCCC00121
T+X`:(`/0Q3&A*Ea	5`PAT;H``aZ`<(H)	O<JOA*D*BaY*I(`)	O<JOA*CQB4-DC¬¬a	A@YDVa-*<G&````C	2-J&`N-HCCC00122
T+XA5OH)OI1O`*DM	`+````|H&A<BG*B)	5`&.2/O|K`&<4`PA	TO-D``<BG``C`/OH	EA/JO/<BG`SY`8%P	C8aU`R3YCCC00123
TCXBD5_N`8aPR5<X	NO;|E&DA``````````	``````````````````	``````````````````	``````````````````	`````3`&CCC00124
*``````````````````	`````INSTALLATIO	N`AID`PROGRAM```	``````````````````	``````````````````	`````````CCC00125
**********	**********	**********	**********	**********	*****```CCC00126
*``````````````````	``````````````````	``````````````````	``````````````````	``````````````````	`````````CCC00127
*```PURPOSE-``AU	TOMATICALLY`DELE	TE`PROGRAMS`ON`C	.E.`DIAGNOSTIC`P	ACK`FOR`ALL`````	`````````CCC00128
*````````````DE	VICES`NOT`ATTACH	ED`TO`THE`SYSTEM	.``````````````````	``````````````````	`````````CCC00129
*``````````````````	``````````````````	``````````````````	``````````````````	``````````````````	`````````CCC00130

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
*``````````````	```---`````OPERATIN	G`INSTRUCTIONS``	```---`````````	``````````````````	`````````CCC00131
*``````````````	``````````````````	``````````````````	``````````````````	``````````````````	`````````CCC00132
*```GENERAL`--``	JUST`FOLLOW`THE`	DIRECTIONS`ON`TH	E`PRINT`DEVICE.`	``````````````````	`````````CCC00133
*``````````````	``````````````````	``````````````````	``````````````````	``````````````````	`````````CCC00134
*```1.``REQUIREM	ENTS-``THE`UDT`O	F`THE`DCP`PRESEN	TLY`LOADED`INTO`	STORAGE`MUST````	`````````CCC00135
*````````EXACTLY	`DESCRIBE`THE`CO	NFIGURATION`OF`T	HE`SYSTEM.``-RPQ	`DEVICES`ARE`NOT	`````````CCC00136
*````````HANDLED	`BY`THIS`PROGRAM	.``````````````````	``````````````````	``````````````````	`````````CCC00137
*``````````````	``````````````````	``````````````````	``````````````````	``````````````````	`````````CCC00138
*````````THE`334	0`DISK`AND`THE`P	RINT`DEVICE`MUST	`BE`OPERATING`CO	RRECTLY.````````	`````````CCC00139
*````````THE`SEL	ECTED`3340`C.E.`	PACK`MUST`BE`MOU	NTED`ON`D1.`````	``````````````````	`````````CCC00140
*``````````````	``````````````````	``````````````````	``````````````````	``````````````````	`````````CCC00141
*```2.``FIRST`ME	SSAGE`DESCRIBES`	YOUR`SYSTEM.````	``````````````````	``````````````````	`````````CCC00142
*````````THE`INF	ORMATION`IS`TAKE	N`FROM`THE`UDT.`	`READ`THIS`ENTIR	E`MESSAGE````````	`````````CCC00143
*````````CAREFUL	LY.``IT`TELLS`YO	U`WHAT`DEVICES`A	RE`ATTACHED`AND`	WHAT`DEVICES````	`````````CCC00144
*````````ARE`NOT	`ATTACHED`TO`YOU	R`SYSTEM.``IT`MU	ST`BE`CORRECT.``	FOLLOW`THE`DIREC	TIONS```CCC00145
*````````ON`THE`	PRINT`DEVICE.`NO	TE`THAT`BSCA`CAN	`MEAN`BSCA-1,`BS	CA-2,``OR`LCA.``	`````````CCC00146
*``````````````	``````````````````	``````````````````	``````````````````	``````````````````	`````````CCC00147
*```3.``SECOND`M	ESSAGE-``AFTER`E	NTERING`A`'1'`FO	R`THE`FIRST`MESS	AGE`A`SECOND`MES	SAGE````CCC00148
*````````WILL`NA	ME`A`DEVICE`WHOS	E`PROGRAMS`ARE`A	BOUT`TO`BE`DELET	ED.```````````````	`````````CCC00149
*````````IF`THIS	`DEVICE`IS`NOT`A	TTACHED`TO`YOUR`	SYSTEM`AND`IF`YO	U`WANT`ITS````````	`````````CCC00150
*````````PROGRAM	S`TO`BE`DELETED,`	`ENTER`A`'1'`AS`	DIRECTED`ON`THE`	PRINTER.```````````	`````````CCC00151
*````````THE`DEL	ETION`WILL`TAKE`	PLACE.``EACH`PRO	GRAM`DELETED`WIL	L`BE`PRINTED.````	`````````CCC00152

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
*ON THE	PRINT DEVICE.				CCC00153
*					CCC00154
*4. THIRD ME	SSAGE- A MESSAG	E SIMILAR TO THE	SECOND MESSAGE	WILL BE GIVEN	CCC00155
*FOR EAC	H DEVICE NOT DEL	ETED FROM YOUR S	YSTEM. WHEN ALL	DELETIONS HAVE	CCC00156
*BEEN MA	DE, A LIST OF RE	MAINING PROGRAMS	ON DISK WILL BE	PRINTED.	CCC00157
*THEN A	MESSAGE WILL INF	OPM YOU THAT A C	OMPRESS-$CMP- W	ILL BE DONE.	CCC00158
*FOLLOW	DIRECTIONS ON PR	INTER.			CCC00159
*					CCC00160
*6. PROGRAM	TERMINATES AT CO	NCLUSION OF COMP	RESS.		CCC00161
*					CCC00162
*					CCC00163
*___	PROBLEMS AN	D EXCEPTIONS	___		CCC00164
*					CCC00165
*1. IF ANYT	HING BUT A '1' E	NTERED DURING TH	E FIRST MESSAGE,	THE PROGRAM WILL	CCC00166
*TERMINA	TE.				CCC00167
*2. IF UDT	IS IN ERROR, DD6	MUST BE LOADED	BY C.E. IN ORDER	TO CHANGE THE	CCC00168
*UDT. D	O NOT FORGET TO	RE-IPL DCP AFTER	THE UDT IS CHAN	GED.	CCC00169
*3. IF A '1	IS NOT ENTERED	ON THE INDIVIDUA	L DEVICE MESSAGE	S, PROGRAMS FOR	CCC00170
*THAT DE	VICE WILL NOT BE	DELETED.			CCC00171
*4. IGNORE	THE FACT THAT SS	W 2F IS TURNED O	N.		CCC00172
*5. A BREIF	DELAY MAY BE EN	COUNTERED AT TIM	ES WHEN THE PRIN	TER CHAIN MOTOR	CCC00173
*IDLES D	OWN.				CCC00174

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
*6. SYSTEM	RESET AND START	WILL NOT WORK ON	THIS PROGRAM.		CCC00175
*					CCC00176
*					CCC00177
*		___ HALTS	___		CCC00178
* HALT	CODE	MEANING			CCC00179
* E1		ENTER A 1 IF THE	UDT IS CORRECT.	ANYTHIG ELSE WI	LL CCC00180
*		CAUSE THE PROGRA	M TO TERMINATE.		CCC00181
* E2		ENTER A 1 TO DEL	ETE THE PROGRAMS	FOR THE NAME	CCC00182
*		DEVICE, A 2 IF Y	OU DO NOT WANT T	HE DEVICE	CCC00183
*		PROGRAM'S DELETE	D.		CCC00184
* E3		PROGRAMS FOR NAM	ED DEVICE WERE N	OT DELETED.	CCC00185
* E4		NOTE THAT A COMP	RESS IS ABOUT TO	BEGIN.	CCC00186
**********	**********	**********	**********	**********	CCC00187
EHM-AE7M=-DCMPH$	=M7M&FI I C	F% ASC R A	SO Q	14460630750	826750YQCCC00188

LAST PAGE

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                            2 *
                            3         DECK  4
                            4         SEQ   0
                            5         TREP
                            6 *
   0000                     7 C1A     START 0
                            8 ********************************************************************
                            9 *                                                                  *
                           10 *                          SECTION PREFACE                         *
                           11 *                                                                  *
                           12 ********************************************************************
                           13 *
   0A00                    14         ORG   X'0A00'
                           15 *
0A00 C1A2          0A01    16 PID     DC    XL2'C1A2'      SECTION ID AND REVISION LEVEL     REH
0A02 00            0A02    17         DC    XL1'00'        SECTION FLAGS
0A03 01            0A03    18 RTN     DC    XL1'01'        CURRENT ROUTINE NUMBER            REH
0A04 0000          0A05    19         DC    XL2'0000'      RESERVED                          REH
0A06 0A3A          0A07    20 PFC     DC    AL2(RTNPFC)    ADDRESS OF FIRST ROUTINE PREFACE
0A08 FFFF          0A09    21         DC    XL2'FFFF'      RESERVED
                           22 *
0A0A C15000        0A0C    23 UDTO    DC    XL3'C15000'    3340 UDT
                           24 *
0A0D               0A18    25         DS    XL12           RESERVED
                           26 *
0A19 00            0A19    27 COM     DC    XL1'00'        3340 PROGRAM COMMUNICATION AREA
0A1A               0A1A    28         DS    XL1            RESERVED
                           29 *
0A1B               0A1C    30 LDRID   DS    AL2            MICROCODE LDR (C17) IN STG INDICATOR
0A1D               0A1E    31 AMOPID  DS    AL2            AMOP (C19) IN STG INDICATOR
0A1F               0A20    32 FAOID   DS    AL2            ATTACHMENT MICRO-CODE (FAO) IN STG
                           33 *
0A21               0A39    34 SVPFC   DS    XL25           SECTION PREFACE STORAGE AREA
                           35 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1051                       37         USING DRVWK,XR2        INDEX REG 2 POINTS TO DRV WORK AREA
                           38 ********************************************************************
                           39 *                                                                  *
                           40 *              3340 CONTROLLER INTERFACE SCOPE LOOP                *
                           41 *                                                                  *
                           42 ********************************************************************
                           43 *
0A3A 01                    44 RTNPFC  DC    XL1'01'        ROUTINE NUMBER
0A3B 00                    45         DC    XL1'00'        ROUTINE FLAGS
0A3C FFFF                  46         DC    XL2'FFFF'      ONLY ONE ROUTINE IN SECTION
                           47 *
0A3E 07 0A6B               48 RXX     B     BEGIN          PERFORM ROUTINE INITIALIZATION
0A42 0A55                  49         DC    AL2(RXXB)      'LOOP' SUBROUTINE RETURN ADDRESS
0A44 0A67                  50         DC    AL2(RXXC)      'NXDRV' SUBROUTINE RETURN ADDRESS
                           51 *
0A46 07 0B76               52 RXXA    B     RECAL          RECALIBRATE
0A4A 07 0C4D               53         B     RDSNS          DETERMINE DATA MODULE SIZE
                           54 *
0A4E 07 0B88               55         B     SEEK           SEEK (3340 PHYSICAL ADDRESS)
0A52 00                    56         DC    IL1'0'           HEAD 0
0A53 015D                  57         DC    IL2'349'         CYLINDER 349
                           58 *
0A55 07 0BFF               59 RXXB    B     RDHAE          READ HOME ADDR AND R0 COUNT EVEN
                           60 *
0A59 8C 02 13 0FE1         61         MVC   DL(3,XR2),P250
                           62 *
0A5E 07 0C2A               63         B     RDDGN          READ COUNT-KEY-DATA DIAGNOSTIC
0A62 01                    64         DC    IL1'1'           RECORD 1
                           65 *
0A63 07 0AED               66         B     NXDRV          REPEAT FOR EACH DRIVE BEING TESTED
                           67 *
0A67 07 0B1B               68 RXXC    B     LOOP           LOOP INDEFINITELY
                           69 *
```

C1A2 3340 CONTROLLER INTERFACE PROBE LOOP - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          71 ************************************************************************
                          72 *                                                                      *
                          73 *              INITIALIZATION AND LOOP CONTROL SUBROUTINES              *
                          74 *                                                                      *
                          75 ************************************************************************
                          76 *
                          77 *              ROUTINE INITIALIZATION
                          78 *
 0A6B 34 08 104E          79 BEGIN    ST    WORKN,ARR                 POINT TO SUBROUTINE
 0A6F 35 01 104E          80          L     WORKN,XR1                   CALL PARAMETERS
                          81 *
 0A73 1C 01 0841 01       82          MVC   LOOPX+3(2),1(,XR1)        SETUP 'LOOP' SUBROUTINE RETURN
 0A78 1C 01 0B1A 03       83          MVC   NXDRVX+3(2),3(,XR1)       SETUP 'NXDRV' SUBROUTINE RETURN
                          84 *
 0A7D D2 01 04            85          LA    4(,XR1),XR1               SETUP 'BEGIN'
 0A80 34 01 0AEC          86          ST    BGNX+3,XR1                  SUBROUTINE RETURN
                          87 *
 0A84 F3 C4 7E            88 BGN01    SIO   X'7E',X'C4'               RESET AND DISABLE 3340 INTRPS
                          89 *
 0A87 38 20 0A19          90          TBN   COM,MPLFLG                LOAD MICROCODE
 0A8B C0 90 0EBE          91          BF    MPL                         IF REQUIRED
                          92 *
 0A8F 31 C5 1026          93          LIO   CEMODE,X'C5'              SET CE MODE
 0A93 31 C5 101D          94          LIO   SVPREG,X'C5'                INDICATORS
                          95 *
 0A97 C0 87 021A          96          B     PRINT                     PRINT MESSAGE
 0A9B 46          0A9B    97          DC    XL1'46'                     'TEST IS LOOPING'
 0A9C 0F          0A9C    98          DC    AL1(MSG02N-MSG02+1)
 0A9D 0F97        0A9E    99          DC    AL2(MSG02N)
 0A9F C100        0AA0   100          DC    AL2(HLT00)
                         101 *
 0AA1 3C 00 1027         102          MVI   IND,0                     RESET PROGRAM INDICATORS
                         103 *
 0AA5 0C 01 1038 0FED    104          MVC   IDDCR(2),DDCR             INITIALIZE DDCR
 0AAB 0C 01 103A 0FEF    105          MVC   IDDDR(2),DDDR               AND DDDR VALUES
                         106 *
 0AB1 C2 01 102E         107 BGN02    LA    ADRTBL,XR1                POINT TO DRV WORK AREA ADDR TBL
                         108 *
 0AB5 C2 02 1051         109          LA    DRVWK1,XR2                STORE DRIVE 1
 0AB9 74 02 01           110          ST    1(,XR1),XR2                 WORK AREA ADDRESS IN TABLE
 0ABC D2 01 02           111          LA    2(,XR1),XR1                   AND ADVANCE TABLE POINTER
                         112 *
 0ABF BC 00 00           113          MVI   DIND(,XR2),0              RESET DRIVE DEPENDENT IND
                         114 *
 0AC2 C2 02 1066         115          LA    DRVWK2,XR2                STORE DRIVE 2
 0AC6 74 02 01           116          ST    1(,XR1),XR2                 WORK AREA ADDRESS IN TABLE
 0AC9 D2 01 02           117          LA    2(,XR1),XR1                   AND ADVANCE TABLE POINTER
                         118 *
 0ACC BC 00 00           119          MVI   DIND(,XR2),0              RESET DRIVE DEPENDENT IND
                         120 *
 0ACF 7C FF 00           121 BGN06    MVI   0(,XR1),X'FF'             MOVE TERMINATOR TO ADDR TABLE
                         122 *
 0AD2 C2 01 102E         123          LA    ADRTBL,XR1                POINT TO START OF ADDRESS TABLE
 0AD6 34 01 102D         124          ST    ADRPTR,XR1                INITIALIZE ADDRESS TABLE PTR
 0ADA 75 02 01           125          L     1(,XR1),XR2               FIRST DRIVE WK AREA ADDR TO XR2
                         126 *
 0ADD BA 40 00           127 BGN07    SBN   DIND(,XR2),LPSW           SET DRIVE LOOP INDICATOR
                         128 *
                         129 *
 0AE0 0C 01 104A 0FD3    130 BGN08    MVC   SNS(2),NULLS              CLEAR SENSE AREA
                         131 *
 0AE6 F3 C4 80           132          SIO   X'80',X'C4'               ENABLE 3340 INTERRUPTS
                         133 *
 0AE9 C0 87 0000         134 BGNX     B     *-*                       RETURN TO CALLING ROUTINE
                         135 *
                         136 *------------------------------------------------------------------------
                         137 *              REPEAT TEST ON NEXT DRIVE
                         138 *
```


C1A2 3340 CONTROLLER INTERFACE PROBE LOOP - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

 0AED F3 C4 7E           139 NXDRV    SIO   X'7E',X'C4'               RESET AND DISABLE 3340 INTRPS
                         140 *
 0AF0 35 01 102D         141 NXD01    L     ADRPTR,XR1                GET ADDRESS TABLE POINTER
                         142 *
 0AF4 7D FF 02           143          CLI   2(,XR1),X'FF'             BRANCH IF ALL DRIVES
 0AF7 F2 81 0E           144          JE    NXD02                       HAVE BEEN TESTED
                         145 *
 0AFA 75 02 03           146          L     3(,XR1),XR2               POINT TO NEXT DRV WORK AREA
                         147 *
 0AFD D2 01 02           148          LA    2(,XR1),XR1               ADVANCE ADDRESS
 0B00 34 01 102D         149          ST    ADRPTR,XR1                  TABLE POINTER
                         150 *
 0B04 C0 87 0B1B         151          B     LOOP                      GO TO TEST NEXT DRIVE
                         152 *
 0B08 C2 01 102E         153 NXD02    LA    ADRTBL,XR1                RE-INITIALIZE
 0B0C 34 01 102D         154          ST    ADRPTR,XR1                  ADDRESS TABLE POINTER AND
 0B10 75 02 01           155          L     1(,XR1),XR2                   POINT TO FIRST DRIVE AREA
                         156 *
 0B13 C0 87 0212         157          B     TEST                      CHECK FOR USER INTERVENTION
                         158 *
 0B17 C0 87 0000         159 NXDRVX   B     *-*                       RETURN TO CALLING ROUTINE
                         160 *
                         161 *------------------------------------------------------------------------
                         162 *              SETUP TEST LOOP ADDRESS
                         163 *
 0B1B 0C 01 1038 0FED    164 LOOP     MVC   IDDCR(2),DDCR             RE-INITIALIZE
 0B21 0C 01 103A 0FEF    165          MVC   IDDDR(2),DDDR               DDCR AND DDDR VALUES
                         166 *
 0B27 3B 26 1027         167          SBF   IND,OPEND+SKEND+INTERR      RESET INTERRUPT AND ERR IND
                         168 *
 0B2B 0C 01 104A 0FD3    169          MVC   SNS(2),NULLS              CLEAR SENSE AREA
                         170 *
 0B31 F3 C4 80           171          SIO   X'80',X'C4'               ENABLE 3340 INTERRUPTS
                         172 *
 0B34 B8 40 00           173          TBN   DIND(,XR2),LPSW           TEST DRIVE LOOP INDICATOR
 0B37 BA 40 00           174          SBN   DIND(,XR2),LPSW           RESET INDICATOR
 0B3A C0 90 0AE9         175          BF    BGNX                      BRANCH IF IND WAS OFF
                         176 *
 0B3E C0 87 0000         177 LOOPX    B     *-*                       RETURN TO CALLING ROUTINE
                         178 *
                         179 *------------------------------------------------------------------------
                         180 *              ERROR RETRY PROCEDURE
                         181 *
 0B42 F3 C4 7E           182 RETRY    SIO   X'7E',X'C4'               RESET AND DISABLE 3340 INTRPS
                         183 *
 0B45 3D 08 107B         184          CLI   DGSNS,X'08'               SKIP IF
 0B49 F2 81 03           185          JE    RETRY1                      DATA CHECK
                         186 *
 0B4C BB C0 00           187          SBF   DIND(,XR2),LPSW+CEDM      RESET DRIVE INDICATORS
                         188 *
 0B4F 39 05 104A         189 RETRY1   TBF   SNS,BIT5+BIT7             FORCE ATTACHMENT SYSTEM RESET
 0B53 C0 90 0F03         190          BF    SYSRST                      IF ADAPTER CK OR DM ATTENTION
                         191 *
 0B57 38 01 104A         192          TBN   SNS,BIT7                  GO TO TRY NEXT DRIVE IF
 0B5B C0 90 0AED         193          BF    NXDRV                       MICRO-PROCESSOR RE-STARTED
                         194 *
 0B5F C0 87 021A         195          B     PRINT                     PRINT
 0B63 06          0B63   196          DC    XL1'06'                     TERMINATION MESSAGE
 0B64 32          0B64   197          DC    AL1(MSG06N-MSG06+1)
 0B65 0FC9        0B66   198          DC    AL2(MSG06N)
                         199 *
 0B67 3B 20 0A19         200          SBF   COM,MPLFLG                RESET MICRO-PROGRAM LOADED IND
                         201 *
 0B6B C0 87 0222         202          B     HALT                      ERROR HALT 01
 0B6F C101        0B70   203          DC    AL2(HLT01)
                         204 *
 0B71 C0 87 022A         205          B     LOAD                      TERMINATE SECTION
 0B75 40          0B75   206          DC    XL1'40'
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                          207 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                          209 ********************************************************************************
                          210 *                                                                              *
                          211 *              3340 COMMAND EXECUTION SUBROUTINES                              *
                          212 *                                                                              *
                          213 ********************************************************************************
                          214 *
                          215 *              RECALIBRATE COMMAND
                          216 *
  0B76 34 08 0BFE         217 RECAL    ST     SEEKX+3,ARR             SAVE RETURN ADDRESS
                          218 *
  0B7A BC 00 05           219          MVI    Q(,XR2),X'00'           SETUP Q AND R
  0B7D BC 01 06           220          MVI    R(,XR2),X'01'             BYTES FOR SIO COMMAND
                          221 *
  0B80 8C 09 14 0FD3      222          MVC    NN(10,XR2),NULLS        CLEAR DDCF AREA
                          223 *
  0B85 F2 87 6B           224          J      SEEKA                   GO TO EXECUTE COMMAND
                          225 *
                          226 *-------------------------------------------------------------------------------
                          227 *              SEEK COMMAND
                          228 *
  0B88 34 08 104E         229 SEEK     ST     WORKN,ARR               SETUP POINTER TO
  0B8C 35 01 104E         230          L      WORKN,XR1                 SUBRTN CALL PARAMETERS
                          231 *
  0B90 1C 02 104E 02      232          MVC    WORK+3,2(3,XR1)         MOVE PARAMETERS TO WORK AREA
                          233 *
  0B95 3C 0B 104B         234          MVI    WORK,11                 SETUP MULTIPLIER FOR 12 HEADS
                          235 *
  0B99 B8 80 00           236          TBN    DIND(,XR2),CEDM         BRANCH IF NOT
  0B9C F2 90 0B           237          JF     SK01                      CE DATA MODULE
                          238 *
  0B9F 3C 01 104B         239          MVI    WORK,1                  SETUP MULTIPLIER FOR 2 HEADS
                          240 *
  0BA3 7D 01 00           241          CLI    0(,XR1),1               BYPASS TEST IF HEAD
  0BA6 C0 84 0AED         242          BH     NXDRV                     ADDRESS IS GREATER THAN 1
                          243 *
  0BAA BC 00 05           244 SK01     MVI    Q(,XR2),X'00'           SETUP Q AND R
  0BAD BC 00 06           245          MVI    R(,XR2),X'00'             BYTES FOR SIO COMMAND
                          246 *
  0BB0 8C 09 14 0FD3      247          MVC    NN(10,XR2),NULLS        CLEAR DDCF AREA
                          248 *
  0BB5 1E 01 104E 02      249 SK02     ALC    WORK+3,2(2,XR1)         MULTIPLY PHYSICAL
  0BBA 0F 00 104B 0FDB    250          SLC    WORK(1),P1                CYLINDER ADDRESS
  0BC0 C0 01 0BB5         251          BNZ    SK02                        BY NUMBER OF HEADS
                          252 *
  0BC4 0E 01 104E 104C    253          ALC    WORK+3(2),WORK+1        ADD HEAD ADDRESS
                          254 *
  0BCA D2 01 03           255          LA     3(,XR1),XR1             SETUP
  0BCD 34 01 0BFE         256          ST     SEEKX+3,XR1               RETURN ADDRESS
                          257 *
  0BD1 C2 01 0000         258          LA     0,XR1                   DIVIDE BY 20
  0BD5 0D 01 104E 0FDD    259 SK03     CLC    WORK+3(2),P20             TO GET CYLINDER
  0BDB F2 82 0D           260          JL     SK04                        SEEK ARGUMENT IN
  0BDE D2 01 01           261          LA     1(,XR1),XR1                   INDEX REGISTER 1 AND
  0BE1 0F 01 104E 0FDD    262          SLC    WORK+3(2),P20                   HEAD SEEK ARGUMENT
  0BE7 C0 87 0BD5         263          B      SK03                              IN WORK AREA
                          264 *
  0BEB B4 01 0D           265 SK04     ST     CC(,XR2),XR1            STORE SEEK
  0BEE 8C 01 0F 104E      266          MVC    HH(,XR2),WORK+3(2)        ARGUMENT IN DDCF
                          267 *
  0BF3 C0 87 0C6C         268 SEEKA    B      XEQ                     GO TO EXECUTE COMMAND
                          269 *
  0BF7 AC 03 0A 0F        270          MVC    PA(4,XR2),HH(,XR2)      SAVE CURRENT PHYSICAL ADDRESS
                          271 *
  0BFB C0 87 0000         272 SEEKX    B      *-*                     RETURN TO CALLING ROUTINE
                          273 *
                          274 *-------------------------------------------------------------------------------
                          275 *              READ HOME ADDRESS AND RECORD ZERO COUNT EVEN
                          276 *
```

C1A2 3340 CONTROLLER INTERFACE PROBE LOOP - MOD 12

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

    0BFF 34 08 0C29              277 RDHAE     ST    RDHADX+3,ARR           SAVE RETURN ADDRESS
                                 278 *
    0C03 BC 01 05                279           MVI   Q(,XR2),X'01'          SETUP Q AND R
    0C06 BC 01 06                280           MVI   R(,XR2),X'01'            BYTES FOR SIO COMMAND
                                 281 *
    0C09 9C 09 14 0FD3           282 RDHADA    MVC   NN(10,XR2),NULLS       CLEAR DDCF AREA
                                 283 *
    0C0E C0 87 0C6C              284           B     XEQ                    GO TO EXECUTE COMMAND
                                 285 *
    0C12 35 01 1038              286           L     IDDCR,XR1              GO TO RETRY
    0C16 6D 03 04 0A             287           CLC   4(4,XR1),PA(,XR2)        IF HOME ADDR
    0C1A C0 01 0B42              288           BNE   RETRY                      IS INCORRECT
                                 289 *
    0C1E 35 01 103A              290           L     IDDOR,XR1              SAVE RESIDUAL DDDF
    0C22 9C 08 13 08             291           MVC   DE(9,XR2),8(,XR1)        FOR USE IN NEXT LOOP
                                 292 *
    0C26 C0 87 0000              293 RDHADX    B     *-*                    RETURN TO CALLING ROUTINE
                                 294 *
                                 295 *----------------------------------------------------------------------
                                 296 *                   READ COUNT-KEY-DATA DIAGNOSTIC
                                 297 *
    0C2A 34 08 0C40              298 RDDGN     ST    RDDGNX+3,ARR           SAVE RETURN ADDRESS
                                 299 *
    0C2E BC 01 05                300           MVI   Q(,XR2),X'01'          SETUP Q AND R
    0C31 BC 04 06                301           MVI   R(,XR2),X'04'            BYTES FOR SIO COMMAND
                                 302 *
    0C34 8C 00 14                303           MVI   NN(,XR2),0             CLEAR NN FIELD
                                 304 *
    0C37 35 01 0C40              305           L     RDDGNX+3,XR1           MOVE RECORD
    0C3B 9C 00 10 00             306           MVC   RR(1,XR2),0(,XR1)        NUMBER TO [illegible]
                                 307 *
    0C3F C0 87 0C6C              308           B     XEQ                    GO TO EXECUTE [illegible]
                                 309 *
    0C43 0E 01 0C40 0F0B         310           ALC   RDDGNX+3(2),P1         SETUP RETURN ADDRESS
                                 311 *
    0C49 C0 87 0000              312 RDDGNX    B     *-*                    RETURN TO CALLING ROUTINE
                                 313 *
                                 314 *----------------------------------------------------------------------
                                 315 *                   READ DIAGNOSTIC SENSE DATA
                                 316 *
    0C4D 34 08 0C6B              317 RDSNS     ST    RDSNSX+3,ARR           SAVE RETURN ADDRESS
                                 318 *
    0C51 BC 01 05                319           MVI   Q(,XR2),X'01'          SETUP Q AND R
    0C54 BC 07 06                320           MVI   R(,XR2),X'07'            BYTES FOR SIO COMMAND
                                 321 *
    0C57 C0 87 0C6C              322           B     XEQ                    GO TO EXECUTE COMMAND
                                 323 *
    0C5B 35 01 103A              324           L     IDDOR,XR1              SET INDICATOR
    0C5F 79 02 02                325           TBF   2(,XR1),BIT6             IF SENSE DATA
    0C62 F2 90 03                326           JF    RDSNSX                     INDICATES THAT A CE
    0C65 8A 80 00                327           SBN   DIND(,XR2),CEDM              DATA MODULE IS MOUNTED
                                 328 *
    0C68 C0 87 0000              329 RDSNSX    B     *-*                    RETURN TO CALLING ROUTINE
                                 330 *
```


C1A2 3340 CONTROLLER INTERFACE PROBE LOOP - MOD 12

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

                                 332 ***********************************************************************
                                 333 *                                                                     *
                                 334 *               COMMON 3340 COMMAND EXECUTION SUBROUTINE              *
                                 335 *                                                                     *
                                 336 ***********************************************************************
                                 337 *
    0C6C 34 08 0D46              338 XEQ       ST    XEQX+3,ARR             SAVE RETURN ADDRESS
                                 339 *
    0C70 2C 01 0D06 05           340           MVC   SIO+2,R(2,XR2)         MOVE Q AND R BYTES TO SIO
    0C75 2E 00 0D05 01           341           ALC   SIO+1,DRVADR(1,XR2)    ADD DRIVE ADDRESS TO Q BYTE
                                 342 *
    0C7A 2C 00 0CF9 01           343           MVC   TIORDY+1(1),DRVADR(,XR2) SETUP Q BYTE IN TIO
                                 344 *
    0C7F 2C 09 104A 14           345           MVC   IDDCFN,NN(10,XR2)      SAVE INITIAL DDCF
                                 346 *
    0C84 35 01 1038              347           L     IDDCR,XR1              MOVE DDCF
    0C88 6C 09 09 14             348           MVC   9(10,XR1),NN(,XR2)       TO EXECUTION [illegible]
                                 349 *
    0C8D 0C 07 1007 0F03         350           MVC   DGSNS+7(8),NULLS       CLEAR READ SENSE AREA
    0C92 C0 87 0D47              351           B     INTSNS                 ANY INTERRUPTS ?
                                 352 *
    0C96 38 20 1027              353           TBN   IND,INTERR             GO TO ERROR PROCESSING
    0C9A C0 10 0D68              354           BT    ERRXX                    IF UNEXPECTED 3340 INTERRUPT
                                 355 *
    0C9E C1 02 0B42              356 TIO       TIO   RETRY,X'02'            ERR IF ATTACHMENT BUSY
                                 357 *
    0CA2 C0 87 0E6A              358           B     BSYTST                 SKIP THE LIO
    0CA6 C0 87 0CAA              359           B     LIOXX1                   IF HUNG IN BUSY
                                 360 *
    0CAA 31 C6 1038              361 LIO       LIO   IDDCR,X'C6'            LOAD DDCF ADDRESS IN DDCR
                                 362 *
    0CAE 38 80 1027              363 LIOXX1    TBN   IND,TMOUT              ERROR END IF
    0CB2 C0 10 0B42              364           BT    RETRY                    LIO HANGS IN REJECTION LOOP
                                 365 *
    0CB6 C0 87 0E6A              366           B     BSYTST                 SKIP LIO IF
    0CBA C0 87 0CC2              367           B     LIOXX2                   HUNG IN BUSY
    0CBE 31 C4 103A              368           LIO   IDDOR,X'C4'            LOAD DDDF ADDRESS IN DDOR
                                 369 *
    0CC2 38 80 1027              370 LIOXX2    TBN   IND,TMOUT              ERROR END IF
    0CC6 C0 10 0B42              371           BT    RETRY                    LIO HANGS IN REJECTION LOOP
                                 372 *
    0CCA 30 C6 103C              373           SNS   RDDCR,X'C6'            SENSE DDCR
    0CCE 30 C4 103E              374           SNS   RDDOR,X'C4'            SENSE DDOR
                                 375 *
    0CD2 0D 01 103A 103E         376           CLC   IDDOR(2),RDDOR         ERROR END IF
    0CD8 C0 01 0B42              377           BNE   RETRY                    DDCR INCORRECT
                                 378 *
    0CDC 0D 01 103A 103E         379           CLC   IDDOR(2),RDDOR         ERROR END IF
    0CE2 C0 01 0B42              380           BNE   RETRY                    DDOR INCORRECT
                                 381 *
    0CE6 3A 04 1027              382           SBN   IND,OPENO              SET OP END EXPECTED INDICATOR
                                 383 *
    0CEA BD 00 05                384           CLI   Q(,XR2),0              BRANCH IF NOT
    0CED F2 01 08                385           JNE   TIORDY                   RECAL OR SEEK COMMAND
                                 386 *
    0CF0 3B 04 1027              387           SBF   IND,OPEND              RESET OP END EXPECTED INDICATOR
    0CF4 3A 02 1027              388           SBN   IND,SKEND              SET SEEK COMPLETE EXP INDICATOR
                                 389 *
    0CF8 C1 00 0D6B              390 TIORDY    TIO   ERRXX,*-*              ERROR END IF DRIVE NOT READY
                                 391 *
    0CFC C0 87 0E6A              392           B     BSYTST                 SKIP THE SIO IF
    0D00 C0 87 0D07              393           B     XEQ02                    HUNG IN BUSY
    0D04 F3 00 00                394 SIO       SIO   *-*,*-*                ISSUE 3340 START I/O COMMAND
                                 395 *
    0D07 38 80 1027              396 XEQ02     TBN   IND,TMOUT              ERROR END IF SIO
    0D0B C0 10 0B42              397           BT    RETRY                    HUNG IN REJECTION LOOP
                                 398 *
    0D0F C0 87 0E6A              399           B     BSYTST                   SKIP THE TIO IF
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          400          B     XEQ03                HUNG IN BUSY
 0013 C0 87 0D23          401          TIO   *,X'C2'              LOOP ON ATTACHMENT BUSY
 0017 C1 C2 0D17          402 *
                          403          TBN   IND,TMOUT            ERROR END IF ATTACHMENT
 0018 38 80 1027          404          BT    RETRY                  BUSY FAILS TO GO OFF
 001F C0 10 0B42          405 *
                          406 XEQ03    TBN   IND,TMOUT            ERROR END IF EXPECTED
 0023 38 80 1027          407          BT    RETRY                  INTERRUPTS FAIL TO OCCUR
 0027 C0 10 0B42          408 *
                          409          B     INTSNS               ANY INTERRUPTS ?
 0028 C0 87 0D47          410          TBF   IND,OPEND+SKEND      BRANCH IF
 002F 39 06 1027          411          BF    XEQ03                  INTERRUPT STILL EXPECTED
 0033 C0 90 0D23          412 *
                          413          B     INTSNS               ANY INTERRUPTS ?
 0037 C0 87 0D47          414          TBN   IND,INTERR           BRANCH IF ERROR
 0038 38 20 1027          415          BT    ERRXX                  DETECTED IN INTERRUPT RTN
 003F C0 10 0D6B          416 *
                          417 *
                          418 XEQX     B     *-*                  RETURN TO CALLING ROUTINE
 0043 C0 87 0000          419 *
                          420 *-------------------------------------------------------------
                          421 INTSNS   ST    DASDIN+3,ARR         SAVE RTN ADDR IN INT SUBR
 0047 34 08 0E69          422          ST    DASD5A+3,ARR                 "
 004B 34 08 0E5A          423          ST    INTXXX+3,ARR         SAVE RETURN ADDRESSS
 004F 34 08 0D6A          424          SNS   SNSINT,X'C5'         BR TO
 0053 30 C5 1094          425          TBF   SNSINT,X'15'           DASDI
 0057 39 15 1094          426          BF    DASDI                  IF THERE ARE
 005B C0 90 0DEB          427          TBF   SNSINT-1,X'0F'           ANY INTERRUPTS
 005F 39 0F 1093          428          BF    DASDI
 0063 C0 90 0DEB          429 INTXXX   B     *-*                  RETURN
 0067 C0 87 0000
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

 0D6B F3 C4 02
 0D6E 38 20 1027
 0D72 F2 10 0D
 0D75 0D 01 104A 0FD3
 0D7B F2 01 04
 0D7E 30 C5 104A
 0D82 38 01 104A
 0D86 C0 10 0B42
 0D8A 0C 00 0D91 0CF9
 0D90 C1 00 0DA1
 0D94 2C 00 0D9A 03
 0D99 39 00 1049
 0D9D C0 10 0B42
 0DA1 2C 00 0DD9 01
 0DA6 3A 01 0DD9
 0DAA C1 C2 0B42
 0DAE C0 87 0E6A
 0DB2 C0 87 0DBA
 0DB6 31 C4 0FEB
 0DBA 30 C4 104E
 0DBE 0D 01 104E 0FEB
 0DC4 C0 01 0B42
 0DC8 38 80 1027
 0DCC C0 10 0B42
 0DD0 C0 87 0E6A
 0DD4 C0 87 0DDB
 0DD8 F3 00 07
 0DDB 38 80 1027
 0DDF C0 10 0B42
 0DE3 C1 C2 0DE3
 0DE7 C0 87 0B42

                          431 ***************************************************************
                          432 *                                                             *
                          433 *                  COMPLETE ERROR PROCESSING                  *
                          434 *                                                             *
                          435 ***************************************************************
                          436 *
                          437 ERRXX    SIO   X'02',X'C4'          DISABLE 3340 INTERRUPTS
                          438 *
                          439          TBN   IND,INTERR           BRANCH IF INTERRUPT
                          440          JT    ERRXXA                 DETECTED ERROR CONDITION
                          441 *
                          442          CLC   SNS(2),NULLS         BRANCH IF SENSE BYTES
                          443          JNE   ERRXXA                 HAVE ALREADY BEEN RETRIEVED
                          444 *
                          445          SNS   SNS,X'C5'            SENSE ADAPTER STATUS
                          446 *
                          447 ERRXXA   TBN   SNS,BIT7              BRANCH IF
                          448          BT    RETRY                  ADAPTER CHECK
                          449 *
                          450          MVC   *+7(1),TIORDY+1      GO TO READ DIAGNOSTIC
                          451          TIO   ERRXXB,*-*             SENSE DATA IF DRV NOT READY
                          452 *
                          453          MVC   *+6,UCKMSK(1,XR2)    BYPASS READ
                          454          TBF   SNS-1,*-*              DIAGNOSTIC SENSE
                          455          BT    RETRY                    IF NO UNIT CHECK
                          456 *
                          457 ERRXXB   MVC   SIOSNS+1,DRVADR(1,XR2) BUILD READ
                          458          SBN   SIOSNS+1,BIT7          DIAGNOSTIC SENSE COMMAND
                          459 *
                          460          TIO   RETRY,X'C2'          BRANCH IF ATTACHMENT BUSY
                          461 *
                          462          B     BSYTST               SKIP THE LIO IF
                          463          B     ERRXXC                 HUNG IN BUSY
                          464 *
                          465          LIO   DGSNS@,X'C4'         LOAD DDDR TO SENSE AREA ADDR
                          466 *
                          467 ERRXXC   SNS   WORKN,X'C4'           BYPASS READ
                          468          CLC   WORKN(2),DGSNS@        DIAGNOSTIC SENSE
                          469          BNE   RETRY                    IF INCORRECT DDDR LOAD
                          470 *
                          471          TBN   IND,TMOUT            BYPASS READ DIAGNOSTIC
                          472          BT    RETRY                  SENSE IF LIO IS REJECTED
                          473          B     BSYTST                 SKIP THE SIO IF
                          474          B     ERRXXD                   HUNG IN BUSY
                          475 *
                          476 SIOSNS   SIO   X'07',*-*              READ DIAGNOSTIC SENSE DATA
                          477 *
                          478 ERRXXD   TBN   IND,TMOUT            BRANCH IF SIO
                          479          BT    RETRY                  WAS REJECTED
                          480 *
                          481          TIO   *,X'C2'              LOOP ON ATTACHMENT BUSY
                          482 *
                          483          B     RETRY                GO TO ATTEMPT RECOVERY
                          484 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          486 ********************************************************************************
                          487 *                                                                              *
                          488 *                  3340 DEVICE END INTERRUPT SUBROUTINE                        *
                          489 *                                                                              *
                          490 ********************************************************************************
                          491 *
 0DEB 34 04 102B          492 DASDI    ST    L5PSR,PSR              SAVE PROGRAM STATUS REG
 0DEF 34 02 1029          493          ST    L5XR2,XR2              SAVE INDEX REGISTER 2
                          494 *
 0DF3 35 04 0FD3          495          L     NULLS,PSR              ZERO THE PSR
                          496 *
 0DF7 30 C5 104A          497          SNS   SNS,X'C5'              SENSE ADAPTER STATUS
                          498 *
 0DFB 38 01 104A          499          TBN   SNS,BIT7               BRANCH IF
 0DFF F2 10 46            500          JT    DASD04                   ADAPTER CHECK
                          501 *
 0E02 35 02 102D          502          L     ADRPTR,XR2             SETUP POINTER TO
 0E06 B5 02 01            503          L     1(,XR2),,XR2             DRIVE DEPENDENT WORK AREA
                          504 *
 0E09 38 10 104A          505          TBN   SNS,BIT3               BRANCH IF
 0E0D 38 04 1027          506          TBN   IND,DPEND                EXPECTED OP END
 0E11 F2 10 1C            507          JT    DASD01                     INTERRUPT OCCURRED
                          508 *
 0E14 2C 00 0E1A 02       509          MVC   **6,SKMSK(1,XR2)       GET SK INTRP MASK FROM DRV AREA
 0E19 38 00 1049          510          TBN   SNS-1,*-*              BRANCH IF
 0E1D 38 02 1027          511          TBN   IND,SKEND                INTERRUPT IS
 0E21 F2 50 24            512          JF    DASD04                     NOT EXPECTED
                          513 *
 0E24 2C 00 0E65 04       514          MVC   DASDIX+2,SKRST(1,XR2)  PREPARE TO RESET SEEK INTERRUPT
 0E29 38 02 1027          515          SBF   IND,SKEND              RESET SEEK INTRP EXPECTED IND
 0E2D F2 87 08            516          J     DASD02                 GO TO TEST FOR UNIT CHECK
                          517 *
 0E30 3C 04 0E65          518 DASD01   MVI   DASDIX+2,X'04'         PREPARE TO RESET OP END INTRP
 0E34 3B 04 1027          519          SBF   IND,OPEND              RESET OP END EXPECTED INDICATOR
                          520 *
 0E38 2C 00 0E3E 03       521 DASD02   MVC   **6,UCKMSK(1,XR2)      GET UNIT CK MASK FROM DRV AREA
 0E3D 39 00 1049          522          TBF   SNS-1,*-*              BRANCH IF NO
 0E41 39 08 104A          523          TBF   SNS,BIT4                 UNIT CHECK OR
 0E45 F2 10 13            524          JT    DASD06                     NO-OP STATUS
                          525 *
 0E48 3A 20 1027          526 DASD04   SBN   IND,INTERR              SET ANY ERROR INDICATOR
                          527 *
 0E4C 35 02 1029          528          L     L5XR2,XR2              RESTORE INDEX REGISTER 2
 0E50 35 04 102B          529          L     L5PSR,PSR              RESTORE PROGRAM STATUS REG
                          530 *
 0E54 F3 C4 7E            531 DASD05   SIO   X'7E',X'C4'            RESET AND DISABLE INTERRUPTS
 0E57 C0 87 0000          532 DASD5A   B     *-*                  IGNORE  FURTHER INT'S & RETURN
                          533 *
 0E5B 35 02 1029          534 DASD06   L     L5XR2,XR2              RESTORE INDEX REGISTER 2
 0E5F 35 04 102B          535          L     L5PSR,PSR              RESTORE PROGRAM STATUS REG
                          536 *
 0E63 F3 C4 00            537 DASDIX   SIO   *-*,X'C4'              RESET INTERRUPT AND EXIT
                          538 *
 0E66 C0 87 0000          539 DASDIN   B     *-*                    RETURN
                          540 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

 0E6A 34 08 0E9B
 0E6E 0E 01 0E9B 0FD9
 0E74 34 08 0EBD
 0E78 0C 00 1050 0FD4
 0E7E 0C 00 104F 0FD4
 0E84 3B 80 1027

 0E88 C1 C1 0E9C

 0E8C C1 C2 0E9C
 0E90 C1 C9 0E9C

 0E94 C1 C8 0E9C

 0E98 C0 87 0000

 0E9C 0E 00 1050 0FD7
 0EA2 C0 20 0EB4
 0EA6 0E 00 104F 0FD7
 0EAC 00 00 104F 0FD6
 0EB2 C0 01 0EB4
 0EB6 3A 80 1027
 0EBA C0 87 0000

                          542 ********************************************************************************
                          543 *                                                                              *
                          544 *                ATTACHMENT HUNG BUSY ? SUBROUTINE                             *
                          545 *                                                                              *
                          546 ********************************************************************************
                          547 *
 0E6A 34 08 0E9B          548 BSYTST   ST    BUSYN1+3,ARR           RTN ADDR IF NOT HUNG BUSY
 0E6E 0E 01 0E9B 0FD9     549          ALC   BUSYN1+3(2),FOUR                                    REH
 0E74 34 08 0EBD          550          ST    BUSYN2+3,ARR             "   "    HUNG BUSY
 0E78 0C 00 1050 0FD4     551          MVC   CNTR(1),ZERO               ZERO LOOP BUSY CNTR
 0E7E 0C 00 104F 0FD4     552          MVC   CNTR-1(1),ZERO                   "
 0E84 3B 80 1027          553 BUSY     SBF   IND,TMOUT              RESET TIMEOUT INDICATOR
                          554 *
 0E88 C1 C1 0E9C          555          TIO   BUSYO1,X'C1'           TEST SEEK INCOMPLETE
                          556 *                                       AND
 0E8C C1 C2 0E9C          557          TIO   BUSYO1,X'C2'             ATT BUSY
 0E90 C1 C9 0E9C          558          TIO   BUSYO1,X'C9'               ON
                          559 *                                           BOTH
 0E94 C1 C8 0E9C          560          TIO   BUSYO1,X'C8'                  DRIVES
                          561 *
 0E98 C0 87 0000          562 BUSYN1   B     *-*                  RETURN TO CALLING ROUTINE
                          563 *
 0E9C 0E 00 1050 0FD7     564 BUSYO1   ALC   CNTR(1),ONE            CHECK FOR
 0EA2 C0 20 0EB4          565          BNOL  BUSY                     FOR
 0EA6 0E 00 104F 0FD7     566          ALC   CNTR-1(1),ONE              BUSY
 0EAC 00 00 104F 0FD6     567          CLC   CNTR-1(1),LPCNT              UP TO
 0EB2 C0 01 0EB4          568          BNE   BUSY                           FF00 TIMES
 0EB6 3A 80 1027          569          SBN   IND,TMOUT              SET TIMEOUT INDICATOR
 0EBA C0 87 0000          570 BUSYND   B     *-*                  RTN ADDR IF HUNG BUSY
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          572 ************************************************************************
                          573 *                                                                      *
                          574 *         INTERFACE TO MICROCODE LOADER PROGRAM (SECTION C17)          *
                          575 *                                                                      *
                          576 ************************************************************************
                          577 *
                          578 MPL       ST     MPLX+3,ARR          SAVE RETURN ADDRESS
                          579           ST     MPLX1+3,XR1         SAVE INDEX REGISTER 1
                          580           ST     MPLX2+3,XR2         SAVE INDEX REGISTER 2
                          581 *
0EBE 34 08 0F02           582           CLC    LDRID(2),C17        GO TO LOAD LOADER
0EC2 34 01 0EFA           583           JNE    LDRLD                 IF NOT ALREADY IN STG
0EC6 34 02 0EFE           584 *
                          585           CLC    LDR+1(2),C17        BRANCH IF SECTION C17
0ECA 0D 01 0A1C 0EF2      586           JE     LDRGO                 IS ALREADY IN MAIN STORAGE
0ED0 F2 01 09             587 *
0ED3 0D 01 6C01 0EF2      58  LDRLD     B      PRINT               PRINT MESSAGE
0ED9 F2 81 17             589           DC     XL1'46'               LOADING SECTION C17
0EDC C0 87 021A           590           DC     AL1(MSG01N-MSG01+1)
0EE0 46           0EE0    591           DC     AL2(MSG01N)
0EE1 13           0EE1    592           DC     AL2(HLT00)
0EE2 0F88         0EE3    593 *
0EE4 C100         0EE5    594           MVC    SVPFC(25),COM-1     SAVE SECTION PREFACE
0EE6 0C 18 0A39 0A18      595 *
0EEC C0 87 022A           596           B      LOAD                LOAD SECTION C17
0EF0 04           0EF0    597           DC     XL1'04'
0EF1 0C17         0EF2    598 C17       DC     XL2'0C17'
                          599 *
0EF3 C0 87 6C02           600 LDRGO     B      LDR+2               GO TO SECTION C17
                          601 *
0EF7 C2 01 0000           602 MPLX1     LA     *-*,XR1             RESTORE
0EFB C2 02 0000           603 MPLX2     LA     *-*,XR2               INDEX REGISTERS
                          604 *
0EFF C0 87 0000           605 MPLX      B      *-*                 RETURN TO CALLING ROUTINE
                          606 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          608 ************************************************************************
                          609 *                                                                      *
                          610 *          3340 ATTACHMENT SYSTEM RESET SUBROUTINE                     *
                          611 *                                                                      *
                          612 ************************************************************************
                          613 *
0F03 34 08 0F75           614 SYSRST    ST     RSTX+3,ARR          SAVE RETURN ADDRESS
0F07 34 01 0F6D           615           ST     RSTX1+3,XR1         SAVE INDEX REGISTER 1
0F0B 34 02 0F71           616           ST     RSTX2+3,XR2         SAVE INDEX REGISTER 2
                          617 *
0F0F C2 01 0FF0           618           LA     SVPSEQ,XR1          POINT TO SVP CONTROL STRING
                          619 *
0F13 3C 00 1020           620           MVI    K,0                 PRESERVE MICRO-
0F17 38 80 0A19           621           TBN    COM,ADRSTP            PROCESSOR ADDRESS STOP
0F1B F2 90 04             622           JF     RSTLP                   SETUP DURING EXECUTION
0F1E 3C 04 1020           623           MVI    K,X'04'                   OF AMOP (SECTION C19)
                          624 *
0F22 1C 01 104E 01        625 RSTLP     MVC    WORKN(2),1(,XR1)    EXECUTE
0F27 31 C5 104E           626           LIO    WORKN,X'C5'           SIMULATED SYSTEM
0F2B D2 01 02             627           LA     2(,XR1),XR1             RESET SVP INTERFACE
0F2E 7D FF 00             628           CLI    0(,XR1),X'FF'             CONTROL SEQUENCE
0F31 C0 01 0F22           629           BNE    RSTLP
                          630 *
0F35 0C 01 104E 0FDB      631           MVC    WORKN(2),P1         SETUP TIMER COUNT
                          632 *
0F3B 30 C5 104A           633 SNSLP     SNS    SNS,X'C5'           LOOP UNTIL
0F3F 38 01 104A           634           TBN    SNS,BIT7              MICRO-PROCESSOR
0F43 F2 90 0A             635           JF     DELAY                   STARTS OR COUNTER
0F46 0E 01 104E 0FDB      636           ALC    WORKN(2),P1               OVERFLOWS
0F4C C0 20 0F3B           637           BNOL   SNSLP
                          638 *
0F50 C2 01 E5F6           639 DELAY     LA     -6666,XR1           DELAY
0F54 36 01 0FDB           640 DLYLP     A      P1,XR1                100 MSEC
0F58 C0 20 0F54           641           BNOL   DLYLP
                          642 *
0F5C 31 C5 1026           643           LIO    CEMODE,X'C5'        SET CE MODE
0F60 31 C5 101D           644           LIO    SVPREQ,X'C5'          INDICATORS
                          645 *
0F64 0D FF 0F64 0F64      646           CLC    *(256),*            800 USEC DELAY
                          647 *
0F6A C2 01 0000           648 RSTX1     LA     *-*,XR1             RESTORE
0F6E C2 02 0000           649 RSTX2     LA     *-*,XR2               INDEX REGISTERS
                          650 *
0F72 C0 87 0000           651 RSTX      B      *-*                 RETURN TC CALLING ROUTINE
```

C1A2 3340 CONTROLLER INTERFACE PROBE LOOP - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                                653 ********************************************************************************
                                654 *                                                                              *
                                655 *                              PRINT MESSAGES                                  *
                                656 *                                                                              *
                                657 ********************************************************************************
                                658 *
                         0F76   659 MSG01    EQU   *
0F76 D3D6C1C4C9D5C740   0F88   660 MSG01N   DC    CL19'LOADING SECTION C17'
0F7E E2C5C3E3C9D6D540
0F86 C3F1F7
                                660
                                661 *
                         0F89   662 MSG02    EQU   *
0F89 E3C5E2E340C9E240   0F97   663 MSG02N   DC    CL15'TEST IS LOOPING'
0F91 D3D6D6D7C9D5C7
                                663
                                664 *
                         0F98   665 MSG06    EQU   *
0F98 C3C1D57DE340D9C5   0FC9   666 MSG06N   DC    CL50'CAN''T RESTART MICROPROCESSOR - TESTING TERMINATED'
0FA0 E2E3C1D9E340D4C9
0FA8 C3D9D6D7D9D6C3C5
0FB0 E2E2D6D940A040E3
0FB8 C5E2E3C9D5C740E3
0FC0 C5D9D4C9D5C1E3C5
0FC8 C440
                                666
                                666
                                666
                                666
                                666
                                666
                                667 *
```


C1A2 3340 CONTROLLER INTERFACE PROBE LOOP - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                                669 ********************************************************************************
                                670 *                                                                              *
                                671 *                    CONSTANTS AND RESERVED STORAGE AREAS                      *
                                672 *                                                                              *
                                673 ********************************************************************************
                                674 *
                                675 *                    CONSTANTS
                                676 *
OFCA 0000000000000000   OFD3    677 NULLS   DC    10XL1'00'
OFD2 0000
OFD4 00                 OFD4    678 ZERO    DC    XL1'00'
OFD5 FFFF               OFD6    679 LPCNT   DC    2XL1'FF'
OFD7 01                 OFD7    680 ONE     DC    XL1'01'                 I/O BUSY LOOP INCREMENT
OFD8 0004               OFD9    681 FOUR    DC    XL2'0004'                                       REH
                                682 *
OFDA 0001               OFDB    683 P1      DC    IL2'1'
OFDC 0014               OFDD    684 P20     DC    IL2'20'
OFDE 000000FA           OFE1    685 P250    DC    IL4'250'
                                686 *
OFE2 FFFF               OFE3    687 N1      DC    IL2'-1'
                                688 *
OFE4 0003E8             OFE6    689         DC    IL3'1000'               INTERVAL TIMER INITIAL VALUE
OFE7 00                 OFE7    690 INTVL   DC    IL1'0'
                                691 *
OFE8 0DEB               OFE9    692 DASD1@  DC    AL2(DASD1)              ADDR OF 3340 INTERRUPT SUBROUTINE
OFEA 1078               OFEB    693 DGSNS@  DC    AL2(DGSNS)              ADDR OF RD DIAG SENSE AREA
                                694 *
OFEC 1100               OFED    695 DDCR    DC    AL2(DDCR)               INITIAL DDCR INITIALIZATION VALUE
OFEE 1200               OFEF    696 DDDR    DC    AL2(DDDR)               INITIAL DDDR INITIALIZATION VALUE
                                697 *
                                698 *-------------------------------------------------------------------------------
                                699 *                    SVP INTERFACE CONTROL BYTES
                                700 *
                                701 SVPSEQ  EQU   *                       SYSTEM RESET SVP CONTROL STRING
OFF0 8802               OFF0    702         DC    XL2'8802'                 HALT MICROPROCESSOR
OFF2 9802               OFF3    703         DC    XL2'9802'                 RESET MICROPROCESSOR CLOCK
OFF4 A802               OFF5    704         DC    XL2'A802'                 SET SERVICE MODE
OFF6 0008               OFF7    705         DC    XL2'0008'                 X'00' --> OP REG C
OFF8 000A               OFF9    706         DC    XL2'000A'                 X'00' --> OP REG CR
OFFA 000B               OFFB    707         DC    XL2'000B'                 X'00' --> OP REG Y
OFFC 010C               OFFD    708         DC    XL2'010C'                 R4-R7 --> EXTERNAL ZONE REG
OFFE 230A               OFFF    709         DC    XL2'230A'                 EXT REG (DST) ADDR --> OP REG CR
1000 000C               1001    710         DC    XL2'000C'                 R3-R7 --> EXT ADDR REG (EXTAR)
1002 020F               1003    711         DC    XL2'020F'                 Y REG --> A REG --> D REG
1004 020D               1005    712         DC    XL2'020D'                 D REG --> EXTERNAL REG (DST)
1006 2F0A               1007    713         DC    XL2'2F0A'                 EXT REG (SCN) ADDR --> OP REG CR
1008 000C               1009    714         DC    XL2'000C'                 R3-R7 --> EXT ADDR REG (EXTAR)
100A 020F               100B    715         DC    XL2'020F'                 Y REG --> A REG --> D REG
100C 020D               100D    716         DC    XL2'020D'                 D REG --> EXTERNAL REG (SCN)
100E 000A               100F    717         DC    XL2'000A'                 X'00' --> OP REG CR
1010 BF0B               1011    718         DC    XL2'BF0B'                 INDEX VALUE (BF) --> OP REG Y
1012 020F               1013    719         DC    XL2'020F'                 OP REG Y --> A REG --> D REG
1014 880E               1015    720         DC    XL2'880E'                 D REG --> INDEX REG
1016 080E               1017    721         DC    XL2'080E'                 SERVICE ACCESS CYCLE
1018 8802               1019    722         DC    XL2'8802'                 RESET SERVICE MODE
101A 2009               101B    723         DC    XL2'2009'                 SYS RESET FLAG --> X REG
101C 0003               101D    724 SVPREQ  DC    XL2'0003'                 SET SVP REQUEST
101E 000E               101F    725         DC    XL2'000E'                 EXECUTE FIRST MICRO-INSTRUCTION
1020 00                 1020    726 K       DC    XL1'00'                   RESTORE K REG
1021 02                 1021    727         DC    XL1'02'
1022 000E               1023    728 RUNMP   DC    XL2'000E'                 START MICROPROCESSOR
1024 FF                 1024    729         DC    XL1'FF'                   END SVP STRING
                                730 *
1025 C009               1026    731 CEMODE  DC    XL2'C009'                 CE MODE INDICATORS --> X REG
                                732 *
                                733 *-------------------------------------------------------------------------------
                                734 *                    COMMON INDICATORS AND WORK AREAS
                                735 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1027 00               1027  736 IND      DC     XL1'0'
                               737 *
   1028                  1029  738 L5XR2    DS     AL2
   102A                  102B  739 L5PSR    DS     AL2
                               740 *
   102C                  102D  741 ADRPTR   DS     XL2
                               742 *
   102E                  102E  743 ADRTBL   EQU    *
                         1036  744          DS     XL9
                               745 *
   1037                  1038  746 IDDCR    DS     XL2
   1039                  103A  747 IDDDR    DS     XL2
                               748 *
   103B                  103C  749 RDDCR    DS     XL2
   103D                  103E  750 RDDDR    DS     XL2
                               751 *
   103F                  103F  752 IDDCF    EQU    *
                         1048  753 IDDCFN   DS     XL10
                               754 *
   1049                  104A  755 SNS      DS     XL2
                               756 *
                         104B  757 WORK     EQU    *
   104B                  104E  758 WORKN    DS     XL4
   104F                  1050  759 CNTR     DS     XL2
                               760 *
                         1051  761 DRVWK    EQU    *
                               762 *-------------------------------------------------
                               763 *          DRIVE 1 INDICATORS AND WORK AREAS
                               764 *
                         1051  765 DRVWK1   EQU    *
                               766 *
   1051 00               1051  767 DIND     DC     XL1'00'
                               768 *
   1052 C0               1052  769 DRVADR   DC     XL1'C0'
                               770 *
   1053 08               1053  771 SKMSK    DC     XL1'08'
   1054 80               1054  772 UCKMSK   DC     XL1'80'
   1055 40               1055  773 SKRST    DC     XL1'40'
                               774 *
   1056                  1056  775 Q        DS     XL1
   1057                  1057  776 R        DS     XL1
                               777 *
   1058                  105B  778 PA       DS     XL4
                               779 *
   105C                  105C  780 FF       DS     XL1
   105D                  105E  781 CC       DS     XL2
   105F                  1060  782 HH       DS     XL2
   1061                  1061  783 RR       DS     XL1
   1062                  1062  784 KL       DS     XL1
   1063                  1064  785 DL       DS     XL2
   1065                  1065  786 NN       DS     XL1
                               787 *
                               788 *-------------------------------------------------
                               789 *          DRIVE 2 INDICATORS AND WORK AREAS
                               790 *
                         1066  791 DRVWK2   EQU    *
                               792 *
   1066 00               1066  793 DIND2    DC     XL1'00'
                               794 *
   1067 C8               1067  795 DRVAD2   DC     XL1'C8'
                               796 *
   1068 04               1068  797 SKMSK2   DC     XL1'04'
   1069 40               1069  798 UCKMS2   DC     XL1'40'
   106A 20               106A  799 SKRST2   DC     XL1'20'
                               800 *
   106B                  106B  801 Q2       DS     XL1
   106C                  106C  802 R2       DS     XL1
                               803 *
```

PROGRAM INDICATORS

3340 INTERRUPT LEVEL XR2 STORAGE
3340 INTERRUPT LEVEL PSR STORAGE

DRIVE SELECTION POINTER

DRIVE SELECTION TABLE

INITIAL DDCR VALUE
INITIAL DDDR VALUE

RESIDUAL DDCR VALUE
RESIDUAL DDDR VALUE

INITIAL DDCF

3340 ADAPTER SENSE INFO

GENERAL PURPOSE
WORK AREA
I/O BUSY LOOP CNTR

START OF DRV DEPENDENT WORK AREAS

START OF DRIVE 1 WORK AREA

DRIVE DEPENDENT INDICATORS

DRIVE ADDRESS

SEEK COMPLETE INTERRUPT MASK
UNIT CHECK MASK
SEEK COMPLETE INTERRUPT RESET R BYTE

SIO Q BYTE
SIO R BYTE

CURRENT PHYSICAL ACCESS POSITION

FLAG VALUE
CYLINDER ADDRESS
HEAD ADDRESS
RECORD NUMBER
KEY LENGTH
DATA LENGTH
NUMBER OF RECORDS

START OF DRIVE 2 WORK AREA

DRIVE DEPENDENT INDICATORS

DRIVE ADDRESS

SEEK COMPLETE INTERRUPT MASK
UNIT CHECK MASK
SEEK COMPLETE INTERRUPT RESET R BYTE

SIO Q BYTE
SIO R BYTE


```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   106D                  1070  804 PA2      DS     XL4
                               805 *
   1071                  1071  806 FF2      DS     XL1
   1072                  1073  807 CC2      DS     XL2
   1074                  1075  808 HH2      DS     XL2
   1076                  1076  809 RR2      DS     XL1
   1077                  1077  810 KL2      DS     XL1
   1078                  1079  811 DL2      DS     XL2
   107A                  107A  812 NN2      DS     XL1
                               813 *
                               814 *-------------------------------------------------
                               815 *
                         107B  816 DGSNS    EQU    *
   107B                  1092  817          DS     XL24
   1093                  1094  818 SNSINT   DS     XL2
                               819 *
```

CURRENT PHYSICAL ACCESS POSITION

FLAG VALUE
CYLINDER ADDRESS
HEAD ADDRESS
RECORD NUMBER
KEY LENGTH
DATA LENGTH
NUMBER OF RECORDS

3340 SUBSYSTEM SENSE DATA

ADAPTER INT SENSE AREA

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                          821 ********************************************************************************
                          822 *                                                                              *
                          823 *                          SYMBOL DEFINITIONS                                  *
                          824 *                                                                              *
                          825 ********************************************************************************
                          826 *
                          827 *               LOCAL STORE REGISTERS
                          828 *
0001                      829 XR1      EQU   X'01'               INDEX REGISTER 1
0002                      830 XR2      EQU   X'02'               INDEX REGISTER 2
                          831 *
0004                      832 PSR      EQU   X'04'               PROGRAM STATUS REGISTER
0008                      833 ARR      EQU   X'08'               CURRENT LEVEL ADDRESS RECALL REG
                          834 *
                          835 *-------------------------------------------------------------------------------
                          836 *               MESSAGE / HALT IDENTIFIERS
                          837 *
C100                      838 HLT00    EQU   X'C100'             NO HALT
C101                      839 HLT01    EQU   X'C101'             COMMON 3340 ERROR HALT
                          840 *
                          841 *-------------------------------------------------------------------------------
                          842 *               COMMON PROGRAM INDICATORS (IND)
                          843 *
0080                      844 TMOUT    EQU   X'80'               COUNTER LOOP TIMEOUT OCCURRED
0020                      845 INTERR   EQU   X'20'               ERROR DETECTED IN 3340 INTERRUPT RTN
0004                      846 OPEND    EQU   X'04'               OP END INTERRUPT EXPECTED
0002                      847 SKEND    EQU   X'02'               SEEK COMPLETE INTERRUPT EXPECTED
                          848 *
                          849 *-------------------------------------------------------------------------------
                          850 *               DRIVE DEPENDENT INDICATORS (DIND)
                          851 *
0080                      852 CEDM     EQU   X'80'               CE DATA MODULE MOUNTED
0040                      853 LPSW     EQU   X'40'               DRIVE LOOP INDICATOR
                          854 *
                          855 *-------------------------------------------------------------------------------
                          856 *               3340 PROGRAM COMMUNICATION AREA (COM) INDICATORS
                          857 *
0080                      858 ADRSTP   EQU   X'80'               MICROPROCESSOR ADDR STOP ENABLED
0020                      859 MPLFLG   EQU   X'20'               MICRO-PROGRAM LOADED
                          860 *
                          861 *-------------------------------------------------------------------------------
                          862 *               BIT POSITION SYMBOLS
                          863 *
0040                      864 BIT1     EQU   X'40'
0010                      865 BIT3     EQU   X'10'
0008                      866 BIT4     EQU   X'08'
0004                      867 BIT5     EQU   X'04'
0002                      868 BIT6     EQU   X'02'
0001                      869 BIT7     EQU   X'01'
                          870 *
                          871 *-------------------------------------------------------------------------------
0001                      872 HLT      EQU   X'01'                        TIMER 'R' BYTE
                          873 *
                          874 *-------------------------------------------------------------------------------
                          875 *               DCP SECTION REFERENCE TABLE
                          876 *
0212                      877 TEST     EQU   X'0212'             CHECK CE CONSOLE SWITCHES
0216                      878 LINK     EQU   X'0216'             LINK TO NEXT ROUTINE OR SECTION
021A                      879 PRINT    EQU   X'021A'             PRINT A MESSAGE
021E                      880 UNPACK   EQU   X'021E'             UNPACK DATA - HEX TO EBCDIC
0222                      881 HALT     EQU   X'0222'             HALT AND DISPLAY HALT IDENTIFIER
022A                      882 LOAD     EQU   X'022A'             LOAD NEXT SECTION OR RECORD
                          883 *
                          884 *-------------------------------------------------------------------------------
                          885 *               OTHER REFERENCES EXTERNAL TO THIS SECTION
                          886 *
1100                      887 DDCF     EQU   X'1100'             CONTROL FIELD EXECUTION AREA
6C00                      888 LDR      EQU   X'6CC0'             3340 MICROCODE LOADER PROGRAM
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
1200                      889 DDDF     EQU   X'1200'             3340 READ / WRITE BUFFER
                          890 *
FFFF                      891          END
```

C1A2 3340 CONTROLLER INTERFACE PROBE LOOP - MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ADRPTR	A	002	102D	0741	0124* 0141 0149* 0154* 0502
ADRSTP	C	001	0080	0858	0621
ADRTBL	A	001	102E	0743	0107 0123 0153
AMOPID	A	002	0A1E	0031	
ARR	C	001	0008	0833	0079 0217 0229 0277 0298 0317 0338 0421 0422 0423 0548 0550 0578 0614
BEGIN	A	004	0A6B	0079	0048
BGNX	A	004	0AE9	0134	0086* 0175
BGNO1	A	003	0A84	0088	
BGNO2	A	004	0AB1	0107	
BGNO6	A	003	0ACF	0121	
BGNO7	A	003	0ADD	0127	
BGNO8	A	006	0AE0	0130	
BIT1	C	001	0040	0864	
BIT3	C	001	0010	0865	0505
BIT4	C	001	0008	0866	0523
BIT5	C	001	0004	0867	0189
BIT6	C	001	0002	0868	0325
BIT7	C	001	0001	0869	0189 0192 0447 0458 0499 0634
BSYTST	A	004	0E6A	0548	0358 0366 0392 0399 0462 0473
BUSY	A	004	0E64	0553	0565 0568
BUSYN1	A	004	0E98	0562	0548* 0549*
BUSYN2	A	004	0EEA	0570	0550*
BUSYO1	A	006	0E9C	0564	0555 0557 0558 0560
CC	A	002	105E	0781	0265*
CC2	A	002	1073	0807	
CEDM	C	001	0080	0852	0187 0236 0327
CEMODE	A	002	1026	0731	0093 0643
CNTR	A	002	1050	0759	0551* 0552* 0564* 0566* 0567
CGM	A	001	0A19	0027	0090 0200* 0594 0621
C1A	A	001	0000	0007	
C17	A	002	0EF2	0598	0582 0585
DASDI	A	004	0DEB	0492	0426 0428 0692
DASDI@	A	002	0FE9	0692	
DASDIN	A	004	0E66	0539	0421*
DASDIX	A	003	0E63	0537	0514* 0518*
DASDO1	A	004	0E30	0518	0507
DASDO2	A	005	0E38	0521	0516
DASDO4	A	004	0E48	0526	0500 0512
DASDO5	A	003	0E54	0531	
DASDO6	A	004	0E5B	0534	0524
DASD5A	A	004	0E57	0532	0422*
DDCF	C	001	1100	0887	0695
DDCR	A	002	0FED	0695	0104 0164
DDDF	C	001	1200	0889	0696
DDDR	A	002	0FEF	0696	0105 0165
DELAY	A	004	0F50	0639	0635
DGSNS	A	001	107B	0816	0184 0350* 0693
DGSNS@	A	002	0FEB	0693	0465 0468
DIND	A	001	1051	0767	0113* 0119* 0127* 0173 0174* 0187* 0236 0327*
DIND2	A	001	1066	0793	
DL	A	002	1064	0785	0061* 0291*
DLYLP	A	004	0F54	0640	0641
DL2	A	002	1079	0811	
DRVADR	A	001	1052	0769	0341 0343 0457
DRVAD2	A	001	1067	0795	
DRVWK	A	001	1051	0761	0037
DRVWK1	A	001	1051	0765	0109
DRVWK2	A	001	1066	0791	0115
ERRXX	A	003	0D6B	0437	0354 0390 0415
ERRXXA	A	004	0D82	0447	0440 0443
ERRXXB	A	005	0DA1	0457	0451
ERRXXC	A	004	0DBA	0467	0463
ERRXXD	A	004	0DDB	0478	0474
FADID	A	002	0A20	0032	
FF	A	001	105C	0780	

C1A2 3340 CONTROLLER INTERFACE PROBE LOOP - MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
FF2	A	001	1071	0806	
FOUR	A	002	0FD9	0681	0549
HALT	C	001	0222	0881	0202
HH	A	002	1060	0782	0266* 0270
HH2	A	002	1075	0808	
HLT	C	001	0001	0872	
HLT00	C	001	C100	0838	0100 0592
HLT01	C	001	C101	0839	0203
IDDCF	A	001	103F	0752	
IDDCFN	A	010	1048	0753	0345*
IDDCR	A	002	1038	0746	0104* 0164* 0286 0347 0361
IDDDR	A	002	103A	0747	0105* 0165* 0290 0324 0368 0376 0379
IND	A	001	1027	0736	0102* 0167* 0353 0363 0370 0382* 0387* 0388* 0396 0403 0406 0410 0414 0439 0471 0478 0506 0511 0515* 0519* 0526* 0553* 0569*
INTERR	C	001	0020	0845	0167 0353 0414 0439 0526
INTSNS	A	004	0D47	0421	0351 0409 0413
INTVL	A	001	0FE7	0690	
INTXXX	A	004	0D67	0429	0423*
K	A	001	1020	0726	0620* 0623*
KL	A	001	1062	0784	
KL2	A	001	1077	0810	
LDR	C	001	6C00	0888	0585 0600
LDRGO	A	004	0EF3	0600	0586
LDRID	A	002	0A1C	0030	0582
LDRLD	A	004	0EDC	0588	0583
LINK	C	001	0216	0878	
LIO	A	004	0CAA	0361	
LIOXX1	A	004	0CAE	0363	0359
LIOXX2	A	004	0CC2	0370	0367
LOAD	C	001	022A	0882	0205 0596
LOOP	A	006	0B1B	0164	0068 0151
LOOPX	A	004	0B3E	0177	0082*
LPCNT	A	001	0FD6	0679	0567
LPSW	C	001	0040	0853	0127 0173 0174 0187
L5PSR	A	002	102B	0739	0492* 0529* 0535
L5XR2	A	002	1029	0738	0493* 0528 0534
MPL	A	004	0EBE	0578	0091
MPLFLG	C	001	0020	0859	0090 0200
MPLX	A	004	0EFF	0605	0578*
MPLX1	A	004	0EF7	0602	0579*
MPLX2	A	004	0EFB	0603	0580*
MSG01	A	001	0F76	0659	0590
MSG01N	A	019	0F88	0660	0590 0591
MSG02	A	001	0F89	0662	0098
MSG02N	A	015	0F97	0663	0098 0099
MSG06	A	001	0F98	0665	0197
MSG06N	A	050	0FC9	0666	0197 0198
NN	A	001	1065	0786	0222* 0247* 0282* 0303* 0345 0348
NN2	A	001	107A	0812	
NULLS	A	001	0FD3	0677	0130 0169 0222 0247 0282 0350 0442 0495
NXDRV	A	003	0AED	0139	0086 0193 0242
NXDRVX	A	004	0B17	0159	0083*
NXD01	A	004	0AF0	0141	
NXD02	A	004	0B08	0153	0144
N1	A	002	0FE3	0687	
ONE	A	001	0FD7	0680	0564 0566
OPEND	C	001	0004	0846	0167 0382 0387 0410 0506 0519
PA	A	004	105B	0778	0270* 0287
PA2	A	004	1070	0804	
PFC	A	002	0A07	0020	
PID	A	002	0A01	0016	
PRINT	C	001	021A	0879	0096 0195 0588
PSR	C	001	0004	0832	0492 0495* 0529* 0535*
P1	A	002	0FDB	0683	0250 0310 0631 0636 0640
P20	A	002	0FDD	0684	0259 0262
P250	A	004	0FE1	0685	0061

C1A2 3340 CONTROLLER INTERFACE PROBE LOOP - MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
Q	A	001	1056	0775	0219* 0244* 0279* 0300* 0319* 0384
Q2	A	001	106B	0801	
R	A	001	1057	0776	0220* 0245* 0280* 0301* 0320* 0340
RDDCR	A	002	103C	0749	0373*
RDDDR	A	002	103E	0750	0374* 0376 0379
RDDGN	A	004	0C2A	0298	0063
RDDGNX	A	004	0C49	0312	0298* 0305 0310*
RDHAE	A	004	0BFF	0277	0059
RDHADA	A	005	0C09	0282	
RDHADX	A	004	0C26	0293	0277*
RDSNS	A	004	0C4D	0317	0053
RDSNSX	A	004	0C68	0329	0317* 0326
RECAL	A	004	0B76	0217	0052
RETRY	A	003	0B42	0182	0288 0356 0364 0371 0377 0380 0397 0404 0407 0448 0455 0460 0469 0472 0479 0483
RETRY1	A	004	084F	0189	0185
RR	A	001	1061	0783	0306*
RR2	A	001	1076	0809	
RSTLP	A	005	0F22	0625	0622 0629
RSTX	A	004	0F72	0651	0614*
RSTX1	A	004	0F6A	0648	0615*
RSTX2	A	004	0F6E	0649	0616*
RTN	A	001	0A03	0018	
RTNPFC	A	001	0A3A	0044	0020
RUNMP	A	002	1023	0728	
RXX	A	004	0A3E	0048	
RXXA	A	004	0A46	0052	
RXXB	A	004	0A55	0059	0049
RXXC	A	004	0A67	0068	0050
R2	A	001	106C	0802	
SEEK	A	004	0B88	0229	0055
SEEKA	A	004	0BF3	0268	0224
SEEKX	A	004	0BFB	0272	0217* 0256*
SIO	A	003	0D04	0394	0340* 0341*
SIOSNS	A	003	0DD8	0476	0457* 0458*
SKEND	C	001	0002	0847	0167 0388 0410 0511 0515
SKMSK	A	001	1053	0771	0509
SKMSK2	A	001	1068	0797	
SKRST	A	001	1055	0773	0514
SKRST2	A	001	106A	0799	
SK01	A	003	0BAA	0244	0237
SK02	A	005	0BB5	0249	0251
SK03	A	006	0BD5	0259	0263
SK04	A	003	0BEB	0265	0260
SNS	A	002	104A	0755	0130* 0169* 0189 0192 0442 0445* 0447 0454 0497* 0499 0505 0510 0522 0523 0633* 0634
SNSINT	A	002	1094	0818	0424* 0425 0427
SNSLP	A	004	0F3B	0633	0637
SVPFC	A	025	0A39	0034	0594*
SVPREQ	A	002	101D	0724	0094 0644
SVPSEQ	A	001	0FF0	0701	0618
SYSRST	A	004	0F03	0614	0190
TEST	C	001	0212	0877	0157
TIO	A	004	0C9E	0356	
TIORDY	A	004	0CF8	0390	0343* 0385 0450
TMOUT	C	001	0080	0844	0363 0370 0396 0403 0406 0471 0478 0553 0569
UCKMSK	A	001	1054	0772	0453 0521
UCKMS2	A	001	1069	0798	
UDTO	A	003	0A0C	0023	
UNPACK	C	001	021E	0880	
WORK	A	001	104B	0757	0232* 0234* 0239* 0249* 0250* 0253 0253* 0259 0262* 0266
WORKN	A	004	104E	0758	0079* 0080 0229* 0230 0467* 0468 0625* 0626 0631* 0636*
XEQ	A	004	0C6C	0338	0268 0284 0308 0322
XEQX	A	004	0D43	0418	0338*
XEQ02	A	004	0D07	0396	0393
XEQ03	A	004	0D23	0406	0400 0411

C1A2 3340 CONTROLLER INTERFACE PROBE LOOP - MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
XR1	C	001	0001	0829	0080* 0082 0083 0085 0085* 0086 0107* 0110 0111 0111* 0116 0117 0117* 0121 0123* 0124 0125 0141* 0143 0146 0148 0148* 0149 0153* 0154 0155 0230* 0232 0241 0249 0255 0255* 0256 0258* 0261 0261* 0265 0286* 0287 0290* 0291 0305* 0306 0324* 0325 0347* 0348 0579 0602* 0615 0618* 0625 0627 0627* 0628 0639* 0640* 0648*
XR2	C	001	0002	0830	0037 0061 0109* 0110 0113 0115* 0116 0119 0125* 0127 0146* 0155* 0173 0174 0187 0219 0220 0222 0236 0244 0245 0247 0265 0266 0270 0270 0279 0280 0282 0287 0291 0300 0301 0303 0306 0319 0320 0327 0340 0341 0343 0345 0348 0384 0453 0457 0493 0502* 0503 0503* 0509 0514 0521 0528* 0534* 0580 0603* 0616 0649*
ZERO	A	001	0FD4	0678	0551 0552

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

C1A2 3340 CONTROLLER INTERFACE PROBE LOOP - MOD 12

OBJECT CARD LISTING

THE CHARACTER • INDICATES A BLANK COLUMN AND THE CHARACTERS D̄ Ē H̄ 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 GBD̄   PN 42  47616 EC 571872   3340 CTL-I PROBE  LOOP --- MOD 12  84@@REH@••••••••  ••••••••  C1A20000
TC Y<0ĒH  &  BT,  "*@E&•••••••••••  ••••••••••••••••  ••••••••••••••••  ••••••••••••••••  •••••NOHC1A20001
T  YR•••••••••••  ••••••••••••••••  ••••••••••••••••  ••••••••••••••••  ••••••••••••••••  •••••;H̄UC1A20002
T+-Z4 &C""@BGBW%  H̄N&ZXOH*.)%BGCD7  /O>H  E)OH*."80  BDC"/OH*<H̄-G /0,  _OH*.F3&HCD85 JA  +G 0 ).LC1A20003
T+-D̄?B4DAG D.F-|  K &&4 &,%@@J=+B   H̄F*B&C,811J W<*M  &G*BG /ZFCO=PO&   @ A XC D&+ "_C D  &+-@ CLUC1A20004
T+-,D̄#@HADB#B /A  J) HA4-DB?   O-H  &RX&B )HA ,0  G3  " <HADE84 J _)&H  A>U  C D&K-"L@@K   OH* &.UC1A20005
T+-%V  C31G85 J   _¬¬@B@YD+)&HC4-D  B( D&.*BGB17B J   >( D&.PMB *BG /.   /0  C D&+ "_C D  &+-@ NY<C1A20006
T+-_-#3%WD6*< JA  H̄C'|31HB8& B:& C   U ,ZOH*  ||D¬T4  HDG72-&+#0  9AJA  H̄OI | 3-ADD, U ,  _OH* LLUC1A20007
T+->$ /YF<-"I+2   H̄F*BG S.A *BG SZ   ( -.",0 A$OAAYO  IE "L@Y),( -&LTM  ADD8* /A+ TO.DD>  8-    )08C1A20008
T+-?0@Z .| D&K74  A <BDB>6@  0@  Ē  <BJ&|418ADD8BCO   &KO"$O D._&8ADD8  &L(HA 3&AB"#B &    C&D 52&C1A20009
T+-0JDD8|7¬H̄BC)H  A &@ADD8|7*BGB'O  4 &6< &@&L%BGCF2  % OY|OH*  C&HCBW  @ &0@ &Ē<BJ&|4@B  GCFO 79UC1A20010
T+-1<(&D&+F4CA ,    &_B(&D&+ZOHDOT   /0  ( -<L.OAA$O  DA,0 ECMACD2* A    OH*<$ 8ACDO|6@B  G    R/8C1A20011
T+-2G( -<Ē#0AA$0  GA%BGCF05 J :;&H  B@Z C>Y  OH*  C&  HCMQ% &4FAS8 C&M  A.  <=&D%EJAHECM  ADC- ;HMC1A20012
T+-3B$ UIE OGDHH  |4@BGCM*8HA XOA   (Ē@GBB4. /09D̄OH*  <,TGFDC-8-A XOA   .&%BGCW, /03B<*&  &+T- ;Y-C1A20013
T+-3'-A XOA .&TC  FDCOO1A =C&D&+/   =0 D.&-4ADCY&|%   AB4H:AA X?& E@-D  H+O&&I3YBDB¬A  5  .OH* 52*C1A20014
T+-48CW, /04G@0    +H &I@ &B4. /09  D̄OH*(H@GBCJ*8-A   XOA .&TS DB¬ D _  BOH*(J3UFDB¬ U 4  TOH* ¬$UC1A20015
T+-53CM*8HA XOA   (Ē@BG   4B 9Z( -  +OI&HCDYO1JBM+JM  &V<B&C;%9C1BLOI   (:@BG  C31 H8HA   X@/  ¬/OC1A20016
T+-6>C&4ADDY|4"H  AACCEDDY8 JAH̄OA   .&-0 CRD<=*D CED  %  6Ē 3U DDX D _  B.  (6&D: &7RO*H  .&%  1H̄ C1A20017
T+-7Z/09D̄O.I*(>TG  DC=%01AA+C&D&L-"  ,0 D.&TS DB¬ D _  BOH*+Ē%BGC)?3   *  8-A XOA .&%GBC;|   /0% 7D̄4C1A20018
T+-8U&T&DDC"4 /   Z(&&|43CEDDY8 JA  H̄@/AF(&H&.$MB L-  &DDY8AA X@/ *.    +F-H8 AAI+ H&I"H̄  &IBO 2T4C1A20019
T+-9¬  9VAC%BDB¬  2/0-@A 9V+0&&I20   CT8C+& &KLUHDD,  2DA<:HA X(&H&H̄LM  DDB?31G# /0  (&H  &H̄LM QQUC1A20020
```

C1A2 3340 CONTROLLER INTERFACE PROBE LOOP - 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

T+-:ĒAA ,@@& OH*    C&HCZ%+ &:$C'U  4B :'C  &M "MC    &LO"M+8 &I@GACZ3  AO-:*O*U+X<GH̄CZ3   /0  Ē.MC1A20021
T+-#N  8 DE |5@   -CY&+ AA|C'*( AA  |C'$  &:D+Y &I@B  G   4B @B( D+=T&  BC?8( &Y*C?.2 &U  ( 00 7& C1A20022
T+-@& &#2@YDPOH*  BFUULC8TA  OQBTU  H̄F<BG SYDCA¬ /60  BO-D  <HB  C /0    ( -|)L&AC644 -'  10-D 41&C1A20023
T+-'.C" @ A -+H   H̄F¬H̄&ACODDB * JA  + LGEDC#K &I'"OC    &@SC D&L-"$<<M  &KT-ADD,2U Y+ JA  +C'% &LOC1A20024
T+-=FOB |+@HA9¬Q  6 &"$0B |NCGEDBQ  11J )C¬@|R 'UO-D    <HB  C /0  4'$  A1<XN14CS1*|T2)$  N&<< &R&C1A20025
T+-"A@¬¬T1;.T&<X  S&(|05_¬I5*¬CO)N  '84CR1;.TO)XT&(L  IO'XO5'XOO@PS8_$  R&FA 8@PS8@XN14C  T1)U NTHC1A20026
T+-"@5<XNO;|E1D   ••••••••••••••|"  " & D  D E    |,  ""O C:   (:1A#D&  K H-BW H̄Y - H  Y   BOD QK&C1A20027
TH̄/ XCB<H̄  OBCOH  (.OY C H| -4 B,@  . -=.C--+S H-B&   C  8  - +"@ I•••  ••••••••••••••••  •••••&BMC1A20028
TAAAN < H-D•••••  ••••••••••••••••  ••••••••••••••••  ••••••••••••••••  ••••••••••••••••  •••••'2YC1A20029
TAAAD̄ <-D&B•••••  ••••••••••••••••  ••••••••••••••••  ••••••••••••••••  ••••••••••••••••  •••••=L<C1A20030
E""'*E7*=¬DC"PH$  ="7M&F|   |   C     F%   ASC   R A  SO   Q••••••••••••  •••••17320630750  504760.%C1A20031
```

-- LAST PAGE --

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT                                  LAST CHG 08 05 75
                            2 *
                            3          DECK  4
                            4          SEQ   0
                            5          TREP
                            6 C1B      START 0
0000                        7 ********************************************************************************
                            8 *                                                                              *
                            9 *                          SECTION PREFACE                                     *
                           10 *                                                                              *
                           11 ********************************************************************************
                           12 *
                           13          ORG   X'0A00'
                           14 *
0A00                       15 PID      DC    XL2'C1B0'      SECTION ID AND REVISION LEVEL
0A00 C1B0                  16          DC    XL1'00'        SECTION FLAGS
0A02 00                    17 RTN      DC    XL1'01'        CURRENT ROUTINE NUMBER
0A03 01                    18          DC    XL2'0000'      RESERVED
0A04 C000                  19 PFC      DC    AL2(RTNPFC)    ADDRESS OF ROUTINE PREFACE
0A06 0A3A                  20          DC    XL2'FFFF'      RESERVED
0A08 FFFF                  21 *
0A0A                       22 UDT0     DC    XL3'C15000'    3340 UDT
0A0A C15000                23 *
0A0D                       24          DS    XL12           RESERVED
                           25 *
0A19                       26 COM      DC    XL1'00'        3340 PROGRAM COMMUNICATION AREA
0A19 00                    27          DS    XL1            RESERVED
0A1A                       28 *
0A1B                       29 LDRID    DS    AL2            MICROCODE LDR (C17) IN STG INDICATOR
0A1D                       30 AMOPID   DS    AL2            AMOP (C19) IN STG INDICATOR
0A1F                       31 FAOID    DS    AL2            ATTACHMENT MICRO-CODE (FA0) IN STG
0A21                       32 *
0A39                       33 SVPFC    DS    XL25           SECTION PREFACE STORAGE AREA
                           34 *
```



```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT
                           36 ********************************************************************************
                           37 *                                                                              *
                           38 *                    3340 DATA MODULE SCAN PROGRAM                             *
                           39 *                                                                              *
                           40 ********************************************************************************
                           41 *
0A3A 01                    42 RTNPFC   DC    XL1'01'        ROUTINE NUMBER
0A3B 00                    43          DC    XL1'00'        ROUTINE FLAGS
0A3C FFFF                  44          DC    XL2'FFFF'      ONLY ONE ROUTINE IN SECTION
                           45 *
                           46 *-------------------------------------------------------------------------------
                           47 *                    PROGRAM INITIALIZATION
                           48 *
0A3E                       49 BEGIN    EQU   *
0A3E F3 C4 7E              50          SIO   X'7E',X'C4'    RESET AND DISABLE 3340 INTRPS
                           51 *
0A41 38 20 0A19            52          TBN   COM,MPLFLG     LOAD MICROCODE
0A45 C0 90 0FA1            53          BF    MPL              IF REQUIRED
                           54 *
0A49 39 30 020B            55 BGN01    TBF   SBYTE3,SSW1A+SSW1B   BRANCH IF ANY
0A4D F2 90 14              56          JF    BGN02                DRIVE SELECTED
                           57 *
0A50 C0 87 021A            58          B     PRINT          PRINT MESSAGE
0A54 46                    59          DC    XL1'46'          'SELECT DRIVE'
0A55 46                    60          DC    AL1(MSG02N-MSG02+1)
0A56 102E                  61          DC    AL2(MSG02N)
0A58 C1E4                  62          DC    AL2(HLTE4)
                           63 *
0A5A C0 87 0222            64          B     HALT           UNCONDITIONAL HALT E4
0A5E C1E4                  65          DC    AL2(HLTE4)
                           66 *
0A60 CC 87 0A49            67          B     BGN01          GO TO CHECK SENSE SWS AGAIN
                           68 *
0A64 39 10 020B            69 BGN02    TBF   SBYTE3,SSW1B      BRANCH IF NOT DRIVE 1
0A68 F2 90 0F              70          JF    BGN03
                           71 *
0A6B 3C F1 12B4            72          MVI   DRV,C'1'       SETUP DRIVE NUMBER
0A6F 3C C0 12B5            73          MVI   DRVADR,X'C0'   SETUP DRIVE ADDRESS
0A73 3C 80 12B6            74          MVI   UCKMSK,X'80'   SETUP UNIT CHECK MASK
                           75 *
0A77 F2 87 2A              76          J     CKRDY          GO TO CHECK DRIVE READY
                           77 *
0A7A 39 20 020B            78 BGN03    TBF   SBYTE3,SSW1A      BRANCH IF NOT DRIVE 2
0A7E F2 90 0F              79          JF    BGN06
                           80 *
0A81 3C F2 12B4            81          MVI   DRV,C'2'       SETUP DRIVE NUMBER
0A85 3C C8 12B5            82          MVI   DRVADR,X'C8'   SETUP DRIVE ADDRESS
0A89 3C 40 12B6            83          MVI   UCKMSK,X'40'   SETUP UNIT CHECK MASK
                           84 *
0A8D F2 87 14              85          J     CKRDY          GO TO CHECK DRIVE READY
                           86 *
0A90 C0 87 021A            87 BGN06    B     PRINT          PRINT MESSAGE
0A94 46                    88          DC    XL1'46'          INVALID SETTING
0A95 2E                    89          DC    AL1(MSG03N-MSG03+1)   OF SENSE SWITCHES 1A-1B
0A96 105C                  90          DC    AL2(MSG03N)
0A98 C1E2                  91          DC    AL2(HLTE2)
                           92 *
0A9A C0 87 0222            93          B     HALT           UNCONDITIONAL HALT E2
0A9E C1E2                  94          DC    AL2(HLTE2)
                           95 *
0AA0 C0 87 0A49            96          B     BGN01          GO TO CHECK SENSE SWS AGAIN
                           97 *
                           98 *-------------------------------------------------------------------------------
                           99 *                    CHECK FOR DRIVE READY CONDITION
                          100 *
0AA4 0C 00 0A87 12B5      101 CKRDY    MVC   RDYSNS+1(1),DRVADR   BUILD READ DIAG
0AAA 3A 01 0A87           102          SBN   RDYSNS+1,BIT7          SENSE COMMAND
                          103 *
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0AAE 31 C6 124F            104          LIO   DDCR,X'C6'              DDCF ADDRESS TO DDCR
   0AB2 31 C4 1251            105          LIO   DDDR,X'C4'              DDDF ADDRESS TO DDDR
                              106 *
   0AB6 F3 C0 07              107 RDYSNS   SIO   X'07',*-*                READ DIAGNOSTIC SENSE DATA
                              108 *
   0AB9 C1 C2 0AB9            109          TIO   *,X'C2'                 LOOP ON ATTACHMENT BUSY
                              110 *
   0ABD 38 40 12E4            111          TBN   DDDF,BIT1               BRANCH IF
   0AC1 F2 90 1A              112          JF    READY                     DRIVE IS READY
                              113 *
   0AC4 0C 00 1063 12B4       114          MVC   MSG04+6(1),DRV          DRIVE NUMBER TO PRINT MESSAGE
                              115 *
   0ACA C0 87 021A            116          B     PRINT                   PRINT MESSAGE
   0ACE C6              0ACE  117          DC    XL1'C6'                   'DRIVE X NOT READY'
   0ACF 11              0ACF  118          DC    AL1(MSG04N-MSG04+1)
   0AD0 106D            0AD1  119          DC    AL2(MSG04N)
   0AD2 C101            0AD3  120          DC    AL2(HLT01)
                              121 *
   0AD4 C0 87 0222            122          B     HALT                    ERROR HALT 01
   0AD8 C101            0AD9  123          DC    AL2(HLT01)
                              124 *
   0ADA C0 87 0A49            125          B     BGN01                   GO TO RE-CHECK SENSE SWITCHES
                              126 *
   0ADE 0C 01 12AB 124D       127 READY    MVC   MAXCYL(2),P209          SETUP MAXIMUM CYLINDER ADDRESS
   0AE4 0C 01 12AD 1245       128          MVC   MAXHD(2),P7             SETUP MAXIMUM HEAD ADDRESS
                              129 *
   0AEA 39 07 12E6            130          TBF   DDDF+2,X'07'            SKIP IF NOT
   0AEE F2 90 0C              131          JF    SCAN                      CE DATA MODULE
                              132 *
   0AF1 0C 01 12AB 124B       133          MVC   MAXCYL(2),P34           SETUP MAXIMUM CYLINDER ADDRESS
   0AF7 0C 01 12AD 1247       134          MVC   MAXHD(2),P17            SETUP MAXIMUM HEAD ADDRESS
                              135 *
                              136 *-------------------------------------------------------------------
                              137 *                START DATA MODULE SCAN
                              138 *
   0AFD 0C 03 12B1 1239       139 SCAN     MVC   SKADR(4),NULLS          INITIALIZE SEEK ADDRESS
                              140 *
   0B03 0C 00 1082 12B4       141          MVC   MSG05N(1),DRV           DRIVE NUMBER TO PRINT MESSAGE
                              142 *
   0B09 C0 87 021A            143          B     PRINT                   PRINT MESSAGE
   0B0D 42              0B0D  144          DC    XL1'42'                   'START SCAN
   0B0E 15              0B0E  145          DC    AL1(MSG05N-MSG05+1)         ON DRIVE X'
   0B0F 1082            0B10  146          DC    AL2(MSG05N)
   0B11 C100            0B12  147          DC    AL2(HLT00)
                              148 *
                              149 *-------------------------------------------------------------------
                              150 *                RECALIBRATE
                              151 *
   0B13 3C 00 12B7            152 RECAL    MVI   Q,X'00'                 SETUP Q AND R
   0B17 3C 01 12B8            153          MVI   R,X'01'                   BYTES FOR SIO COMMAND
                              154 *
   0B1B 0C 09 12DE 1239       155          MVC   NN(10),NULLS            CLEAR DDCF AREA
                              156 *
   0B21 C0 87 0CB0            157          B     XEQ                     GO TO EXECUTE COMMAND
                              158 *
   0B25 38 80 12A9            159          TBN   IND,UNITCK              GO TO ERROR
   0B29 C0 10 0D72            160          BT    UCK                       PRINT IF UNIT CHECK
                              161 *
                              162 *-------------------------------------------------------------------
                              163 *                SEEK
                              164 *
   0B2D 38 80 12A9            165 SEEK     TBN   IND,UNITCK              GO TO
   0B31 38 01 12E4            166          TBN   DDDF,BIT7                 RECALIBRATE
   0B35 C0 10 0B13            167          BT    RECAL                       IF SEEK CHECK
                              168 *
   0B39 3C 00 12B7            169          MVI   Q,X'00'                 SETUP Q AND R
   0B3D 3C 00 12B8            170          MVI   R,X'00'                   BYTES FOR SIO COMMAND
                              171 *
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0B41 0C 09 12DE 1239       172          MVC   NN(10),NULLS            CLEAR DDCF AREA
                              173 *
   0B47 0C 03 12D9 12B1       174          MVC   HH(4),SKADR             MOVE SEEK ARGUMENT TO DDCF
                              175 *
   0B4D C0 87 0C80            176          B     XEQ                     GO TO EXECUTE COMMAND
                              177 *
   0B51 38 80 12A9            178          TBN   IND,UNITCK              GO TO ERROR
   0B55 C0 10 0D72            179          BT    UCK                       PRINT IF UNIT CHECK
                              180 *
                              181 *-------------------------------------------------------------------
                              182 *                READ HOME ADDRESS AND RECORD ZERO COUNT EVEN
                              183 *
   0B59 3C 01 12B7            184 RDHAE    MVI   Q,X'01'                 SETUP Q AND R
   0B5D 3C 01 12B8            185          MVI   R,X'01'                   BYTES FOR SIO COMMAND
                              186 *
   0B61 0C 09 12DE 1239       187          MVC   NN(10),NULLS            CLEAR DDCF AREA
                              188 *
   0B67 C0 87 0C80            189          B     XEQ                     GO TO EXECUTE COMMAND
                              190 *
   0B6B 38 80 12A9            191          TBN   IND,UNITCK              GO TO ERROR
   0B6F C0 10 0D72            192          BT    UCK                       PRINT IF UNIT CHECK
                              193 *
   0B73 0C 04 12BD 12D9       194          MVC   HAE(5),HH               SAVE HA FIELD
   0B79 0C 08 12C8 12EC       195          MVC   R0E(9),DDDF+8           SAVE R0 COUNT FIELD
                              196 *
                              197 *-------------------------------------------------------------------
                              198 *                READ HOME ADDRESS AND RECORD ZERO COUNT ODD
                              199 *
   0B7F 3C 01 12B7            200 RDHAO    MVI   Q,X'C1'                 SETUP Q AND R
   0B83 3C 09 12B8            201          MVI   R,X'09'                   BYTES FOR SIO COMMAND
                              202 *
   0B87 0C 09 12DE 1239       203          MVC   NN(10),NULLS            CLEAR DDCF AREA
                              204 *
   0B8D C0 87 0CB0            205          B     XEQ                     GO TO EXECUTE COMMAND
                              206 *
   0B91 38 80 12A9            207          TBN   IND,UNITCK              GO TO ERROR
   0B95 C0 10 0D72            208          BT    UCK                       PRINT IF UNIT CHECK
                              209 *
   0B99 0C 04 12C2 12D9       210          MVC   HAO(5),HH               SAVE HA FIELD
   0B9F 0C 08 12D4 12EC       211          MVC   R0O(9),DDDF+8           SAVE R0 COUNT FIELD
                              212 *
   0BA5 0D 04 12BD 12C2       213          CLC   HAE(5),HAO              GO TO ERROR PRINT
   0BAB C0 01 0DC3            214          BNE   HAERR                     IF INCONSISTENT HA'S
                              215 *
   0BAF 0D 03 12BD 12B1       216          CLC   HAE(4),SKADR            GO TO ERROR PRINT
   0BB5 C0 01 0DC3            217          BNE   HAERR                     IF INCORRECT CCHH IN HA
                              218 *
   0BB9 0D 08 12CB 12D4       219          CLC   R0E(9),R0O              GO TO ERROR PRINT
   0BBF C0 01 0DF1            220          BNE   R0ERR                     IF INCONSISTENT R0'S
                              221 *
   0BC3 0D 00 12B9 12C3       222          CLC   FFHAE(1),FFR0E          GO TO ERROR PRINT
   0BC9 C0 01 0E1F            223          BNE   FFERR                     IF INCONSISTENT FLAG
                              224 *
   0BCD 0D 02 12CB 1243       225          CLC   DLR0E(3),EIGHT          GO TO ERROR PRINT
   0BD3 C0 01 0DF1            226          BNE   R0ERR                     IF INVALID KLDL IN R0
                              227 *
   0BD7 0D 01 12C5 12AB       228          CLC   CCR0E(2),MAXCYL         GO TO ERROR PRINT
   0BDD C0 84 0DF1            229          BH    R0ERR                     IF INVALID CC IN R0
                              230 *
   0BE1 0D 01 12C7 1249       231          CLC   HHR0E(2),NINTEN         GO TO ERROR PRINT
   0BE7 C0 84 0DF1            232          BH    R0ERR                     IF INVALID HH IN R0
                              233 *
   0BEB 38 02 12D5            234          TBN   FF,BIT6                 GO TO PRINT IF TRACK
   0BEF C0 10 0E4D            235          BT    DEF                       IS FLAGGED DEFECTIVE
                              236 *
   0BF3 38 01 12D5            237          TBN   FF,BIT7                 SKIP IF TRACK
   0BF7 F2 10 11              238          JT    RDVKD                     IS FLAGGED ALTERNATE
                              239 *
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   08FA 0D 03 12C7 12B1      240          CLC   HHR0E(4),SKADR        GO TO ERROR PRINT
   0C00 C0 01 CDF1           241          BNE   R0ERR                   IF INVALID CCHH IN R0
                             242 *
   0C04 38 01 020B           243          TBN   SBYTE3,SSW1F          BYPASS READ VERIFY
   0C08 F2 10 51             244          JT    CKALT                   IF SENSE SWITCH '1F' IS ON
                             245 *
                             246 *-------------------------------------------------------------
                             247 *              READ VERIFY KEY-DATA
                             248 *
   0C0B 3C 01 12B7           249 RDVKD    MVI   Q,X'01'             SETUP Q AND R
   0C0F 3C 03 12B8           250          MVI   R,X'03'               BYTES FOR SIO COMMAND
                             251 *
   0C13 0C 08 12DD 12CB      252          MVC   DL(9),R0E           INITIALIZE DDCF AREA
                             253 *
   0C19 0E 00 12DA 123F      254 NXREC    ALC   RR,ONE              ADVANCE RECORD NUMBER
   0C1F 3C 30 12DE           255          MVI   NN,48               VERIFY ONE TRACK
                             256 *
   0C23 C0 87 0C80           257          B     XEQ                 GO TO EXECUTE COMMAND
                             258 *
   0C27 0D 03 12D9 12C7      259          CLC   HH(4),HHR0E         GO TO CHECK NEXT
   0C2D C0 01 0C5C           260          BNE   CKALT                 TRACK IF HEAD ADVANCE
                             261 *
   0C31 38 80 12A9           262          TBN   IND,UNITCK          GO TO CHECK NEXT
   0C35 C0 90 0C5C           263          BF    CKALT                 TRACK IF NO UNIT CHECK
                             264 *
   0C39 38 01 12B9           265          TBN   FFHAE,BIT7          ASSUME END OF TRACK
   0C3D 38 02 12E4           266          TBN   DDDF,BIT6             IF FLAGGED ALTERNATE
   0C41 C0 10 0EBF           267          BT    ALT                     AND TRACK CONDITION CHECK
                             268 *
   0C45 3D 00 12E4           269          CLI   DDDF,0              GO TO ERROR PRINT
   0C49 C0 01 0D72           270          BNE   UCK                   IF UNEXPECTED UNIT CHECK
                             271 *
   0C4D 38 20 12E5           272          TBN   DDDF+1,BIT2         BRANCH IF END
   0C51 F2 10 08             273          JT    CKALT                 CYLINDER CONDITION
                             274 *
   0C54 3D 32 12DA           275          CLI   RR,50               GO TO CHECK NEXT RECORD
   0C58 C0 04 0C19           276          BNH   NXREC                 IF EVEN LIMIT NOT YET REACHED
                             277 *
   0C5C 38 01 1289           278 CKALT    TBN   FFHAE,BIT7          BRANCH IF TRACK
   0C60 C0 10 0EBF           279          BT    ALT                   IS FLAGGED ALTERNATE
                             280 *
                             281 *-------------------------------------------------------------
                             282 *              ADVANCE TRACK ADDRESS
                             283 *
   0C64 38 80 12A9           284 NXTRC    TBN   IND,UNITCK          END SCAN IF
   0C68 38 20 12E5           285          TBN   DDDF+1,BIT2           END OF CYLINDER
   0C6C F2 10 26             286          JT    NSCAN                   CONDITION DETECTED
                             287 *
   0C6F 0E 01 12B1 123F      288          ALC   HD(2),ONE           ADVANCE HEAD ADDRESS
                             289 *
   0C75 0D 01 12B1 1249      290          CLC   HD(2),NINTEN        BRANCH IF MORE
   0C7B C0 04 0C8B           291          BNH   CKCYL                 HEADS TO BE TESTED
                             292 *
   0C7F 0C 01 12B1 1239      293          MVC   HD(2),NULLS         RESET TO HEAD ZERO
                             294 *
   0C85 0E 01 12AF 123F      295          ALC   CYL(2),ONE          ADVANCE CYLINDER ADDRESS
                             296 *
   0C8B 0D 03 12B1 12AD      297 CKCYL    CLC   HD(4),MAXHD         BRANCH IF MORE
   0C91 C0 04 0B2D           298          BNH   SEEK                  CYLINDERS TO BE TESTED
                             299 *
                             300 *-------------------------------------------------------------
                             301 *              END DATA MODULE SCAN
                             302 *
   0C95 0C 00 1098 12B4      303 NSCAN    MVC   MSG06N(1),DRV       MOVE DRV NUMBER TO END MSG
                             304 *
   0C9B C0 87 021A           305          B     PRINT               SPACE PRINTER 2 LINES
   0C9F 12          0C9F     306          DC    XL1'12'
                             307 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0CA0 C0 87 021A           308          B     PRINT               PRINT MESSAGE
   0CA4 06          0CA4     309          DC    XL1'06'               'END SCAN ON DRV X'
   0CA5 16          0CA5     310          DC    AL1(MSG06N-MSG06+1)
   0CA6 1098        0CA7     311          DC    AL2(MSG06N)
                             312 *
   0CA8 3B 30 020B           313          SBF   SBYTE3,SSW1A+SSW1B  RESET SENSE SWITCHES
                             314 *
   0CAC C0 87 0216           315          B     LINK                TERMINATE SECTION
                             316 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          318 ********************************************************************
                          319 *                                                                  *
                          320 *              COMMON 3340 COMMAND EXECUTION SUBROUTINE            *
                          321 *                                                                  *
                          322 ********************************************************************
                          323 *
  0CB0 34 08 0D3A         324 XEQ      ST    XEQX+3,ARR              SAVE RETURN ADDRESS
                          325 *
  0CB4 C0 87 0212         326          B     TEST                    CHECK FOR USER INTERVENTION
                          327 *
  0CB8 0C 00 0CF7 12B7    328          MVC   SIO+1(1),Q              MOVE Q AND R
  0CBE 0C 00 0CF8 12B8    329          MVC   SIO+2(1),R                BYTES TO SIO
                          330 *
  0CC4 0E 00 0CF7 12B5    331          ALC   SIO+1(1),DRVADR         ADD DRIVE ADDRESS TO Q BYTE
                          332 *
  0CCA 0C 00 0CF3 12B5    333          MVC   TIORDY+1(1),DRVADR      SETUP Q BYTE IN TIO
  0CD0 0C 00 0CFE 12B5    334          MVC   TIOBSY+1(1),DRVADR        'NOT RDY / UNIT CHECK' AND
  0CD6 3A 01 0CFE         335          SBN   TIOBSY+1,BIT7               'SEEK BUSY' INSTRUCTIONS
                          336 *
  0CDA 30 C5 12B3         337          SNS   SNS,X'C5'               SENSE ADAPTER STATUS
                          338 *
  0CDE 38 01 12B3         339          TBN   SNS,BIT7                BRANCH IF
  0CE2 C0 10 0D3B         340          BT    ACK                       ADAPTER CHECK
                          341 *
  0CE6 31 C6 124F         342          LIO   DDCR,X'C6'              LOAD DDCF ADDRESS IN DDCR
  0CEA 31 C4 1251         343          LIO   DDDR,X'C4'              LOAD DDDF ADDRESS IN DDDR
                          344 *
  0CEE 3B 80 12A9         345          SBF   IND,UNITCK              RESET UNIT CHECK INDICATOR
                          346 *
  0CF2 C1 00 0D1A         347 TIORDY   TIO   RDSNS,*-*               BRANCH IF DRIVE NOT READY
                          348 *
  0CF6 F3 00 00           349 SIO      SIO   *-*,*-*                 ISSUE 3340 START I/O COMMAND
                          350 *
  0CF9 C1 C2 0CF9         351          TIO   *,X'C2'                 LOOP ON ATTACHMENT BUSY
                          352 *
  0CFD C1 00 0CFD         353 TIOBSY   TIO   *,*-*                   LOOP ON SEEK BUSY
                          354 *
  0D01 30 C5 12B3         355          SNS   SNS,X'C5'               SENSE ADAPTER STATUS
                          356 *
  0D05 38 01 12B3         357          TBN   SNS,BIT7                BRANCH IF
  0D09 C0 10 0D3B         358          BT    ACK                       ADAPTER CHECK
                          359 *
  0D0D 0C 00 0D14 12B6    360          MVC   *+7(1),UCKMSK           RETURN TO
  0D13 39 00 12B2         361          TBF   SNS-1,*-*                 CALLING ROUTINE
  0D17 F2 10 1D           362          JT    XEQX                        IF NO UNIT CHECK
                          363 *
                          364 *--------------------------------------------------------------------
                          365 *              READ DIAGNOSTIC SENSE DATA
                          366 *
  0D1A 0C 00 0D2D 12B5    367 RDSNS    MVC   SIOSNS+1(1),DRVADR      BUILD READ DIAG
  0D20 3A 01 0D2D         368          SBN   SIOSNS+1,BIT7             SENSE COMMAND
                          369 *
  0D24 31 C6 124F         370          LIO   DDCR,X'C6'              DDCF ADDRESS TO DDCR
  0D28 31 C4 1251         371          LIO   DDDR,X'C4'              DDDF ADDRESS TO DDDR
                          372 *
  0D2C F3 00 07           373 SIOSNS   SIO   X'07',*-*               READ DIAGNOSTIC SENSE DATA
                          374 *
  0D2F C1 C2 0D2F         375          TIO   *,X'C2'                 LOOP ON ATTACHMENT BUSY
                          376 *
  0D33 3A 80 12A9         377          SBN   IND,UNITCK              SET UNIT CHECK INDICATOR
                          378 *
  0D37 C0 87 0000         379 XEQX     B     *-*                     RETURN TO CALLING ROUTINE
                          380 *
                          381 *--------------------------------------------------------------------
                          382 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          384 ********************************************************************
                          385 *                                                                  *
                          386 *                    TRACK ENDING CONDITIONS                       *
                          387 *                                                                  *
                          388 ********************************************************************
                          389 *
                          390 *              ADAPTER CHECK
                          391 *
  0D3B 0C 4F 12A7 12A8    392 ACK      MVC   MSGN(80),MSGN+1         CLEAR MESSAGE BUFFER
                          393 *
  0D41 3A 80 0F7C         394          SBN   PRTFLG,BIT0             SET ERROR PRINT FLAG
  0D45 3A 40 12A9         395          SBN   IND,ERRHLT              SET ERROR HALT INDICATOR
                          396 *
  0D49 3C 5C 1258         397          MVI   MSG,C'*'                ERROR MESSAGE
  0D4D 0C 0D 1276 10A6    398          MVC   MSG+30,MSG07N(14)         TO PRINT BUFFER
                          399 *
  0D53 3C 00 12FC         400          MVI   DDDF+24,0               CLEAR DDDF AREA
  0D57 0C 17 12FB 12FC    401          MVC   DDDF+23(24),DDDF+24
                          402 *
  0D5D 0C 01 12E5 12B3    403          MVC   DDDF+1(2),SNS           BUILD
  0D63 31 C7 1257         404          LIO   SNS23,X'C7'               FORMAT 3
  0D67 30 C7 12E7         405          SNS   DDDF+3,X'C7'                DIAGNOSTIC
  0D6B 3C 30 12EB         406          MVI   DDDF+7,X'30'                  SENSE DATA
                          407 *
  0D6F F2 87 44           408          J     PRTSNS                  GO TO PRINT SENSE DATA
                          409 *
                          410 *--------------------------------------------------------------------
                          411 *              UNIT CHECK
                          412 *
  0D72 0C 4F 12A7 12A8    413 UCK      MVC   MSGN(80),MSGN+1         CLEAR MESSAGE BUFFER
                          414 *
  0D78 3A 80 0F7C         415          SBN   PRTFLG,BIT0             SET ERROR PRINT INDICATOR
  0D7C 3B 40 12A9         416          SBF   IND,ERRHLT              RESET ERROR HALT INDICATOR
                          417 *
  0D80 38 01 12E4         418          TBN   DDDF,BIT7               BRANCH IF
  0D84 F2 10 18           419          JT    SCK                       SEEK CHECK
                          420 *
  0D87 38 08 12E4         421          TBN   DDDF,BIT4               BRANCH IF
  0D8B F2 10 1E           422          JT    DCK                       DATA CHECK
                          423 *
  0D8E 3A 40 12A9         424          SBN   IND,ERRHLT              SET ERROR HALT INDICATOR
                          425 *
  0D92 3C 5C 1258         426          MVI   MSG,C'*'                ERROR MESSAGE
  0D96 0C 0D 1276 10B4    427          MVC   MSG+30,MSG08N(14)         TO PRINT BUFFER
                          428 *
  0D9C F2 87 17           429          J     PRTSNS                  GO TO PRINT SENSE DATA
                          430 *
                          431 *--------------------------------------------------------------------
                          432 *              SEEK CHECK
                          433 *
  0D9F 3C 5C 1258         434 SCK      MVI   MSG,C'*'                ERROR MESSAGE
  0DA3 0C 0D 1276 10C2    435          MVC   MSG+30,MSG09N(14)         TO PRINT BUFFER
                          436 *
  0DA9 F2 87 0A           437          J     PRTSNS                  GO TO PRINT SENSE DATA
                          438 *
                          439 *--------------------------------------------------------------------
                          440 *              DATA CHECK
                          441 *
  0DAC 3C 5C 1258         442 DCK      MVI   MSG,C'*'                ERROR MESSAGE
  0DB0 0C 0D 1276 10D0    443          MVC   MSG+30,MSG10N(14)         TO PRINT BUFFER
                          444 *
  0DB6 C0 87 021E         445 PRTSNS   B     UNPACK                 UNPACK
  0DBA 18            0DBA 446          DC    IL1'24'                  SENSE DATA
  0DBB 12FB          0DBC 447          DC    AL2(DDDF+23)               TO MESSAGE
  0DBD 12A7          0DBE 448          DC    AL2(MSGN)                    BUFFER AREA
                          449 *
  0DBF C0 87 0F2E         450          B     PRTMSG                  GO TO PRINT MESSAGE
                          451 *
```

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```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                               452 *-------------------------------------------------------------------
                               453 *                    INVALID HOME ADDRESS
                               454 *
    0DC3 0C 4F 12A7 12A8       455 HAERR    MVC   MSGN(80),MSGN+1          CLEAR MESSAGE BUFFER
                               456 *
    0DC9 3A 80 0F7C            457          SBN   PRTFLG,BIT0              SET ERROR PRINT INDICATOR
    0DC0 3B 40 12A9            458          SBF   IND,ERRHLT               RESET ERROR HALT INDICATOR
                               459 *
    0DD1 C0 87 021E            460          B     UNPACK                   UNPACK
    0DD5 05              0DD5  461          DC    IL1'5'                     HA EVEN
    0DD6 12BD            0DD7  462          DC    AL2(HAE)                     TO MESSAGE
    0DD8 10ED            0DD9  463          DC    AL2(MSG11A)                    BUFFER AREA
                               464 *
    0DDA C0 87 021E            465          B     UNPACK                   UNPACK
    0DDE 05              0DDE  466          DC    IL1'5'                     HA ODD
    0DDF 12C2            0DE0  467          DC    AL2(HAO)                     TO MESSAGE
    0DE1 10FD            CDE2  468          DC    AL2(MSG11N)                    BUFFER AREA
                               469 *
    CDE3 3C 5C 1258            470          MVI   MSG,C'*'                 ERROR MESSAGE
    0DE7 0C 2C 1295 10FD       471          MVC   MSG+61(45),MSG11N          TO PRINT BUFFER
                               472 *
    0DED C0 87 0F2E            473          B     PRTMSG                   GO TO PRINT MESSAGE
                               474 *
                               475 *-------------------------------------------------------------------
                               476 *                    INVALID RECORD ZERO COUNT
                               477 *
    0DF1 0C 4F 12A7 12A8       478 R0ERR    MVC   MSGN(80),MSGN+1          CLEAR MESSAGE BUFFER
                               479 *
    0DF7 3A 80 CF7C            480          SBN   PRTFLG,BIT0              SET ERROR PRINT INDICATOR
    0DFB 3B 40 12A9            481          SBF   IND,ERRHLT               RESET ERROR HALT INDICATOR
                               482 *
    0DFF C0 87 021E            483          B     UNPACK                   UNPACK
    0E03 C9              0E03  484          DC    IL1'9'                     R0 EVEN
    0E04 12CB            0E05  485          DC    AL2(R0E)                     TO MESSAGE
    0E06 1122            0E07  486          DC    AL2(MSG12A)                    BUFFER AREA
                               487 *
    0E08 C0 87 021E            488          B     UNPACK                   UNPACK
    0E0C 09              0E0C  489          DC    IL1'9'                     R0 ODD
    0E0D 12D4            0E0E  490          DC    AL2(R0O)                     TO MESSAGE
    0E0F 113A            0E10  491          DC    AL2(MSG12N)                    BUFFER AREA
                               492 *
    0E11 3C 5C 1258            493          MVI   MSG,C'*'                 ERROR MESSAGE
    0E15 0C 3C 12A5 113A       494          MVC   MSG+77(61),MSG12N          TO PRINT BUFFER
                               495 *
    0E1B CC 87 0F2E            496          B     PRTMSG                   GO TO PRINT MESSAGE
                               497 *
                               498 *-------------------------------------------------------------------
                               499 *                    INCONSISTENT FLAG BYTES
                               500 *
    0E1F 0C 4F 12A7 12A8       501 FFERR    MVC   MSGN(80),MSGN+1          CLEAR MESSAGE BUFFER
                               502 *
    0E25 3A 80 0F7C            503          SBN   PRTFLG,BIT0              SET ERROR PRINT INDICATOR
    0E29 3B 40 12A9            504          SBF   IND,ERRHLT               RESET ERROR HALT INDICATOR
                               505 *
    0E2D C0 87 021E            506          B     UNPACK                   UNPACK
    0E31 01              0E31  507          DC    IL1'1'                     HA FLAG
    0E32 12B9            0E33  508          DC    AL2(FFHAE)                   TO MESSAGE
    0E34 1156            0E35  509          DC    AL2(MSG13A)                    BUFFER AREA
                               510 *
    0E36 C0 87 021E            511          B     UNPACK                   UNPACK
    0E3A 01              0E3A  512          DC    IL1'1'                     R0 FLAG
    0E3B 12C3            0E3C  513          DC    AL2(FFR0E)                   TO MESSAGE
    0E3D 115D            0E3E  514          DC    AL2(MSG13N)                    BUFFER AREA
                               515 *
    0E3F 3C 5C 1258            516          MVI   MSG,C'*'                 ERROR MESSAGE
    0E43 0C 22 128B 115D       517          MVC   MSG+51(35),MSG13N          TO PRINT BUFFER
                               518 *
    0E49 C0 87 0F2E            519          B     PRTMSG                   GO TO PRINT MESSAGE
```


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```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                               520 *
                               521 *-------------------------------------------------------------------
                               522 *                    TRACK FLAGGED DEFECTIVE
                               523 *
    0E4D 0C 4F 12A7 12A8       524 DEF      MVC   MSGN(80),MSGN+1          CLEAR MESSAGE BUFFER
                               525 *
    0E53 3B 80 0F7C            526          SBF   PRTFLG,BIT0              RESET ERROR PRINT INDICATOR
    0E57 3B 40 12A9            527          SBF   IND,ERRHLT               RESET ERROR HALT INDICATOR
                               528 *
    0E5B 3C 5C 1258            529          MVI   MSG,C'*'                 ERROR MESSAGE
    0E5F 0C 2A 1293 1188       530          MVC   MSG+59(43),MSG14A          TO PRINT BUFFER
                               531 *
    0E65 0D 03 12BD 12C7       532          CLC   HHHAE(4),HHR0E           GO TO PRINT MESSAGE IF
    0E6B F2 81 C0              533          JE    PRTMSG                     NO ALTERNATE ASSIGNED
                               534 *
    0E6E 3C C4 1258            535          MVI   MSG,C'D'                 FLAG 'DEFECTIVE TRACK' MSG
                               536 *
    0E72 0C 02 11A5 123C       537          MVC   MSG14B(3),ZEROS          INITIALIZE CYL AND HD
    0E78 0C 01 11AC 123C       538          MVC   MSG14N(2),ZEROS            VALUES IN PRINT MESSAGE
                               539 *
    0E7E 0C 03 12E2 12C7       540          MVC   WORK+3(4),HHR0E          ALT ADDR TO WORK AREA
                               541 *
    0E84 0D 01 12E0 1239       542 ALTCYL   CLC   WORK+1(2),NULLS          CONVERT
    0E8A F2 81 10              543          JE    ALTHD                      CYLINDER
    0E8D 06 20 11A5 123D       544          AZ    MSG14B(3),D1(1)              ADDRESS TO
    0E93 0F 01 12E0 123F       545          SLC   WORK+1(2),ONE                  DECIMAL FOR
    0E99 C0 87 0E84            546          B     ALTCYL                           PRINT MESSAGE
                               547 *
    0E9D 0D 01 12E2 1239       548 ALTHD    CLC   WORK+3(2),NULLS          CONVERT
    0EA3 F2 81 10              549          JE    ALTPRT                     HEAD
    0EA6 06 10 11AC 123D       550          AZ    MSG14N(2),D1(1)              ADDRESS TO
    0EAC 0F 01 12E2 123F       551          SLC   WORK+3(2),ONE                  DECIMAL FOR
    0EB2 C0 87 0E9D            552          B     ALTHD                            PRINT MESSAGE
                               553 *
    0EB6 0C 23 12A2 11AC       554 ALTPRT   MVC   MSG+74(36),MSG14N        COMPLETE PRINT MESSAGE
                               555 *
    0EBC F2 87 6F              556          J     PRTMSG                   GO TO PRINT MESSAGE
                               557 *
                               558 *-------------------------------------------------------------------
                               559 *                    TRACK FLAGGED ALTERNATE
                               560 *
    0EBF 0C 4F 12A7 12A8       561 ALT      MVC   MSGN(80),MSGN+1          CLEAR MESSAGE BUFFER
                               562 *
    0EC5 3B 80 0F7C            563          SBF   PRTFLG,BIT0              RESET ERROR PRINT INDICATOR
    0EC9 3B 40 12A9            564          SBF   IND,ERRHLT               RESET ERROR HALT INDICATOR
                               565 *
    0ECD 3C C9 1258            566          MVI   MSG,C'I'                 INFORMATION MESSAGE
    0ED1 0C 25 128E 11D2       567          MVC   MSG+54(38),MSG15A          TO PRINT BUFFER
                               568 *
    0ED7 0D 03 12BD 12C7       569          CLC   HHHAE(4),HHR0E           GO TO PRINT MESSAGE
    CEDD F2 81 4E              570          JE    PRTMSG                     IF UNUSED ALTERNATE
                               571 *
    0EE0 3C C1 1258            572          MVI   MSG,C'A'                 FLAG 'ALTERNATE TRACK' MSG
                               573 *
    0EE4 0C 02 11EE 123C       574          MVC   MSG15B(3),ZEROS          INITIALIZE CYL AND HD
    0EEA 0C 01 11F5 123C       575          MVC   MSG15N(2),ZEROS            VALUES IN PRINT MESSAGE
                               576 *
    0EF0 0C 03 12E2 12C7       577          MVC   WORK+3(4),HHR0E          DEF ADDR TO WORK AREA
                               578 *
    0EF6 0D 01 12E0 1239       579 DEFCYL   CLC   WORK+1(2),NULLS          CONVERT
    0EFC F2 81 10              580          JE    DEFHD                      CYLINDER
    0EFF 06 20 11EE 123D       581          AZ    MSG15B(3),D1(1)              ADDRESS TO
    0F05 0F 01 12E0 123F       582          SLC   WORK+1(2),ONE                  DECIMAL FOR
    0F0B CC 87 0EF6            583          B     DEFCYL                           PRINT MESSAGE
                               584 *
    0F0F 0D 01 12E2 1239       585 DEFHD    CLC   WORK+3(2),NULLS          CONVERT
    0F15 F2 81 10              586          JE    DEFPRT                     HEAD
    0F18 06 1C 11F5 123D       587          AZ    MSG15N(2),D1(1)              ADDRESS TO
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0F1E 0F 01 12E2 123F       588          SLC   WORK+3(2),ONE              DECIMAL FOR
   0F24 C0 87 0F0F            589          B     DEFHD                        PRINT MESSAGE
                              590 *
   0F28 0C 22 12A1 11F5       591 DEFPRT   MVC   MSG+73(35),MSG16N       COMPLETE PRINT MESSAGE
                              592 *
                              593 *-------------------------------------------------------------
                              594 *               PRINT MESSAGE
                              595 *
   0F2E 0C 02 11FD 123C       596 PRTMSG   MVC   MSG16A(3),ZEROS         INITIALIZE
   0F34 0C 01 1204 123C       597          MVC   MSG16N(2),ZEROS           CYL, HD PRINT MESSAGE
                              598 *
   0F3A 0C 03 12E2 12B1       599          MVC   WORK+3(4),SKADR         SEEK ADDR TO WORK AREA
                              600 *
   0F40 0D 01 12E0 1239       601 PRTCYL   CLC   WORK+1(2),NULLS          CONVERT
   0F46 F2 81 10              602          JE    PRTHD                     CYLINDER
   0F49 06 20 11FD 123D       603          AZ    MSG16A(3),D1(1)             ADDRESS TO
   0F4F 0F 01 12E0 123F       604          SLC   WORK+1(2),ONE                DECIMAL FOR
   0F55 C0 87 0F40            605          B     PRTCYL                       PRINT MESSAGE
                              606 *
   0F59 0D 01 12E2 1239       607 PRTHD    CLC   WORK+3(2),NULLS          CONVERT
   0F5F F2 81 10              608          JE    PRT                       HEAD
   0F62 06 10 1204 123D       609          AZ    MSG16N(2),D1(1)             ADDRESS TO
   0F68 0F 01 12E2 123F       610          SLC   WORK+3(2),ONE                DECIMAL FOR
   0F6E C0 87 0F59            611          B     PRTHD                        PRINT MESSAGE
                              612 *
   0F72 0C 0E 1267 1204       613 PRT      MVC   MSG+15(15),MSG16N      COMPLETE PRINT MESSAGE
                              614 *
   0F78 C0 87 021A            615          B     PRINT                  PRINT MESSAGE
   0F7C 01          0F7C      616 PRTFLG   DC    XL1'01'                  CYL XXX, HD XX - ETC.
   0F7D 50          0F7D      617          DC    IL1'80'
   0F7E 12A7        0F7F      618          DC    AL2(MSGN)
                              619 *
   0F80 38 40 12A9            620          TBN   IND,ERRHLT               GO TO TEST NEXT TRACK
   0F84 C0 90 0C64            621          BF    NXTRC                      IF NO ERROR HALT REQUIRED
                              622 *
   0F88 C0 87 021A            623          B     PRINT                    SPACE PRINTER 2 LINES
   0F8C 92          0F8C      624          DC    XL1'92'
                              625 *
   0F8D C0 87 021A            626          B     PRINT                    PRINT MESSAGE
   0F91 C6          0F91      627          DC    XL1'C6'                    'SCAN TERMINATED'
   0F92 2B          0F92      628          DC    AL1(MSG17N-MSG17+1)
   0F93 122F        0F94      629          DC    AL2(MSG17N)
   0F95 C101        0F96      630          DC    AL2(HLT01)
                              631 *
   0F97 C0 87 0222            632          B     HALT                     ERROR HALT 01
   0F9B C101        0F9C      633          DC    AL2(HLT01)
                              634 *
   0F9D C0 87 0216            635          B     LINK                     TERMINATE SECTION
                              636 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              638 ********************************************************************
                              639 *                                                                  *
                              640 *        INTERFACE TO MICROCODE LOADER PROGRAM (SECTION C17)       *
                              641 *                                                                  *
                              642 ********************************************************************
                              643 *
   0FA1 34 08 0FD5            644 MPL      ST    MPLX+3,ARR               SAVE RETURN ADDRESS
                              645 *
   0FA5 0D 01 0A1C 0FCD       646          CLC   LDRID(2),C17             GO TO LOAD LOADER
   0FAB F2 01 09              647          JNE   LDRLD                      IF NOT ALREADY IN STG
                              648 *
   0FAE 0D 01 6C01 0FCD       649          CLC   LDR+1(2),C17             BRANCH IF SECTION C17
   0FB4 F2 81 17              650          JE    LDRGO                      IS ALREADY IN MAIN STORAGE
                              651 *
   0FB7 C0 87 021A            652 LDRLD    B     PRINT                    PRINT MESSAGE
   0FBB 46          0FBB      653          DC    XL1'46'                    LOADING SECTION C17
   0FBC 13          0FBC      654          DC    AL1(MSG01N-MSG01+1)
   0FBD 0FE8        0FBE      655          DC    AL2(MSG01N)
   0FBF C100        0FC0      656          DC    AL2(HLT00)
                              657 *
   0FC1 0C 18 0A39 0A18       658          MVC   SVPFC(25),COM-1          SAVE SECTION PREFACE
                              659 *
   0FC7 C0 87 022A            660          B     LOAD                     LOAD SECTION C17
   0FCB 04          0FCB      661          DC    XL1'04'
   0FCC 0C17        0FCD      662 C17      DC    XL2'0C17'
                              663 *
   0FCE C0 87 6C02            664 LDRGO    B     LDR+2                    GO TO SECTION C17
                              665 *
   0FD2 C0 87 0000            666 MPLX     B     *-*                      RETURN TO CALLING ROUTINE
                              667 *
```

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

                                669 ********************************************************************************
                                670 *                                                                              *
                                671 *                              PRINT MESSAGES                                  *
                                672 *                                                                              *
                                673 ********************************************************************************
                                674 *
                          0FD6  675 MSG01    EQU   *
 0FD6 D3D6C1C4C9D5C740  0FE8  676 MSG01N   DC    CL19'LOADING SECTION C17'
 0FDE E2C5C3E3C9D6D540        676
 0FE6 C3F1F7                  676
                                677 *
                          0FF9  678 MSG02    EQU   *
 0FE9 E2C5D3C5C3E340C4  1002  679          DC    CL26'SELECT DRIVE TO BE USED.  '
 0FF1 D9C9E5C540E3D640        679
 0FF9 C2C540E4E2C5C44B        679
 1001 4040                    679
 1003 E2D5E240E2E6E240  102E  680 MSG02N   DC    CL44'SNS SWS 1A-1B SELECT DRIVES 1-2 RESPECTIVELY'
 100B F1C160F1C240E2C5        680
 1013 D3C5C3E340C4D9C9        680
 101B E5C5E240F16CF240        680
 1023 D9C5E2D7C5C3E3C9        680
 102B E5C5D3E8                680
                                681 *
                          102F  682 MSG03    EQU   *
 102F E2D5E240E2E6E240  105C  683 MSG03N   DC    CL46'SNS SWS 1A-1B INVALID.  ONLY ONE SHOULD BE ON.'
 1037 F1C160F1C240C9D5        683
 103F E5C1D3C9C44B4040        683
 1047 D6D5D3E840D6D5C5        683
 104F 40E2C8D6E4D3C440        683
 1057 C2C540D6D54B            683
                                684 *
                          105D  685 MSG04    EQU   *
 105D C4D9C9E5C540E740  106D  686 MSG04N   DC    CL17'DRIVE X NOT READY'
 1065 D5D6E340D9C5C1C4        686
 106D E8                      686
                                687 *
                          106E  688 MSG05    EQU   *
 106E E2E3C1D9E340E2C3  1082  689 MSG05N   DC    CL21'START SCAN ON DRIVE X'
 1076 C1D540D6D540C4D9        689
 107E C9E5C540E7              689
                                690 *
                          1083  691 MSG06    EQU   *
 1083 C5D5C440D6C640E2  1098  692 MSG06N   DC    CL22'END OF SCAN ON DRIVE X'
 1088 C3C1D540D6D540C4        692
 1093 D9C9E5C540E7            692
                                693 *
                          1099  694 MSG07    EQU   *
 1099 6040C1C4C1D7E3C5  10A6  695 MSG07N   DC    CL14'- ADAPTER CK -'
 10A1 D940C3D24060            695
                                696 *
                          10A7  697 MSG08    EQU   *
 10A7 6040E4D5C9E340C3  10B4  698 MSG08N   DC    CL14'- UNIT CHECK -'
 10AF C8C5C3D24060            698
                                699 *
                          10B5  700 MSG09    EQU   *
 10B5 6040E2C5C5D240C3  10C2  701 MSG09N   DC    CL14'- SEEK CHECK -'
 10BD C8C5C3D24060            701
                                702 *
                          10C3  703 MSG10    EQU   *
 10C3 6040C4C1E3C140C3  10D0  704 MSG10N   DC    CL14'- DATA CHECK -'
 10CB C8C5C3D24060            704
                                705 *
                          10D1  706 MSG11    EQU   *
 10D1 6040C9D5E5C1D3C9  10ED  707 MSG11A   DC    CL29'- INVALID HA - HAE XXXXXXXXXX'
 10D9 C440C8C1406040C8        707
 10E1 C1C540E7E7E7E7E7        707
 10E9 E7E7E7E7E7              707
 10EE 6B40C8C1D640E7E7  10FD  708 MSG11N   DC    CL16', HAO XXXXXXXXXX'
```



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ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

 10F6 E7E7E7E7E7E7E7E7        708
                                709 *
                          10FE  710 MSG12    EQU   *
 10FE 6040C9D5E5C1D3C9  1122  711 MSG12A   DC    CL37'- INVALID R0 - R0E XXXXXXXXXXXXXXXX'
 1106 C440D9F0406040D9        711
 110E F0C540E7E7E7E7E7        711
 1116 E7E7E7E7E7E7E7E7        711
 111E E7E7E7E7E7              711
 1123 6B40D9F0D640E7E7  113A  712 MSG12N   DC    CL24', R00 XXXXXXXXXXXXXXXX'
 112B E7E7E7E7E7E7E7E7        712
 1133 E7E7E7E7E7E7E7E7        712
                                713 *
                          113B  714 MSG13    EQU   *
 113B 6040C6D3C1C7E240  1156  715 MSG13A   DC    CL28'- FLAGS INCONSISTENT - HA XX'
 1143 C9D5C3D6D5E2C9E2        715
 114B E3C5D5E3406040C8        715
 1153 C140E7E7                715
 1157 6B40D9F040E7E7    115D  716 MSG13N   DC    CL7', R0 XX'
                                717 *
                          115E  718 MSG14    EQU   *
 115E 6040C6D3C1C7C7C5  1188  719 MSG14A   DC    CL43'- FLAGGED DEFECTIVE - NO ALTERNATE ASSIGNED'
 1166 C440C4C5C6C5C3E3        719
 116E C9E5C5406040D5D6        719
 1176 40C1D3E3C5D9D5C1        719
 117E E3C540C1E2E2C9C7        719
 1186 D5C5C4                  719
 1189 C1E2E2C9C7D5C5C4  11A5  720 MSG14B   DC    CL29'ASSIGNED ALTERNATE IS CYL XXX'
 1191 40C1D3E3C5D9D5C1        720
 1199 E3C540C9E240C3E8        720
 11A1 D340E7E7E7              720
 11A6 6B40C8C440E7E7    11AC  721 MSG14N   DC    CL7', HD XX'
                                722 *
                          11AD  723 MSG15    EQU   *
 11AD 6040C6D3C1C7C7C5  11D2  724 MSG15A   DC    CL38'- FLAGGED ALTERNATE - POINTS TO ITSELF'
 11B5 C440C1D3E3C5D9D5        724
 11BD C1E3C5406040D7D6        724
 11C5 C9D5E3E240E3D640        724
 11CD C9E3E2C5D3C6            724
 11D3 C4C5C6C5C3E3C9E5  11EE  725 MSG15B   DC    CL29'DEFECTIVE PRIMARY IS CYL XXX'
 11DB C540D7D9C9D4C1D9        725
 11E3 E840C9E240C3E8D3        725
 11EB 40E7E7E7                725
 11EF 6B40C8C44CE7E7    11F5  726 MSG15N   DC    CL7', HD XX'
                                727 *
                          11F6  728 MSG16    EQU   *
 11F6 40C3E8D340E7E7E7  11FD  729 MSG16A   DC    CL8' CYL XXX'
 11FE 6B40C8C440E7E7    1204  730 MSG16N   DC    CL7', HD XX'
                                731 *
                          1205  732 MSG17    EQU   *
 1205 E2C3C1D540E3C5D9  122F  733 MSG17N   DC    CL43'SCAN TERMINATED BECAUSE OF PRECEEDING ERROR'
 120D D4C9D5C1E3C5C440        733
 1215 C2C5C3C1E4E2C540        733
 121D D6C640D7D9C5C3C5        733
 1225 C5C4C9D5C740C5D9        733
 122D D9D6D9                  733
                                734 *
```

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

                          736 ********************************************************************************
                          737 *                                                                              *
                          738 *                    CONSTANTS AND RESERVED STORAGE AREAS                      *
                          739 *                                                                              *
                          740 ********************************************************************************
                          741 *
                          742 *                CONSTANTS
                          743 *
1230 0000000000000000 1239  744 NULLS     DC    1CXL1'00'
1238 0000                 744
                          745 *
123A F0F0F0               123C 746 ZEROS     DC    CL3'000'
                          747 *
123D F1                   123D 748 D1        DC    CL1'1'
                          749 *
123E 0001                 123F 750 ONE       DC    IL2'1'
1240 00000008             1243 751 EIGHT     DC    IL4'8'
1244 0007                 1245 752 P7        DC    IL2'7'
1246 0011                 1247 753 P17       DC    IL2'17'
1248 0013                 1249 754 NINTEN    DC    IL2'19'
124A 0022                 124B 755 P34       DC    IL2'34'
124C 00D1                 124D 756 P209      DC    IL2'209'
                          757 *
124E 12D5                 124F 758 DDCR      DC    AL2(DDCF)       INITIAL DDCR INITIALIZATION VALUE
1250 12E4                 1251 759 DDDR      DC    AL2(DDDF)       INITIAL DDDR INITIALIZATION VALUE
                          760 *
                          761 *---------------------------------------------------------------------------
                          762 *                SVP INTERFACE CONTROL BYTES
                          763 *
1252 0003                 1253 764 SVPREQ    DC    XL2'0003'       SET SVP REQUEST
1254 C009                 1255 765 CEMODE    DC    XL2'C009'       CE MODE INDICATORS --> X REG
1256 C009                 1257 766 SNS23     DC    XL2'C009'       SENSE ADAPTER ERROR BYTES
                          767 *
                          768 *---------------------------------------------------------------------------
                          769 *                COMMON INDICATORS AND WORK AREAS
                          770 *
                     1258 771 MSG       EQU   *
1258                 12A7 772 MSGN      DS    CL80            MESSAGE PRINT BUFFER
12A8 00              12A8 773           DC    XL1'00'
                          774 *
12A9 00              12A9 775 IND       DC    XL1'0'          PROGRAM INDICATORS
                          776 *
12AA                 12AB 777 MAXCYL    DS    XL2             MAXIMUM VALID CYLINDER ADDRESS
12AC                 12AD 778 MAXHD     DS    XL2             MAXIMUM VALID HEAD ADDRESS
                          779 *
                     12B1 780 SKADR     EQU   *+3             CURRENT SEEK ADDRESS
12AE                 12AF 781 CYL       DS    XL2             CURRENT CYLINDER ADDRESS
12B0                 12B1 782 HD        DS    XL2             CURRENT HEAD ADDRESS
                          783 *
12B2                 12B3 784 SNS       DS    XL2             3340 ADAPTER SENSE INFO
                          785 *
12B4                 12B4 786 DRV       DS    CL1             DRIVE NUMBER
12B5                 12B5 787 DRVADR    DS    XL1             DRIVE ADDRESS
                          788 *
12B6                 12B6 789 UCKMSK    DS    XL1             UNIT CHECK MASK
                          790 *
12B7                 12B7 791 Q         DS    XL1             SIO Q BYTE
12B8                 12B8 792 R         DS    XL1             SIO R BYTE
                          793 *
                     12BD 794 HAE       EQU   *+4             HOME ADDRESS EVEN
12B9                 12B9 795 FFHAE     DS    XL1
12BA                 12BB 796 CCHAE     DS    XL2
12BC                 12BD 797 HHHAE     DS    XL2
                          798 *
                     12C2 799 HAO       EQU   *+4             HOME ADDRESS ODD
12BE                 12BE 800 FFHAO     DS    XL1
12BF                 12C0 801 CCHAO     DS    XL2
12C1                 12C2 802 HHHAO     DS    XL2
```



```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

                          803 *
12C3                 12CB 804 ROE       EQU   *+8             RECORD ZERO COUNT EVEN
12C4                 12C3 805 FFROE     DS    XL1
12C6                 12C5 806 CCROE     DS    XL2
12C8                 12C7 807 HHRCE     DS    XL2
12C9                 12C8 808 RRROE     DS    XL1
12CA                 12C9 809 KLRCE     DS    XL1
                     12CB 810 DLROE     DS    XL2
                          811 *
12CC                 12D4 812 ROO       EQU   *+8             RECORD ZERO COUNT ODD
12CD                 12CC 813 FFRCO     DS    XL1
12CF                 12CE 814 CCROO     DS    XL2
12D1                 12D0 815 HHROO     DS    XL2
12D2                 12D1 816 RRROO     DS    XL1
12D3                 12D2 817 KLROO     DS    XL1
                     12D4 818 DLROO     DS    XL2
                          819 *
12D5                 12D5 820 DDCF      EQU   *               DDCF AREA
12D6                 12D5 821 FF        DS    XL1
12D8                 12D7 822 CC        DS    XL2
12DA                 12D9 823 HH        DS    XL2
12DB                 12DA 824 RR        DS    XL1
12DC                 12DB 825 KL        DS    XL1
12DE                 12DD 826 DL        DS    XL2
                     12DE 827 NN        DS    XL1
                          828 *
12DF                 12DF 829 WORK      EQU   *               GENERAL PURPOSE
12E4                 12E2 830 WORKN     DS    XL4               WORK AREA
                          831 *
                          832           ORG   *+2+0           ALIGN TO AN EVEN ADDRESS
12E4                 12E4 833 DDDF      EQU   *               3340 READ/WRITE BUFFER
                     12FB 834           DS    XL24
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          836 ********************************************************************
                          837 *                                                                  *
                          838 *                        SYMBOL DEFINITIONS                        *
                          839 *                                                                  *
                          840 ********************************************************************
                          841 *
                          842 *              LOCAL STORE REGISTERS
                          843 *
0008                      844 ARR      EQU   X'08'              CURRENT LEVEL ADDRESS RECALL REG
                          845 *
                          846 *
                          847 *-----------------------------------------------------------------
                          848 *              SECTION SENSE SWITCHES
                          849 *
0020                      850 SSW1A    EQU   X'20'              USE DRIVE 1 ONLY
0010                      851 SSW1B    EQU   X'10'              USE DRIVE 2 ONLY
                          852 *
0001                      853 SSW1F    EQU   X'01'              READ HA AND R0 RECORDS ONLY
                          854 *
                          855 *-----------------------------------------------------------------
                          856 *              MESSAGE / HALT IDENTIFIERS
                          857 *
C100                      858 HLT00    EQU   X'C100'            NO HALT
C101                      859 HLT01    EQU   X'C101'            COMMON 3340 ERROR HALT
C1E2                      860 HLTE2    EQU   X'C1E2'            SSW 11-14 OR 1A-1B INVALID
C1E4                      861 HLTE4    EQU   X'C1E4'            SELECT DRIVE TO BE INITIALIZED
                          862 *
                          863 *-----------------------------------------------------------------
                          864 *              PROGRAM INDICATORS (IND)
                          865 *
0080                      866 UNITCK   EQU   X'80'              UNIT CHECK DETECTED
0040                      867 ERRHLT   EQU   X'40'              HALT ON ERROR CONDITION DETECTED
                          868 *
                          869 *-----------------------------------------------------------------
                          870 *              3340 PROGRAM COMMUNICATION AREA (COM) INDICATORS
                          871 *
0020                      872 MPLFLG   EQU   X'20'              MICRO-PROGRAM LOADED
                          873 *
                          874 *-----------------------------------------------------------------
                          875 *              BIT POSITION SYMBOLS
                          876 *
0080                      877 BIT0     EQU   X'80'
0040                      878 BIT1     EQU   X'40'
0020                      879 BIT2     EQU   X'20'
0010                      880 BIT3     EQU   X'10'
0008                      881 BIT4     EQU   X'08'
0004                      882 BIT5     EQU   X'04'
0002                      883 BIT6     EQU   X'02'
0001                      884 BIT7     EQU   X'01'
                          885 *
                          886 *-----------------------------------------------------------------
                          887 *              DCP SECTION REFERENCE TABLE
                          888 *
020B                      889 SBYTE3   EQU   X'020B'             SECTION SENSE SWITCHES  18-1F
                          890 *
0212                      891 TEST     EQU   X'0212'            CHECK CE CONSOLE SWITCHES
0216                      892 LINK     EQU   X'0216'            LINK TO NEXT ROUTINE OR SECTION
021A                      893 PRINT    EQU   X'021A'            PRINT A MESSAGE
021E                      894 UNPACK   EQU   X'C21E'            UNPACK DATA - HEX TO EBCDIC
0222                      895 HALT     EQU   X'0222'            HALT AND DISPLAY HALT IDENTIFIER
022A                      896 LOAD     EQU   X'022A'            LOAD NEXT SECTION OR RECORD
                          897 *-----------------------------------------------------------------
                          898 *              OTHER REFERENCES EXTERNAL TO THIS SECTION
                          899 *
6C00                      900 LDR      EQU   X'6C00'            3340 MICROCODE LOADER PROGRAM
                          901 *
FFFF                      902          END
```


CROSS-REFERENCE

```
SYMBOL   T LEN VALUE  DEFN   REFERENCES
ACK      A 006 0D3B   0392   0340  0358
ALT      A 006 0EBF   0561   0267  0279
ALTCYL   A 006 0E84   0542   0546
ALTHD    A 006 0E9D   0548   0543  0552
ALTPRT   A 006 0EB6   0554   0549
AMOPID   A 002 0A1E   0030
ARR      C 001 0008   0844   0324  0644
BEGIN    A 001 0A3E   0049
BGN01    A 004 0A49   0055   0067  0096  0125
BGN02    A 004 0A64   0069   0056
BGN03    A 004 0A7A   0078   0070
BGN06    A 004 0A90   0087   0079
BIT0     C 001 0080   0877   0394  0415  0457  0480  0503  0526  0563
BIT1     C 001 0040   0878   0111
BIT2     C 001 0020   0879   0272  0285
BIT3     C 001 0010   0880
BIT4     C 001 0008   0881   0421
BIT5     C 001 0004   0882
BIT6     C 001 0002   0883   0234  0266
BIT7     C 001 0001   0884   0102  0166  0237  0265  0278  0335  0339  0357  0368  0418
CC       A 002 12D7   0822
CCHAE    A 002 12BB   079E
CCHAO    A 002 12C0   0801
CCR0E    A 002 12C5   0806   0228
CCR0O    A 002 12CE   0814
CEMODE   A 002 1255   0765
CKALT    A 004 0C5C   0278   0244  0260  0263  0273
CKCYL    A 006 0C8B   0297   0291
CKRDY    A 006 0AA4   01C1   0076  0085
COM      A 001 0A19   0026   0052  0658
CYL      A 002 12AF   0781   0295*
C1B      A 001 0000   0C06
C17      A 002 0FCD   0662   0646  0649
DCK      A 004 0DAC   0442   0422
DDCF     A 001 1205   0820   0758
DDCR     A 002 124F   0758   0104  0342  0370
DDDF     A 001 12E4   0833   0111  0130  0166  0195  0211  0266  0269  0272  0285  0400* 0401  0401*
                               0403* 0405* 0406* 0418  0421  0447  0759
DDDR     A 002 1251   0759   0105  0343  0371
DEF      A 006 0E4D   0524   0235
DEFCYL   A 006 0EF6   0579   0583
DEFHD    A 006 0F0F   0585   0580  0589
DEFPRT   A 006 0F28   0591   0586
DL       A 002 12DD   0826   0252*
DLR0E    A 002 12C8   0810   0225
DLR0O    A 002 12D4   0818
DRV      A 001 12B4   0786   0072* 0081* 0114  0141  0303
DRVADR   A 001 12B5   0787   0073* 0082* 0101  0331  0333  0334  0367
D1       A 001 123D   0748   0544  0550  0581  0587  0603  0609
EIGHT    A 004 1243   0751   0225
ERRHLT   C 001 0040   0867   0395  0416  0424  0458  0481  0504  0527  0564  0620
FAOID    A 002 0A20   0031
FF       A 001 12D5   0821   0234  0237
FFERR    A 006 0E1F   0501   0223
FFHAE    A 001 12B9   0795   0222  0265  0278  0508
FFHAO    A 001 12BE   0800
FFR0E    A 001 12C3   0805   0222  0513
FFR0O    A 001 12CC   0813
HAE      A 001 12BD   0794   0194* 0213  0216  0462
HAERR    A 006 0DC3   0455   0214  0217
HALT     C 001 0222   0895   0C64  0093  0122  0632
HAO      A 001 12C2   0799   0210* 0213  0467
HD       A 002 12B1   0782   0288* 0290  0293* 0297
HH       A 002 12D9   0823   0174* 0194  0210  0259
HHHAE    A 002 12BD   0797   0532  0569
HHHAO    A 002 12C2   0802
```

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
HHR0E	A	002	12C7	0807	0231 0240 0259 0532 0540 0569 0577
HHR0O	A	002	12D0	0815	
HLTE2	C	001	C1E2	0860	0091 0094
HLTE4	C	001	C1E4	0861	0062 0065
HLT00	C	001	C100	0858	0147 0656
HLT01	C	001	C101	0859	0120 0123 0630 0633
IND	A	001	12A9	0775	0159 0165 0178 0191 0207 0262 0284 0345* 0377* 0395* 0416* 0424* 0458* 0481* 0504* 0527* 0564* 0620
KL	A	001	12D8	0825	
KLR0E	A	001	12C9	0809	
KLR0O	A	001	12D2	0817	
LDR	C	001	6C00	0900	0649 0664
LDRGO	A	004	0FCE	0664	0650
LDRID	A	002	0A1C	0029	0646
LDRLD	A	004	0FB7	0652	0647
LINK	C	001	0216	0892	0315 0635
LOAD	C	001	022A	0896	0660
MAXCYL	A	002	12AB	0777	0127* 0133* 0228
MAXHD	A	002	12AD	0778	0128* 0134* 0297
MPL	A	004	0FA1	0644	0053
MPLFLG	C	001	0020	0872	0052
MPLX	A	004	0FD2	0666	0644*
MSG	A	001	1258	0771	0397* 0398* 0426* 0427* 0434* 0435* 0442* 0443* 0470* 0471* 0493* 0494* 0516* 0517* 0529* 0530* 0535* 0554* 0566* 0567* 0572* 0591* 0613*
MSGN	A	080	12A7	0772	0392 0392* 0413 0413* 0448 0455 0455* 0478 0478* 0501 0501* 0524 0524* 0561 0561* 0618
MSG01	A	001	0FD6	0675	0654
MSG01N	A	019	0FE8	0676	0654 0655
MSG02	A	001	0FE9	0678	0060
MSG02N	A	044	102E	0680	0060 0061
MSG03	A	001	102F	0682	0089
MSG03N	A	046	105C	0683	0089 0090
MSG04	A	001	105D	0685	0114* 0118
MSG04N	A	017	106D	0686	0118 0119
MSG05	A	001	106E	0688	0145
MSG05N	A	021	1082	0689	0141* 0145 0146
MSG06	A	001	1083	0691	0310
MSG06N	A	022	1098	0692	0303* 0310 0311
MSG07	A	001	1099	0694	
MSG07N	A	014	10A6	0695	0398
MSG08	A	001	10A7	0697	
MSG08N	A	014	10B4	0698	0427
MSG09	A	001	10B5	0700	
MSG09N	A	014	10C2	0701	0435
MSG10	A	001	10C3	0703	
MSG10N	A	014	10D0	0704	0443
MSG11	A	001	10D1	0706	
MSG11A	A	029	10ED	0707	0463
MSG11N	A	016	10FD	0708	0468 0471
MSG12	A	001	10FE	0710	
MSG12A	A	037	1122	0711	0486
MSG12N	A	024	113A	0712	0491 0494
MSG13	A	001	113B	0714	
MSG13A	A	028	1156	0715	0509
MSG13N	A	007	115D	0716	0514 0517
MSG14	A	001	115E	0718	
MSG14A	A	043	1188	0719	0530
MSG14B	A	029	11A5	0720	0537* 0544*
MSG14N	A	007	11AC	0721	0538* 0550* 0554
MSG15	A	001	11AD	0723	
MSG15A	A	038	11D2	0724	0567
MSG15B	A	028	11EE	0725	0574* 0581*
MSG15N	A	007	11F5	0726	0575* 0587* 0591
MSG16	A	001	11F6	0728	
MSG16A	A	008	11FD	0729	0596* 0603*
MSG16N	A	007	1204	0730	0597* 0609* 0613

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
MSG17	A	001	1205	0732	0628
MSG17N	A	043	122F	0733	0628 0629
NINTEN	A	002	1249	0754	0231 0290
NN	A	001	12DE	0827	0155* 0172* 0187* 0203* 0255*
NSCAN	A	006	0C95	0303	0286
NULLS	A	001	1239	0744	0139 0155 0172 0187 0203 0293 0542 0548 0579 0585 0601 0607
NXREC	A	006	0C19	0254	0276
NXTRC	A	004	0C64	0284	0621
ONE	A	002	123F	0750	0254 0288 0295 0545 0551 0582 0588 0604 0610
PFC	A	002	0A07	0019	
PID	A	002	0A01	0015	
PRINT	C	001	021A	0893	0058 0087 0116 0143 0305 0308 0615 0623 0626 0652
PRT	A	006	0F72	0613	0608
PRTCYL	A	006	0F40	0601	0605
PRTFLG	A	001	0F7C	0616	0394* 0415* 0457* 0480* 0503* 0526* 0563*
PRTHD	A	006	0F59	0607	0602 0611
PRTMSG	A	006	0F2E	0596	0450 0473 0496 0519 0533 0556 0570
PRTSNS	A	004	CDB6	0445	0403 0429 0437
P17	A	002	1247	0753	0134
P209	A	002	124D	0756	0127
P34	A	002	124B	0755	0133
P7	A	002	1245	0752	0128
Q	A	001	1287	0791	0152* 0169* 0184* 0200* 0249* 0328
R	A	001	1288	0792	0153* 0170* 0185* 0201* 0250* 0329
RDHAE	A	004	0B59	0184	
RDHAO	A	004	0B7F	0200	
RDSNS	A	006	0D1A	0367	0347
RDVKD	A	004	0C0B	0249	0238
RDYSNS	A	003	0AB6	0107	0101* 0102*
READY	A	006	0ADE	0127	0112
RECAL	A	004	0B13	0152	0167
RR	A	001	12DA	0824	0254* 0275
RRR0E	A	001	12C8	0808	
RRR0O	A	001	12D1	0816	
RTN	A	001	0A03	0017	
RTNPFC	A	001	0A3A	0042	0019
R0E	A	001	12CB	0804	0195* 0219 0252 0485
R0ERR	A	006	0DF1	0478	0220 0226 0229 0232 0241
R0O	A	001	12D4	0812	0211* 0219 0490
SBYTE3	C	001	020B	0889	0055 0069 0078 0243 0313*
SCAN	A	006	0AFD	0139	0131
SCK	A	004	0D9F	0434	0419
SEEK	A	004	0B2D	0165	0298
SIO	A	003	0CF6	0349	0328* 0329* 0331*
SIOSNS	A	003	0D2C	0373	0367* 0368*
SKADR	A	001	12B1	0780	0139* 0174 0216 0240 0599
SNS	A	002	12B3	0784	0337* 0339 0355* 0357 0361 0403
SNS23	A	002	1257	0766	0404
SSW1A	C	001	0020	0850	0055 0078 0313
SSW1B	C	001	0010	0851	0055 0069 0313
SSW1F	C	001	0001	0853	0243
SVPFC	A	025	0A39	0033	0658*
SVPREQ	A	002	1253	0764	
TEST	C	001	0212	0891	0326
TIOBSY	A	004	0CFD	0353	0334* 0335*
TIORDY	A	004	0CF2	0347	0333*
UCK	A	006	0D72	0413	0160 0179 0192 0208 0270
UCKMSK	A	001	12B6	0789	0074* 0083* 0360
UDT0	A	003	0A0C	0022	
UNITCK	C	001	0080	0866	0159 0165 0178 0191 0207 0262 0284 0345 0377
UNPACK	C	001	021E	0894	0445 0460 0465 0483 0488 0506 0511
WORK	A	001	12DF	0829	0540* 0542 0545* 0548 0551* 0577* 0579 0582* 0585 0588* 0599* 0601 0604* 0607 0610*
WORKN	A	004	12E2	0830	
XEQ	A	004	0CB0	0324	0157 0176 0189 0205 0257
XEQX	A	004	0D37	0379	0324* 0362

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ZEROS	A	003	123C	0746	0537 0538 0574 0575 0596 0597

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

OBJECT CARD LISTING

THE CHARACTER ° INDICATES A BLANK COLUMN AND THE CHARACTERS D̄ Ē H̄ 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 GB6 °°° °PN 42	47618 EC 827779	3340 °DATA °MODULE	°SCAN °PGM-MOD12	84888488 °°°°°°°°	°°°°°°°° C1B00000
°TC Y<0$ °°° °° 6 °BT.	""8E6 °°°°°°°°°°°	°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°	°°°°° NQ-C1B00001
°° °°°°°°°°°°	°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°	°°°°°°°°°°°°°°°	°°°°° ::%C1B00002
°T °YR					
°T+-Z4 °6C""°|D¬T-	-B/X °U °=/+L °BB"H	°6E<BG °/ZFJ/ °>0:L	°/0HS0:L °/0ZI+J	°B8"H6C331D.6B0AH	°5|H °°0ZUC1B00003
°T+-D?D.$2/2Y9H °H	.8Z °|||HK_C3HD.M	°86AH68Y*M0H*BFUQ	>DE3A8%BG °S.A8%B	°GBUU< °°D7D.M: °6D	°7<*Q °KD8C1B00004
°T+-.DDUB11AIJ80	°G0*HH>L/ °D>L2UAY	°< °AATD.L °/0HE1/D	°6%*DA0H*BH%DA0H*	°HK6CADD%KL6OADD4	°KJLU °LQ6C1B00005
°T+-%VA1.W8Z °<C °D	°KD1I.C °DK.JIGC °<	°K%JH9C °°6-/H40H*	°BFUHNDH.A °C0 °D.*	°8 °JH8C °UK7/H90H*	°<%C- °1A4C1B00006
°T+-_--AHZ0A °(*TS	°DDU8 °J.U0A °.D30	°D.*8 °AH8C °UK7/H	°9C °<K6JH10H*<%CS	°DDX °D °52| °DK_30	°AD.- °=RMC1B00007
°T+->$C °UK7/H90H*	°<%CS °DDX °D °52C °6	°K?J.RC °-K21.%| °D	°K_30ID.-<BJ.:DTX	°/020+H °KD* °6CPH	°<AAH °3.%C1B00008
°T+-?00/.RC °-K5A.	°%C66K?J.60 °D(004	°CD.4K%* °AC*<(8A.	°.D_L °°671C6 °K>J.	°C0 °D+G04BD%%K6@	°AC¬D °=:0C1B00009
°T+-0JC6DK1JH.0H6	°(8646AD%*KK*BDC¬D	°8 °/.N0A °+LL-AD_P	°2DAD(°1.GD.G °°67	°1+ °DBB"H6MLOAD.*	°8 °1H °Q.6C1B00010
°T+-1<> °0HD_4K208	°D_YK|300D_# °/02	°0C6<K6J.G0 °D<PC6	°DDX °U °1*+ °DK>L-	°BD>L °D °:="|6 °K9<	°ACPH °JCDC1B00011
°T+-2G+8 °K9¬H6BC4	°2D_. °A °0R+ °DK>*	°6C.88-AHZ+8 °K9¬H	°6I-8AD.DK|04AD.D	°KK* °DCH%< °JH1DTU	°+ °JH °JC<<C1B00012
°T+-3B.1H"C6<K%JH	°_0 °6..60 °DI-K_<B	°G °/YK0H*BF-0ODI-	°#< °H.0H*BET6HCL.	°°/0HKC °°<°1H7C °°	°<=AH °620C1B00013
°T+-3°> °8 °C|*K_60	°C|<K_60 °C|8K_LY	°AC|801JH3+ °DK%8	°6CL%11/I|<*6KML>	°DDXA °°4E80 °°0*H	°<=*D °.8C1B00014
°T+-48 °°3°<<MK%3-	°AD.| °D °4#C °°(EAH	°6+6 °K%?H6G60 °CK4	°K_LYACK411/I|<*6	°KM¬< °A8GBCK8:-AH	°Z0H* °N8MC1B00015
°T+-53 °°°<L1HXDD-	°:- °*8+U °KDL1*DV-	°<CJI6DHQ8 °A.8CA*	°K=1.6C °DK9JH3<**	°KN3CGD>*8<A..8Y)	°DCD8 °1A<C1B00016
°T+-6>DD*KDCD °C70	°#6AHZ+ °DK9|H6FC-	°HD>L2DA8:6AHZ|E0	°KD °0(DXQ6_|HGE31	°*DV-<<CJI6D<.2/0Y	°8PAH °*-HC1B00017
°T+-7Z0 °0(DXQ64<8	°G °/8QD?%KZ8BGC28	°<L1HXDD-:- °*8+4	°KD*BG °/8ED.4&#*8	°G °/8ED%H6"L1*DV-	°<.AH °PH0C1B00018
°T+-8UVJC*0H*|.-1	°|DD*KDCD °C70#6AH	°Z0H*BG-UK21DS0H*	°BG-UK5AD:|E0KD °0	°8DDMJ+%BGC28<L1H	°XDD- °N3%C1B00019
°T+-9¬+Y °|¬C_ °DDX	°/0H: °JH9DN$ °/0H	°: J.CDN48PAIQC8H	°KS1E)0H*|.-1|DD*	°KDC> °C70#6AHZ|E0	°KD °0 °N.MC1B00020

C1B0 3340 DATA MODULE SCAN PGM - 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

```
T+-:EH/HLDQ-( 1H  *D%¬2-* 81AIQC H  JZJH8C DJ.AH8C <  K8/.GC&DK8AH98YD  &AS JZJH'C0DK8AH  "0H* ;1BC1B00021
T+-#NCY&( J.SDTX  2-J FDAF%DT4| J.  SDT" /0:}CB<KY/F  %8Y)?CD8KZ1HY+8  |¬C_ DDU82JIQCBM  KT/D 3.8C1B00022
T+-8&4-4CD.4K1"H  ALT3ADV-< /G>DT0  < JGSDT0< 1.SD%*  ( J.-DTX2-J FHAG  >DT4| J.-DT" /0#  6C&D NT0C1B00023
T+-'.D>HK+¬HAD Q  &D¬MK|&8AD>HK|8B  GC08<H/H/D¬M< /G  'DT0< JHDDT0< 1.  SD.D( J.-DTX2-J  FHAD J:4C1B00024
T+-=F"JH'C0DK8AH  "0H*|& 4AD>HK+¬H  AD Q&D-&K|&8AD>H  K|8BGC5U<C/IXD-L  /0HE N KZ3/ DDX  U 0 ':HC1B00025
T+-"AR<BG /DK0H*  BF%Q.DS"A *BG S.  A *BG /Q4B "NC&D  HG "(8-DIC&E% &"  (8YDP0H*BFUQLC=T  A 0 NT8C1B00026
T+-"8F Y9B/T /0H  DA 0P0H)% %BG C  L5%GD2)PG&+.E0=|  I5_N 0"G78%PL1*|  T&<LR2;PE&+|D&<.  E&+& 'R%C1B00027
T+/ 78%PDK4A 8_P  S&+.W8UC10DC10UC  S1}|E0=( 1(XI9*P  S&|E-8UCR1;.P1*|  T2;PE4=TS5;I 8>$  S&|D 01-C1B00028
T+/A20DC10UCI5;P  A48XDK4A 5_PL:DC  05*N 8%T09{|D&<.  E&($NK8LR2;PE&+)  5)ST&(XE0*LY8>|  A6;< ;#4C1B00029
T+/B_&+.C0;N 5_N  1(XI9*N 98PN1DC  01UCS08GN&($N&<L  R2;PE&+)-&<GD0}¬  T1)V 0'I QFA 9(P  I84 1HYC1B00030
T+/CY08TEC'I QFA  8%PE4UCC2<PC4UA  -QDCD0;|A&<|H1*|  K&FA-&<XN9*GL2*J  2<E QDCH0*N 9=¬  X9=* $QHC1B00031
T+/DT9=¬X9=),&<T  A5UCX9=¬X9=¬X9=¬  XQDCI5;PA48XD&(X  06FA 6¬CE&+¬X9=¬  X9=¬X9=¬X9=¬X9=¬  X96% 'E4C1B00032
T+/E;&(X05UCX9=¬  X9=¬X9=¬X9=¬X9=¬  X9=)-&<$L0*¬S&<X  N0'$N8%XS8PN84A  -&<TA&+¬XE4CR8DC  X96 6I-C1B00033
T+/FR&<$L0*¬G1*J  1<PF1*|T2;PE&FA  5)R 0)|T1)XN0;|  E&<GS8%XG5*PD0;.  S2*¬N1*J 0)|T1)X  N0;< JRQC1B00034
T+/GM1MCI8UCC:((  9=¬XE4CH1DCX96A  1_|A18¬E1DCA4=|  E6)PA88N QDCP5%X  N8=I 8*R 2;|S1)|  F1<M 6S0C1B00035
T+/H|1%PC88XV1MC  P6*XM0)XY&<XS&<|  Y44CX9=),&<TD&+¬  X&<|Y44CX9=),&<T  D&+¬X8%|A5MCT1)X  M2)M R8YC1B00036
T+/IH0;|E1DCB1*|  A9+.E&($F&(¬R1*|  E1*LI5*) 1)XR5_U  ..............  8|C 08& A B G AD  D0 ¬30C1B00037
TCAIPH-CJD_MK9  C0 X B&  ..... ..... ..... ..... .....  ET&C1B00038
T JHZ  ..... ..... ..... ..... ..... .....  6&HC1B00039
E"'*E7*=¬DC"PH$  ="7M&F|  | C F% ASC R A S0 Q  11550608730  814751$0C1B00040
```

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

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                           2 *
                           3          DECK  1
                           4          SEQ   0
                           5          TREP
                           6 *
0000                       7 C1F      START 0
                           8 ************************************************************************
                           9 *                                                                      *
                          10 *                          SECTION PREFACE                             *
                          11 *                                                                      *
                          12 ************************************************************************
                          13 *
0A00                      14          ORG   X'0A00'
                          15 *
0A00 C1F2          0A01   16 PID      DC    XL2'C1F2'      SECTION ID AND REVISION LEVEL
0A02 40            0A02   17          DC    XL1'40'        SECTION FLAGS
0A03 01            0A03   18 RTN      DC    XL1'01'        CURRENT ROUTINE NUMBER
0A04 0000          0A05   19          DC    AL2(0)
0A06 0A0D          0A07   20 PFC      DC    AL2(RTNPFC)    ADDRESS OF ROUTINE PREFACE
0A08 182A          0A09   21          DC    AL2(ERRLOG)    ERROR LOG ADDRESS
                          22 *
0A0A C15000        0A0C   23 UDT0     DC    XL3'C15000'    3340 UDT
                          24 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                    192F  26          USING DRVWK,XR2      INDEX REG 2 POINTS TO DRV WORK AREA
                          27 ************************************************************************
                          28 *                                                                      *
                          29 *              ROUTINE 01 - READ STATUS COMMANDS TEST                  *
                          30 *                                                                      *
                          31 ************************************************************************
                          32 *
0A0D 01             0A0D  33 RTNPFC   DC    XL1'01'        ROUTINE NUMBER
0A0E 00             0A0E  34          DC    XL1'00'        ROUTINE FLAGS
0A0F FFFF           0A10  35          DC    XL2'FFFF'      OPERATES AS ONE ROUTINE
                          36 *
0A11 3B 80 18F9           37          SBF   IND.BGNSW      RESET PROGRAM RESTART INDICATOR
                          38 *
0A15 3C 0A 18FC           39 R01      MVI   LPCNT,10       LOOP THIS ROUTINE 10 TIMES
                          40 *
0A19 C0 87 0FB4           41          B     BEGIN          PERFORM ROUTINE INITIALIZATION
0A1D 0A25           0A1E  42          DC    AL2(R01A)      *LOOP* SUBROUTINE RETURN ADDRESS
0A1F 0A3D           0A20  43          DC    AL2(R01B)      *NXDRV* SUBROUTINE RETURN ADDRESS
                          44 *
0A21 C0 87 10BC           45          B     RECAL          RECALIBRATE
                          46 *
0A25 C0 87 128C           47 R01A     B     RDSNS          READ DIAGNOSTIC SENSE DATA
0A29 C0 87 12AA           48          B     RDLOG          READ AND RESET BUFFERED LOG
                          49 *
0A2D 3A 01 1910           50          SBN   IODDR,1        START DDDF ON ODD STORAGE ADDRESS
                          51 *
0A31 C0 87 128C           52          B     RDSNS          READ DIAGNOSTIC SENSE DATA
0A35 C0 87 12AA           53          B     RDLOG          READ AND RESET BUFFERED LOG
                          54 *
0A39 C0 87 105D           55          B     NXDRV          REPEAT FOR EACH DRIVE BEING TESTED
                          56 *
0A3D 0F 00 18FC 18C8      57 R01B     SLC   LPCNT(1),P1    DECREMENT LOOP COUNTER
0A43 C0 01 10A2           58          BNZ   LOOP           REPEAT TEST 10 TIMES
                          59 *
```

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

                            61 ********************************************************************************
                            62 *                                                                              *
                            63 *              ROUTINE 02 - CYLINDER ZERO ACCESS TEST                          *
                            64 *                                                                              *
                            65 ********************************************************************************
                            66 *
 0A47 3C 00 0A63            67 R02      MVI   R02A1,0             INITIALIZE HEAD ADDR TO 0
                            68 *
 0A4B C0 87 0FB4            69          B     BEGIN               PERFORM ROUTINE INITIALIZATION
 0A4F 0A53          0A50    70          DC    AL2(R02A)           'LOOP' SUBROUTINE RETURN ADDRESS
 0A51 0A6E          0A52    71          DC    AL2(R02B)           'NXDRV' SUBROUTINE RETURN ADDRESS
                            72 *
 0A53 C0 87 10BC            73 R02A     B     RECAL               RECALIBRATE
 0A57 C0 87 12BC            74          B     RDSNS               DETERMINE DATA MODULE SIZE
 0A5B C0 87 1159            75          B     RDHAE               READ HOME ADDR AND R0 COUNT EVEN
                            76 *
 0A5F C0 87 10CE            77          B     SEEK                SEEK
 0A63               0A63    78 R02A1    DS    1L1                 PHYSICAL HEAD ADDRESS
 0A64 0000          0A65    79          DC    1L2'0'              PHYSICAL CYLINDER ADDRESS
                            80 *
 0A66 C0 87 1159            81          B     RDHAE               READ HOME ADDR AND R0 COUNT EVEN
                            82 *
 0A6A C0 87 105D            83          B     NXDRV               REPEAT FOR EACH DRIVE BEING TESTED
                            84 *
 0A6E 0E 00 0A63 18C8       85 R02B     ALC   R02A1(1),P1         INCREMENT HEAD ADDRESS
                            86 *
 0A74 3D 0C 0A63            87          CLI   R02A1,12            LOOP UNTIL ALL HEADS
 0A78 C0 82 10A2            88          BL    LOOP                  HAVE BEEN TESTED
                            89 *
```



```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

                            91 ********************************************************************************
                            92 *                                                                              *
                            93 *              ROUTINE 03 - CE CYLINDER ACCESS TEST                            *
                            94 *                                                                              *
                            95 ********************************************************************************
                            96 *
 0A7C 3C 00 0A94            97 R03      MVI   R03A1,0             INITIALIZE HEAD ADDR TO 0
                            98 *
 0A80 C0 87 0FB4            99          B     BEGIN               PERFORM ROUTINE INITIALIZATION
 0A84 0A88          0A85   100          DC    AL2(R03A)           'LOOP' SUBROUTINE RETURN ADDRESS
 0A86 0A9F          0A87   101          DC    AL2(R03B)           'NXDRV' SUBROUTINE RETURN ADDRESS
                           102 *
 0A88 C0 87 10BC           103 R03A     B     RECAL               RECALIBRATE
 0A8C C0 87 12BC           104          B     RDSNS               DETERMINE DATA MODULE SIZE
                           105 *
 0A90 C0 87 10CE           106          B     SEEK                SEEK (3340 PHYSICAL ADDRESS)
 0A94               0A94   107 R03A1    DS    1L1                   HEAD 0 - 11
 0A95 015D          0A96   108          DC    1L2'349'              CYLINDER 349
                           109 *
 0A97 C0 87 1159           110          B     RDHAE               READ HOME ADDR AND R0 COUNT EVEN
                           111 *
 0A9B C0 87 105D           112          B     NXDRV               REPEAT FOR EACH DRIVE BEING TESTED
                           113 *
 0A9F 0E 00 0A94 18C8      114 R03B     ALC   R03A1(1),P1         INCREMENT HEAD ADDRESS
                           115 *
 0AA5 3D 0C 0A94           116          CLI   R03A1,12            LOOP UNTIL ALL HEADS
 0AA9 C0 82 10A2           117          BL    LOOP                  HAVE BEEN TESTED
                           118 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          120 ********************************************************************************
                          121 *                                                                              *
                          122 *              ROUTINE 04 - CYLINDER ZERO READ DATA TRANSFER TEST              *
                          123 *                                                                              *
                          124 ********************************************************************************
                          125 *
 0AAD 3C 00 0AC5          126 R04      MVI   R04B1,0          INITIALIZE HEAD ADDR TO 0
                          127 *
 0AB1 C0 87 0FB4          128          B     BEGIN            PERFORM ROUTINE INITIALIZATION
 0AB5 0AC1          0AB6  129          DC    AL2(R04B)        'LOOP' SUBROUTINE RETURN ADDRESS
 0AB7 0AE5          0AB8  130          DC    AL2(R04C)        'NXDRV' SUBROUTINE RETURN ADDRESS
                          131 *
 0AB9 C0 87 10BC          132 R04A     B     RECAL            RECALIBRATE
 0ABD C0 87 12BC          133          B     RDSNS            DETERMINE DATA MODULE SIZE
                          134 *
 0AC1 C0 87 10CE          135 R04B     B     SEEK             SEEK (3340 PHYSICAL ADDRESS)
 0AC5                0AC5 136 R04B1    DS    IL1                HEAD 0 - 11
 0AC6 0000           0AC7 137          DC    IL2'0'             CYLINDER 0
                          138 *
 0AC8 C0 87 1159          139          B     RDHAE            READ HOME ADDR AND R0 COUNT EVEN
                          140 *
 0ACC C0 87 11DB          141          B     RDCKD            READ COUNT-KEY-DATA
 0AD0 00             0AD0 142          DC    IL1'0'             RECORD 0 (EVEN)
                          143 *
 0AD1 3A 01 190E          144          SBN   IDDCR,1          CHECK AGAIN USING
 0AD5 3A 01 1910          145          SBN   IDDDR,1            ODD STORAGE ADDRESSES
                          146 *
 0AD9 C0 87 1166          147          B     RDHA0            READ HOME ADDR AND R0 COUNT ODD
 0ADD C0 87 119F          148          B     RDR00            READ KEY-DATA RECORD 0 ODD
                          149 *
 0AE1 C0 87 105D          150          B     NXDRV            REPEAT FOR EACH DRIVE BEING TESTED
                          151 *
 0AE5 0E 00 0AC5 18C8     152 R04C     ALC   R04B1(1),P1      INCREMENT HEAD ADDRESS
                          153 *
 0AEB 3D 0C 0AC5          154          CLI   R04B1,12         LOOP UNTIL ALL HEADS
 0AEF C0 82 10A2          155          BL    LOOP               HAVE BEEN TESTED
                          156 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          158 ********************************************************************************
                          159 *                                                                              *
                          160 *              ROUTINE 05 - CE CYLINDER READ DATA TRANSFER TEST                *
                          161 *                                                                              *
                          162 ********************************************************************************
                          163 *
 0AF3 3C 00 0B0B          164 R05      MVI   P05B1,0          INITIALIZE HEAD ADDR TO 0
                          165 *
 0AF7 C0 87 0FB4          166          B     BEGIN            PERFOPM ROUTINE INITIALIZATION
 0AFB 0B07          0AFC  167          DC    AL2(R05B)        'LOOP' SUBROUTINE RETURN ADDRESS
 0AFD 0B4C          0AFE  168          DC    AL2(R05C)        'NXDRV' SUBROUTINE RETURN ADDRESS
                          169 *
 0AFF C0 87 10BC          170 R05A     B     RECAL            RECALIBRATE
 0B03 C0 87 12BC          171          B     RDSNS            DETERMINE DATA MODULE SIZE
                          172 *
 0B07 C0 87 10CE          173 R05B     B     SEEK             SEEK (3340 PHYSICAL ADDRESS)
 0B0B                0B0B 174 R05B1    DS    IL1                HEAD 0 - 11
 0B0C 015D           0B0D 175          DC    IL2'349'           CYLINDER 349
                          176 *
 0B0E C0 87 1159          177 R05B2    B     RDHAE            READ HOME ADDR AND R0 COUNT EVEN
                          178 *
 0B12 C0 87 11DB          179          B     RDCKD            READ COUNT-KEY-DATA
 0B16 00             0B16 180          DC    IL1'0'             RECORD 0 (EVEN)
                          181 *
                          182          B     RDCKD            READ COUNT-KEY-DATA
                     0B1B 183          DC    IL1'1'             RECORD 1
                          184 *
 0B1C 8D 02 13 18DA       185          CLC   DL(3,XR2),P256   GO TO ERROR END IF
 0B21 C0 01 1668          186          BNE   ERR18              RESIDUAL KL/DL INCORRECT
                          187 *
 0B25 3E 01 1910          188          L     IDDDR,XR1        POINT TO RESIDUAL DDDF
                          189 *
 0B29 4D 03 03 18E6       190 R05B3    CLC   3(4,XR1),WCPTN   GO TO ERROP END IF
 0B2E C0 01 1670          191          BNE   ERR19              RESIDUAL DDDF IS INCOPRECT
                          192 *
 0B32 0F 01 1927 18CC     193          SLC   RDDCF+8(2),P4    LOOP UNTIL ALL OF
 0B38 C0 01 0B29          194          BNZ   R05B3              RESIDUAL DDDF HAS BEEN CHECKED
                          195 *
 0B3C 38 01 1910          196          TBN   IDDCR,1          READ AND CHECK
 0B40 3A 01 1910          197          SBN   IDDDR,1            RECORD 1 AGAIN
 0B44 C0 90 0B0E          198          BF    R05B2                USING ODD STORAGE ADDRESS
                          199 *
 0B48 C0 87 105D          200          B     NXDRV            REPEAT FOR EACH DRIVE BEING TESTED
                          201 *
 0B4C 0E 00 0B0B 18C8     202 R05C     ALC   R05B1(1),P1      INCREMENT HEAD ADDRESS
                          203 *
 0B52 3D 0C 0B0B          204          CLI   R05B1,12         LOOP UNTIL ALL HEADS
 0B56 C0 82 10A2          205          BL    LOOP               HAVE BEEN TESTED
                          206 *
```

C1F2 3340 SYSTEM TEST MODULE -- MOD 12

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT
                               208 ****************************************************************
                               209 *                                                              *
                               210 *              ROUTINE 06 - WRITE DATA TRANSFER TEST           *
                               211 *                                                              *
                               212 ****************************************************************
                               213 *
    0B5A 3C 0A 18FC            214 R06      MVI   LPCNT,10             LOOP THIS TEST 10 TIMES
                               215 *
    0B5E C0 87 0FB4            216          B     BEGIN                PERFORM ROUTINE INITIALIZATION
    0B62 0B75             0B63 217          DC    AL2(R06B)            'LOOP' SUBROUTINE RETURN ADDRESS
    0B64 0BC0             0B65 218          DC    AL2(R06C)            'NXDRV' SUBROUTINE RETURN ADDRESS
                               219 *
    0B66 C0 87 10BC            220 R06A     B     RECAL                RECALIBRATE
    0B6A C0 87 12BC            221          B     RDSNS                DETERMINE DATA MODULE SIZE
                               222 *
    0B6E C0 87 10CE            223          B     SEEK                 SEEK (3340 PHYSICAL ADDRESS)
    0B72 00               0B72 224          DC    IL1'0'                 HEAD 0
    0B73 015D             0B74 225          DC    IL2'349'               CYLINDER 349
                               226 *
    0B75 B8 08 00              227 R06B     TBN   DIND(,XR2),NOWR      BYBASS DRIVE IF                KMG
    0B78 C0 10 105D            228          BT    NXDRV                  WRITE INHIBITED              KMG
                               229 *                                                              KMG
    0B7C C0 87 1159            230          B     RDHAE                READ HOME ADDR AND R0 COUNT EVEN KMG
                               231 *
    0B80 C0 87 11D8            232 R06B1    B     RDCKD                READ COUNT-KEY-DATA
    0B84 01               0B84 233          DC    IL1'1'                 RECORD 1
                               234 *
    0B85 C0 87 1343            235          B     WRCKD                WRITE COUNT-KEY-DATA
    0B89 02               0B89 236          DC    IL1'2'                 RECORD 2
    0B8A 00               0B8A 237          DC    IL1'0'                 NN = 00
                               238 *
    0B8B C0 87 11D8            239          B     RDCKD                READ COUNT-KEY-DATA
    0B8F 02               0B8F 240          DC    IL1'2'                 RECORD 2
                               241 *
    0B90 8D 02 13 18DA         242          CLC   DL(3,XR2),P256       GO TO ERROR END IF
    0B95 C0 01 1668            243          BNE   ERR18                  RESIDUAL KL/DL INCORRECT
                               244 *
    0B99 35 01 1910            245          L     IDDDR,XR1            POINT TO RESIDUAL DDDF
                               246 *
    0B9D 4D 03 03 18E6         247 R06B2    CLC   3(4,XR1),WCPTN       GO TO ERROR END IF
    0BA2 C0 01 1670            248          BNE   ERR19                  RESIDUAL DDDF IS INCORRECT
                               249 *
    0BA6 0F 01 1927 18CC       250          SLC   RDDCF+8(2),P4        LOOP UNTIL ALL OF
    0BAC C0 01 0B9D            251          BNZ   R06B2                  RESIDUAL DDDF HAS BEEN CHECKED
                               252 *
    0BB0 38 01 1910            253          TBN   IDDDR,1              WRITE AND CHECK
    0BB4 3A 01 1910            254          SBN   IDDDR,1                RECORD 2 AGAIN
    0BB8 C0 90 0B75            255          BF    R06B                     USING ODD STORAGE ADDRESS
                               256 *
    0BBC C0 87 105D            257          B     NXDRV                REPEAT FOR EACH DRIVE BEING TESTED
                               258 *
    0BC0 0F 00 18FC 18C8       259 R06C     SLC   LPCNT(1),P1          LOOP THIS TEST 10 TIMES
    0BC6 C0 01 10A2            260          BNZ   LOOP
                               261 *
```


C1F2 3340 SYSTEM TEST MODULE -- MOD 12

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT
                               263 ****************************************************************
                               264 *                                                              *
                               265 *              ROUTINE 07 - WRITE HOME ADDRESS TEST            *
                               266 *                                                              *
                               267 ****************************************************************
                               268 *
    0BCA C0 87 0FB4            269 R07      B     BEGIN                PERFORM ROUTINE INITIALIZATION
    0BCE 0BDA             0BCF 270          DC    AL2(R07A)            'LOOP' SUBROUTINE RETURN ADDRESS
    0BD0 0BF8             0BD1 271          DC    AL2(R08)             'NXDRV' SUBROUTINE RETURN ADDRESS KMG
                               272 *                                                              KMG
    0BD2 C0 87 10BC            273          B     RECAL                RECALIBRATE                    KMG
    0BD6 C0 87 12BC            274          B     RDSNS                DETERMINE DATA MODULE SIZE     KMG
                               275 *                                                              KMG
    0BDA B8 08 00              276 R07A     TBN   DIND(,XR2),NOWR      BYBASS DRIVE IF                KMG
    0BDD C0 10 105D            277          BT    NXDRV                  WRITE INHIBITED
                               278 *
    0BE1 C0 87 10CE            279          B     SEEK                 SEEK (3340 PHYSICAL ADDRESS)
    0BE5 00               0BE5 280          DC    IL1'0'                 HEAD 0
    0BE6 015D             0BE7 281          DC    IL2'349'               CYLINDER 349
                               282 *
    0BE8 C0 87 1159            283          B     RDHAE                READ HOME ADDR AND R0 COUNT EVEN
                               284 *
    0BEC C0 87 1303            285          B     WRHAO                WRITE HA AND R0 ODD
    0BF0 C0 87 1166            286          B     RDHAO                READ HA AND R0 COUNT ODD
                               287 *
    0BF4 C0 87 105D            288          B     NXDRV                REPEAT FOR EACH DRIVE BEING TESTED
                               289 *
```

C1F2 3340 SYSTEM TEST MODULE -- MOD 12

```
ERR LOC  OBJECT CODE        ADDR STMT SOURCE STATEMENT
                                 291 ***********************************************************************
                                 292 *                                                                     *
                                 293 *              ROUTINE 08 - HEAD WRITE/READ TEST                      *
                                 294 *                                                                     *
                                 295 ***********************************************************************
                                 296 *                                  INITIALIZE HEAD ADDR TO ZERO
    0BF8 3C 00 0C17              297 R08     MVI   R08B1,0
                                 298 *                                  PERFORM ROUTINE INITIALIZATION
    0BFC C0 87 0FB4              299         B     BEGIN                'LOOP' SUBROUTINE RETURN ADDRESS
    0C00 0C0C               0C01 300         DC    AL2(R08B)            'NXDRV' SUBROUTINE RETURN ADDRESS
    0C02 0C62               0C03 301         DC    AL2(R08C)
                                 302 *                                  RECALIBRATE
    0C04 C0 87 108C              303 R08A    B     RECAL                DETERMINE DATA MODULE SIZE
    0C08 C0 87 128C              304         B     RDSNS                                              KMG
                                 305 *                                  BYBASS DRIVE IF               KMG
    0C0C B8 08 00                306 R08B    TBN   DIND(,XR2),NOWR        WRITE INHIBITED             KMG
    0C0F C0 10 105D              307         BT    NXDRV
                                 308 *                                  SEEK (3340 PHYSICAL ADDRESS)  KMG
    0C13 C0 87 10CE              309         B     SEEK                   HEAD 0 - 11
    0C17                    0C17 310 R08B1   DS    IL1                    CYLINDER 349
    0C18 015D               0C19 311         DC    IL2'349'
                                 312 *                                  READ HOME ADDR AND R0 COUNT EVEN
    0C1A C0 87 1159              313         B     RDHAE
                                 314 *                                  WRITE RECORD ZERO CNT-KEY-DATA ODD
    0C1E C0 87 131E              315         B     WRR00
                                 316 *                                  READ COUNT-KEY-DATA
    0C22 C0 87 110B              317 R08B2   B     RDCKD                  RECORD 1
    0C26 01                 0C26 318         DC    IL1'1'
                                 319 *                                  WRITE COUNT-KEY-DATA
    0C27 C0 87 1343              320         B     WRCKD                  RECORD 2
    0C28 02                 0C2B 321         DC    IL1'2'                 NN = 20
    0C2C 14                 0C2C 322         DC    IL1'20'
                                 323 *                                  READ COUNT-KEY-DATA
    0C2D C0 87 110B              324         B     RDCKD                  RECORD 21
    0C31 15                 0C31 325         DC    IL1'21'
                                 326 *                                  GO TO ERROR END IF
    0C32 8D 02 13 18DA           327         CLC   DL(3,XR2),P256         RESIDUAL KL/DL INCORRECT
    0C37 C0 01 1668              328         BNE   ERR18
                                 329 *                                  POINT TO RESIDUAL DDDF
    0C3B 35 01 1910              330         L     IDDDR,XR1
                                 331 *                                  GO TO ERROR END IF
    0C3F 4D 03 03 18E6           332 R08B3   CLC   3(4,XR1),WCPTN         RESIDUAL DDDF IS INCORRECT
    0C44 C0 01 1670              333         BNE   ERR19
                                 334 *                                  LOOP UNTIL ALL OF
    0C48 0F 01 1927 18CC         335         SLC   RDDCF+8(2),P4          RESIDUAL DDDF HAS BEEN CHECKED
    0C4E C0 01 0C3F              336         BNZ   R08B3
                                 337 *                                  WRITE AND CHECK
    0C52 38 01 1910              338         TBN   IDDDR,1                RECORD 21 AGAIN
    0C56 3A 01 1910              339         SBN   IDDDR,1                  USING ODD STORAGE ADDRESS
    0C5A C0 90 0C22              340         BF    R08B2
                                 341 *                                  REPEAT FOR EACH DRIVE BEING TESTED
    0C5E C0 87 105D              342         B     NXDRV
                                 343 *                                  INCREMENT HEAD ADDRESS
    0C62 0E 00 0C17 18C8         344 R08C    ALC   R08B1(1),P1
                                 345 *                                  LOOP UNTIL ALL
    0C68 3D 08 0C17              346         CLI   R08B1,11               HEADS HAVE BEEN TESTED
    0C6C C0 04 10A2              347         BNH   LOOP
                                 348 *
```


C1F2 3340 SYSTEM TEST MODULE -- MOD 12

```
ERR LOC  OBJECT CODE        ADDR STMT SOURCE STATEMENT
                                 350 ***********************************************************************
                                 351 *                                                                     *
                                 352 *              ROUTINE 09 - WRITE KEY-DATA TEST                       *
                                 353 *                                                                     *
                                 354 ***********************************************************************
                                 355 *                                  PERFORM ROUTINE INITIALIZATION
    0C70 C0 87 0FB4              356 R09     B     BEGIN                'LOOP' SUBROUTINE RETURN ADDRESS
    0C74 0C87               0C75 357         DC    AL2(R09B)            'NXDRV' SUBROUTINE RETURN ADDRESS
    0C76 0D13               0C77 358         DC    AL2(R0A)
                                 359 *                                  RECALIBRATE
    0C78 C0 87 108C              360 R09A    B     RECAL                DETERMINE DATA MODULE SIZE
    0C7C C0 87 128C              361         B     RDSNS
                                 362 *                                  SEEK (3340 PHYSICAL ADDRESS)
    0C80 C0 87 10CE              363         B     SEEK                   HEAD 0
    0C84 00                 0C84 364         DC    IL1'0'                 CYLINDER 349
    0C85 015D               0C86 365         DC    IL2'349'                                           KMG
                                 366 *                                  BYBASS DRIVE IF               KMG
    0C87 B8 08 00                367 R09B    TBN   DIND(,XR2),NOWR        WRITE INHIBITED             KMG
    0C8A C0 10 105D              368         BT    NXDRV
                                 369 *                                  READ HOME ADDR AND R0 COUNT EVEN KMG
    0C8E C0 87 1159              370         B     RDHAE
                                 371 *                                  WRITE RECORD ZERO CNT-KEY-DATA ODD
    0C92 C0 87 131E              372         B     WRR00
                                 373 *                                  SAVE INITIAL DDDR VALUE
    0C96 0C 01 18FC 1910         374         MVC   LPCNT(2),IDDDR
                                 375 *                                  READ COUNT-KEY-DATA
    0C9C C0 87 110B              376         B     RDCKD                  RECORD 1
    0CA0 01                 0CA0 377         DC    IL1'1'
                                 378 *                                  SET DATA LENGTH = 5
    0CA1 8C 02 13 18D0           379         MVC   DL(3,XR2),P5
                                 380 *                                  WRITE COUNT-KEY-DATA
    0CA6 C0 87 1343              381         B     WRCKD                  RECORD 2
    0CAA 02                 0CAA 382         DC    IL1'2'                 NN = 20
    0CAB 14                 0CAB 383         DC    IL1'20'
                                 384 *                                  WRITE KEY-DATA
    0CAC C0 87 13C6              385         B     WRKD                   RECORD 2
    0CB0 02                 0CB0 386         DC    IL1'2'                 NN = 4
    0CB1 04                 0CB1 387         DC    IL1'4'
                                 388 *                                  ADVANCE INITIAL DDDR VALUE
    0CB2 0C 01 1910 1914         389         MVC   IDDDR(2),RDDDR
                                 390 *                                  WRITE KEY-DATA
    0CB8 C0 87 13C6              391         B     WRKD                   RECORD 6
    0CBC 06                 0CBC 392         DC    IL1'6'                 NN = 5
    0CBD 05                 0CBD 393         DC    IL1'5'
                                 394 *                                  RESTORE INITIAL DDDR VALUE
    0CBE 0C 01 1910 18FC         395         MVC   IDDDR(2),LPCNT
                                 396 *                                      CLEAR
    0CC4 3C 00 19A0              397         MVI   DDDF+50,0                  READ AREA
    0CC8 0C 2C 199F 19A0         398         MVC   DDDF+49(45),DDDF+50
                                 399 *                                  READ KEY-DATA
    0CCE C0 87 1205              400         B     RDKD                   RECORD 2
    0CD2 02                 0CD2 401         DC    IL1'2'                 NN = 5
    0CD3 05                 0CD3 402         DC    IL1'5'
                                 403 *                                  ADVANCE INITIAL DDDR VALUE
    0CD4 0C 01 1910 1914         404         MVC   IDDDR(2),RDDDR
                                 405 *                                  READ KEY-DATA
    0CDA C0 87 1205              406         B     RDKD                   RECORD 7
    0CDE 07                 0CDE 407         DC    IL1'7'                 NN = 4
    0CDF 04                 0CDF 408         DC    IL1'4'
                                 409 *                                  RESTORE INITIAL DDDR VALUE
    0CE0 0C 01 1910 18FC         410         MVC   IDDDR(2),LPCNT       POINT TO RESIDUAL DDDF
    0CE6 35 01 1910              411         L     IDDDR,XR1
                                 412 *                                  SETUP LOOP COUNTER
    0CEA 0C 01 18FC 18DA         413         MVC   LPCNT(2),P256
                                 414 *                                  GO TO ERROR END IF
    0CF0 4D 03 03 18E6           415 R09B2   CLC   3(4,XR1),WCPTN         RESIDUAL DDDF IS INCORRECT
    0CF5 C0 01 1670              416         BNE   ERR19
                                 417 *
```

C1F2 3340 SYSTEM TEST MODULE -- MOD 12

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

   0CF9 0F 01 18FC 18CC          418          SLC   LPCNT(2),P4
   0CFF C0 01 0CF0               419          BNZ   R09B2
                                 420 *
   0D03 38 01 1910               421          TBN   IDDDR,1
   0D07 3A 01 1910               422          SBN   IDDDR,1
   0D0B C0 90 0C87               423          BF    R09B
                                 424 *
   0D0F C0 87 105D               425          B     NXDRV
                                 426 *
```

LOOP UNTIL ALL OF
RESIDUAL DDDF HAS BEEN CHECKED

WRITE AND CHECK
AGAIN USING ODD
STORAGE ADDRESS

REPEAT FOR EACH DRIVE BEING TESTED

C1F2 3340 SYSTEM TEST MODULE -- MOD 12

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

                                 428 ********************************************************************************
                                 429 *                                                                              *
                                 430 *                ROUTINE 0A - SCAN FF DETECT TEST                              *
                                 431 *                                                                              *
                                 432 ********************************************************************************
                                 433 *
   0D13 0C 03 18EA 18E6          434 R0A      MVC   PATRN+3(4),WCPTN     INITIALIZE
   0D19 3C FE 18E8               435          MVI   PATRN+1,X'FE'          TEST PATTERN
                                 436 *
   0D1D C0 87 0FB4               437          B     BEGIN                PERFORM ROUTINE INITIALIZATION
   0D21 0D34           0D22      438          DC    AL2(R0AB)            *LOOP* SUBROUTINE RETURN ADDRESS
   0D23 0DA4           0D24      439          DC    AL2(R0AC)            *NXDRV* SUBROUTINE RETURN ADDRESS
                                 440 *
   0D25 C0 87 10BC               441 R0AA     B     RECAL                RECALIBRATE
   0D29 C0 87 128C               442          B     RDSNS                DETERMINE DATA MODULE SIZE
                                 443 *
   0D2D C0 87 10CE               444          B     SEEK                 SEEK (3340 PHYSICAL ADDRESS)
   0D31 00             0D31      445          DC    IL1'0'                 HEAD 0
   0D32 015D           0D33      446          DC    IL2'349'               CE CYLINDER
                                 447 *
   0D34 C0 87 1159               448 R0AB     B     RDHAE                READ HOME ADDR AND R0 COUNT EVEN
                                 449 *
   0D38 3C FF 1A6D               450          MVI   DDDF+255,X'FF'         SETUP SCAN
   0D3C 0C FE 1A6C 1A6D          451          MVC   DDDF+254(255),DDDF+255   ARGUMENT IN
   0D42 0C 02 1970 18E9          452          MVC   DDDF+2(3),PATRN+2          DDDF AREA
                                 453 *
   0D48 C0 87 13D4               454          B     SCANE                SCAN READ OR EQUAL
   0D4C 01             0D4C      455          DC    IL1'1'                 RECORD 1
   0D4D 00             0D4D      456          DC    IL1'0'                 NN = 00
                                 457 *
   0D4E C1 C3 1651               458          TIO   ERR15,X'C3'          ERROR IF SCAN HIT
                                 459 *
   0D52 C0 87 13E2               460          B     SCANH                SCAN READ OR HIGH OR EQUAL
   0D56 01             0D56      461          DC    IL1'1'                 RECORD 1
   0D57 00             0D57      462          DC    IL1'0'                 NN=00
                                 463 *
   0D58 C1 C3 1651               464          TIO   ERR15,X'C3'          ERROR IF SCAN HIT
                                 465 *
   0D5C C0 87 1410               466          B     SCNRE                SCAN READ OR EQUAL
   0D60 01             0D60      467          DC    IL1'1'                 RECORD 1
   0D61 00             0D61      468          DC    IL1'0'                 NN=00
                                 469 *
   0D62 C1 C3 1651               470          TIO   ERR15,X'C3'          ERROR IF SCAN HIT
                                 471 *
                                 472 *
   0D66 C0 87 141E               473          B     SCNRH                SCAN READ OR HIGH OR EQUAL
   0D6A 01             0D6A      474          DC    IL1'1'                 RECORD 1
   0D6B 00             0D6B      475          DC    IL1'0'                 NN = 00
                                 476 *
   0D6C C1 C3 1651               477          TIO   ERR15,X'C3'          ERROR IF SCAN HIT
                                 478 *
   0D70 3C 77 196F               479          MVI   DDDF+1,X'77'         CHANGE DDDF TO CAUSE SCAN HIT
                                 480 *
   0D74 C0 87 13E2               481          B     SCANH                SCAN READ OR HIGH OR EQUAL
   0D78 01             0D78      482          DC    IL1'1'                 RECORD 1
   0D79 00             0D79      483          DC    IL1'0'                 NN = 00
                                 484 *
   0D7A C1 C3 0D82               485          TIO   R0AB1,X'C3'          ERROR IF
   0D7E C0 87 164A               486          B     ERR14                  NO SCAN HIT
                                 487 *
   0D82 38 40 192A               488 R0AB1    TBN   SNS,BIT1             ERROR IF NO
   0D86 C0 90 1643               489          BF    ERR13                  SCAN EQUAL CONDITION
                                 490 *
   0D8A C0 87 141E               491          B     SCNRH                SCAN READ OR HIGH OR EQUAL
   0D8E 01             0D8E      492          DC    IL1'1'               RECORD 1
   0D8F 00             0D8F      493          DC    IL1'0'               NN=00
                                 494 *
   0D90 C1 C3 0D98               495          TIO   R0AB2,X'C3'          ERROR IF
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0D94 C0 87 164A              496          B     ERR14          NO SCAN HIT
                                497 *
   0D98 38 40 192A              498 R0AB2    TBN   SNS,BIT1      ERROR IF NO
   0D9C C0 90 164A              499          BF    ERR14            SCAN EQUAL CONDITION
                                500 *
   0DA0 C0 87 105D              501          B     NXDRV          REPEAT FOR EACH DRIVE BEING TESTED
                                502 *
   0DA4 0E 00 18E8 18E8         503 R0AC     ALC   PATRN+1(1),PATRN+1  SHIFT TEST PATTERN
   0DAA 3A 01 18E8              504          SBN   PATRN+1,BIT7        BYTE LEFT ONE BIT POSITION
                                505 *
   0DAE 3D FF 18E8              506          CLI   PATRN+1,X'FF'      LOOP UNTIL ALL
   0DB2 C0 01 10A2              507          BNE   LOOP                 BIT POSITIONS HAVE BEEN TESTED
                                508 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                             510 ********************************************************************************
                             511 *                                                                              *
                             512 *                ROUTINE 0B - SCAN EQUAL TEST                                  *
                             513 *                                                                              *
                             514 ********************************************************************************
                             515 *
   0DB6 3C 0A 18FC           516 R0B      MVI   LPCNT,10           LOOP THIS TEST 10 TIMES
                             517 *
   0DBA C0 87 0FB4           518          B     BEGIN              PERFORM ROUTINE INITIALIZATION
   0DBE 0DD1           0DBF  519          DC    AL2(R0BB)          'LOOP' SUBROUTINE RETURN ADDRESS
   0DC0 0E63           0DC1  520          DC    AL2(R0BC)          'NXDRV' SUBROUTINE RETURN ADDRESS
                             521 *
   0DC2 C0 87 10BC           522 R0BA     B     RECAL              RECALIBRATE
   0DC6 C0 87 128C           523          B     RDSNS              DETERMINE DATA MODULE SIZE
                             524 *
   0DCA C0 87 10CE           525          B     SEEK               SEEK (3340 PHYSICAL ADDRESS)
   0DCE 00             0DCE  526          DC    IL1'0'               HEAD 0
   0DCF 0150           0DD0  527          DC    IL2'349'             CE CYLINDER
                             528 *
   0DD1 C0 87 1159           529 R0BB     B     RDHAE              READ HOME ADDR AND R0 COUNT EVEN
                             530 *
   0DD5 3C FF 1A6E           531          MVI   DDDF+256,X'FF'       SETUP SCAN
   0DD9 0C FF 1A6D 1A6E      532          MVC   DDDF+255(256),DDDF+256   ARGUMENT IN
   0DDF 0C 03 1974 18E6      533          MVC   DDDF+6(4),WCPTN            DDDF AREA
   0DE5 0C 01 1971 18E6      534          MVC   DDDF+3(2),WCPTN
   0DEB 0C 01 196F 18C6      535          MVC   DDDF+1(2),NULLS
                             536 *
   0DF1 38 01 1910           537          TBN   IDDDR,BIT7         SKIP IF DDDF IS
   0DF5 F2 90 06             538          JF    R0BB1                ON EVEN ADDRESS BOUNDARY
                             539 *
   0DF8 0C 35 1975 1974      540          MVC   DDDF+7(6),DDDF+6   SHIFT SCAN ARGUMENT FOR ODD BOUNDARY
                             541 *
   0DFE C0 87 13D4           542 R0BB1    B     SCANE              SCAN READ OR EQUAL
   0E02 01             0E02  543          DC    IL1'1'               RECORD 1
   0E03 00             0E03  544          DC    IL1'0'               NN = 00
                             545 *
   0E04 C1 C3 0E0C           546          TIO   R0BB2,X'C3'        ERROR IF
   0E08 C0 87 164A           547          B     ERR14                NO SCAN HIT
                             548 *
   0E0C 38 40 192A           549 R0BB2    TBN   SNS,BIT1           ERROR IF NO
   0E10 C0 90 1643           550          BF    ERR13                SCAN EQUAL CONDITION
                             551 *
   0E14 38 01 1910           552          TBN   IDDDR,BIT7         SKIP IF DDDF IS
   0E18 F2 10 0E             553          JT    R0BB3                ON ODD ADDRESS BOUNDARY
                             554 *
   0E1B 0D 03 1978 18E2      555          CLC   DDDF+10(4),FFPTN   ERROR IF RESIDUAL
   0E21 C0 01 1670           556          BNE   ERR19              DDDF IS INCORRECT
                             557 *
   0E25 C0 87 0E33           558          B     R0BB4              REPEAT TEST FOR SCAN OR EQUAL
                             559 *
   0E29 0D 03 1979 18E2      560 R0BB3    CLC   DDDF+11(4),FFPTN   ERROR IF RESIDUAL
   0E2F C0 01 1670           561          BNE   ERR19                DDDF IS INCORRECT
                             562 *
   0E33 C0 87 1410           563 R0BB4    B     SCNRE              SCAN READ OR EQUAL
   0E37 01             0E37  564          DC    IL1'1'               RECORD 1
   0E38 00             0E38  565          DC    IL1'0'               NN=00
                             566 *
   0E39 C1 C3 0E41           567          TIO   R0BB5,X'C3'        ERROR IF
   0E3D C0 87 164A           568          B     ERR14                NO SCAN HIT
                             569 *
   0E41 38 40 192A           570 R0BB5    TBN   SNS,BIT1           ERROR IF NO
   0E45 C0 90 1643           571          BF    ERR13                SCAN EQUAL CONDITION
                             572 *
   0E49 0D 03 1978 18E8      573          CLC   DDDF+10(4),WCPTN   ERROR IF RESIDUAL
   0E4F C0 01 1670           574          BNE   ERR19                DDDF IS INCORRECT
                             575 *
   0E53 38 01 1910           576          TBN   IDDDR,BIT7         REPEAT
   0E57 3A 01 1910           577          SBN   IDDDR,BIT7           TEST USING ODD
```

C1F2 3340 SYSTEM TEST MODULE -- MOD 12

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

   0E58 C0 90 0DD1              578          BF    R08B
                                579 *
   0E5F C0 87 105D              580          B     NXDRV
                                581 *
   0E63 0F 00 18FC 18C8         582 R08C     SLC   LPCNT(1),P1
   0E69 C0 01 10A2              583          BNZ   LOOP
                                584 *
```

MAIN STORAGE BOUNDARY

REPEAT FOR EACH DRIVE BEING TESTED

LOOP THIS
  TEST 10 TIMES

C1F2 3340 SYSTEM TEST MODULE -- MOD 12

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

                                586 ********************************************************************************
                                587 *                                                                              *
                                588 *              ROUTINE 0C - SCAN HIGH OR EQUAL TEST                            *
                                589 *                                                                              *
                                590 ********************************************************************************
                                591 *
   0E6D 0C 03 18EA 18E6         592 R0C      MVC   PATRN+3(4),WCPTN     INITIALIZE
   0E73 3C FE 18E9              593          MVI   PATRN+2,X'FE'          TEST PATTERN
                                594 *
   0E77 C0 87 0FB4              595          B     BEGIN                PERFORM ROUTINE INITIALIZATION
   0E7B 0E8E             0E7C   596          DC    AL2(R0CB)            'LOOP' SUBROUTINE RETURN ADDRESS
   0E7D 0EFA             0E7E   597          DC    AL2(R0CC)            'NXDRV' SUBROUTINE RETURN ADDRESS
                                598 *
   0E7F C0 87 10BC              599 R0CA     B     RECAL                RECALIBRATE
   0E83 C0 87 128C              600          B     RDSNS                DETERMINE DATA MODULE SIZE
                                601 *
   0E87 C0 87 10CE              602          B     SEEK                 SEEK (3340 PHYSICAL ADDRESS)
   0E8B 00               0E8B   603          DC    IL1'0'                 HEAD 0
   0E8C 015D             0E8D   604          DC    IL2'349'               CE CYLINDER
                                605 *
   0E8E C0 87 1159              606 R0CB     B     RDHAE                READ HOME ADDR AND R0 COUNT EVEN
                                607 *
   0E92 3C FF 1A6D              608          MVI   DDDF+255,X'FF'       SETUP SCAN
   0E96 0C FE 1A6C 1A6D         609          MVC   DDDF+254(255),DDDF+255   ARGUMENT IN
   0E9C 0C 03 1971 18EA         610          MVC   DDDF+3(4),PATRN+3          DDDF AREA
   0EA2 3C FF 1972              611          MVI   DDDF+4,X'FF'
                                612 *
   0EA6 C0 87 13E2              613          B     SCANH                SCAN READ OR HIGH OR EQUAL
   0EAA 01               0EAA   614          DC    IL1'1'                 RECORD 1
   0EAB 00               0EAB   615          DC    IL1'0'                 NN = 00
                                616 *
   0EAC C1 C3 0EB4              617          TIO   R0CB1,X'C3'          ERROR IF
   0EB0 C0 87 164A              618          B     ERR14                  NO SCAN HIT
                                619 *
   0EB4 38 40 192A              620 R0CB1    TBN   SNS,BIT1             ERROR IF
   0EB8 C0 10 1678              621          BT    ERR1A                  SCAN EQUAL CONDITION
                                622 *
   0EBC 0D 03 1977 18E2         623          CLC   DDDF+9(4),FFPTN      ERROR IF RESIDUAL
   0EC2 C0 01 1670              624          BNE   ERR19                  DDDF IS INCORRECT
                                625 *
   0EC6 C0 87 141E              626          B     SCNRH                SCAN READ OR HIGH OR EQUAL
   0ECA 01               0ECA   627          DC    IL1'1'                 RECORD 1
   0ECB 00               0ECB   628          DC    IL1'0'                 NN=00
                                629 *
   0ECC C1 C3 0ED4              630          TIO   R0CB2,X'C3'          ERROR IF
   0ED0 C0 87 164A              631          B     ERR14                  NO SCAN HIT
                                632 *
   0ED4 38 40 192A              633 R0CB2    TBN   SNS,BIT1             ERROR IF
   0ED8 C0 10 1678              634          BT    ERR1A                  NO SCAN HIT
                                635 *
   0EDC 0D 03 1977 18E6         636          CLC   DDDF+9(4),WCPTN      ERROR IF RESIDUAL
   0EE2 C0 01 1670              637          BNE   ERR19                  DDDF IS INCORRECT
                                638 *
   0EE6 C0 87 105D              639          B     NXDRV                REPEAT FOR EACH DRIVE BEING TESTED
                                640 *
   0EEA 0E 00 18E9 18E9         641 R0CC     ALC   PATRN+2(1),PATRN+2   SHIFT TEST PATTERN
   0EF0 3A 01 18E9              642          SBN   PATRN+2,BIT7           BYTE LEFT ONE BIT POSITION
                                643 *
   0EF4 3D FF 18E9              644          CLI   PATRN+2,X'FF'        LOOP UNTIL ALL
   0EF8 C0 01 10A2              645          BNE   LOOP                   BIT POSITIONS HAVE BEEN TESTED
                                646 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         648 ********************************************************************************
                         649 *                                                                              *
                         650 *              ROUTINE 0D - WRITE REPEAT / READ VERIFY TEST                    *
                         651 *                                                                              *
                         652 ********************************************************************************
                         653 *
                         654 R0D      B     BEGIN                  PERFORM ROUTINE INITIALIZATION
0F01 655                 DC    AL2(R0D8)              'LOOP' SUBROUTINE RETURN ADDRESS
0F03 656                 DC    AL2(R0E)               'NXDRV' SUBROUTINE RETURN ADDRESS
                         657 *
                         658 R0DA     B     RECAL                  RECALIBRATE
                         659          B     RDSNS                  DETERMINE DATA MODULE SIZE
                         660 *
                         661          B     SEEK                   SEEK (3340 PHYSICAL ADDRESS)
0F10 662                 DC    IL1'0'                 HEAD 0
0F12 663                 DC    IL2'349'               CYLINDER 349
                         664 *                                                        KMG
                         665 R0D8     TBN   DIND(,XR2),NOWR        BYBASS DRIVE IF    KMG
                         666          BT    NXDRV                  WRITE INHIBITED    KMG
                         667 *
                         668          B     RDHAE                  READ HOME ADDR AND R0 COUNT EVEN KMG
                         669 *
                         670          B     WRR00                  WRITE RECORD ZERO CNT-KEY-DATA ODD
                         671 *
                         672          B     RDCKD                  READ COUNT-KEY-DATA
0F26 673                 DC    IL1'1'                 RECORD 1
                         674 *
                         675          B     WRCKD                  WRITE COUNT-KEY-DATA
0F28 676                 DC    IL1'2'                 RECORD 2
0F2C 677                 DC    IL1'19'                NN = 19
                         678 *
                         679          B     WRREP                  WRITE REPEAT KEY-DATA
0F31 680                 DC    IL1'2'                 RECORD 2
0F32 681                 DC    IL1'19'                NN = 19
                         682 *
                         683          B     RDVKD                  READ VERIFY KEY-DATA
0F37 684                 DC    IL1'2'                 RECORD 2
0F38 685                 DC    IL1'19'                NN = 19
                         686 *
                         687          B     NXDRV                  REPEAT FOR EACH DRIVE BEING TESTED
                         688 *

0EFC C0 87 0FB4
0F00 0F13
0F02 0F3D

0F04 C0 87 10BC
0F08 C0 87 12BC

0F0C C0 87 10CE
0F10 00
0F11 015D

0F13 88 08 00
0F16 C0 10 105D

0F1A C0 87 1159

0F1E C0 87 131E

0F22 C0 87 11DB
0F26 01

0F27 C0 87 1343
0F28 02
0F2C 13

0F2D C0 87 1385
0F31 02
0F32 13

0F33 C0 87 1262
0F37 02
0F38 13

0F39 C0 87 105D
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         690 ********************************************************************************
                         691 *                                                                              *
                         692 *              ROUTINE 0E - CYLINDER SEEK TEST                                 *
                         693 *                                                                              *
                         694 ********************************************************************************
                         695 *
                         696 R0E      MVC   R0EA1(2),NULLS         CYL ADDR = 000 FOR FIRST SEEK
                         697 *
                         698          LA    PID,XR1                INITIALIZE PSUEDO
                         699          ST    LPCNT,XR1                RANDOM NUMBER GENERATOR
                         700 *
                         701          B     BEGIN                  PERFORM ROUTINE INITIALIZATION
0F50 702                 DC    AL2(R0EB)              'LOOP' SUBROUTINE RETURN ADDRESS
0F52 703                 DC    AL2(R0EC)              'NXDRV' SUBROUTINE RETURN ADDRESS
                         704 *
                         705 R0EA     B     RECAL                  RECALIBRATE
                         706          B     RDSNS                  DETERMINE DATA MODULE SIZE
                         707 *
                         708          B     SEEK                   SEEK (3340 PHYSICAL ADDRESS)
0F5F 709                 DC    IL1'0'                 HEAD 0
0F61 710 R0EA1           DS    IL2                    CYLINDER 0 - 349
                         711 *
                         712          B     RDHAE                  READ HOME ADDR AND R0 COUNT EVEN
                         713 *
                         714 R0EB     L     LPCNT,XR1              GENERATE
                         715          MVC   R0EB2(2),R0EA1           SIMULATED
                         716 R0EB1    ALC   R0EB2(2),0(,XR1)         RANDOM
                         717          SBF   R0EB2-1,X'FE'              CYLINDER
                         718          CLC   R0EB2(2),P349              ADDRESS
                         719          EH    R0EB1
                         720 *
                         721          B     SEEK                   SEEK (3340 PHYSICAL ADDRESS)
0F87 722                 DC    IL1'0'                 HEAD 0
0F89 723 R0EB2           DS    IL2                    CYLINDER 0 - 349
                         724 *
                         725          B     RDHAE                  READ HOME ADDR AND R0 COUNT EVEN
                         726 *
                         727          B     NXDRV                  REPEAT FOR EACH DRIVE BEING TESTED
                         728 *
                         729 R0EC     MVC   R0EA1(2),R0EB2         SAVE CYLINDER ADDR FOR ERR RECOVERY
                         730 *
                         731          LA    PID+256,XR1
                         732          ST    WORKN,XR1              LOOP UNTIL
                         733          ALC   LPCNT(2),P1              256 CYLINDER
                         734          CLC   LPCNT(2),WORKN               SEEKS HAVE BEEN PERFORMED
                         735          BNE   LOOP
                         736 *                                       OTHERWISE LOOP INDEFINITELY
                         737          B     R01
                         738 *

0F3D 0C 01 0F61 18C6

0F43 C2 01 0A01
0F47 34 01 18FC

0F4B C0 87 0FB4
0F4F 0F66
0F51 0F92

0F53 C0 87 10BC
0F57 C0 87 12BC

0F5B C0 87 10CE
0F5F 00
0F60

0F62 C0 87 1159

0F66 35 01 18FC
0F6A 0C 01 0F89 0F61
0F70 1E 01 0F89 00
0F75 3B FE 0F88
0F79 0D 01 0F89 18DC
0F7F C0 84 0F70

0F83 C0 87 10CE
0F87 00
0F88

0F8A C0 87 1159

0F8E C0 87 105D

0F92 0C 01 0F61 0F89

0F98 C2 01 0B01
0F9C 34 01 192E
0FA0 0E 01 18FC 18C8
0FA6 0D 01 18FC 192E
0FAC C0 01 10A2

0FB0 C0 87 0A15
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          740 ********************************************************************************
                          741 *                                                                              *
                          742 *              INITIALIZATION AND LOOP CONTROL SUBROUTINES                     *
                          743 *                                                                              *
                          744 ********************************************************************************
                          745 *
                          746 *              ROUTINE INITIALIZATION
                          747 *
 0FB4 34 08 192E          748 BEGIN   ST    WORKN,ARR          POINT TO SUBROUTINE
 0FB8 35 01 192E          749         L     WORKN,XR1            CALL PARAMETERS
                          750 *
 0FBC 1C 01 10BB 01       751         MVC   LOOPX+3(2),1(,XR1) SETUP 'LOOP' SUBROUTINE RETURN
 0FC1 1C 01 10A1 03       752         MVC   NXDRVX+3(2),3(,XR1) SETUP 'NXDRV' SUBROUTINE RETURN
                          753 *
 0FC6 D2 01 04            754         LA    4(,XR1),XR1        SETUP 'BEGIN'
 0FC9 34 01 105C          755         ST    BGNX+3,XR1           SUBROUTINE RETURN
                          756 *
 0FCD F3 C4 7E            757 BGN01   SIO   X'7E',X'C4'        RESET AND DISABLE 3340 INTRPS
                          758 *
 0FD0 31 C5 18F2          759         LIO   SYSRST,X'C5'       FORCE ATTACHMENT
 0FD4 31 C5 18F4          760         LIO   SVPREQ,X'C5'         SYSTEM RESET
                          761 *
 0FD8 C2 01 FD65          762         LA    X'FD65',XR1        DELAY
 0FDC 36 01 18C8          763         A     P1,XR1               10 MSEC
 0FE0 C0 01 0FDC          764         BNZ   *-4
                          765 *
 0FE4 31 C5 18F6          766         LIO   CEMODE,X'C5'       SET CE MODE
 0FE8 31 C5 18F4          767         LIO   SVPREQ,X'C5'         INDICATORS
                          768 *
 0FEC 0D 01 0A01 0A01     769         CLC   PID(2),IDADR       GO TO SUPERVISOR
 0FF2 C0 01 0A0A          770         BNE   ENTRY                IF RUNNING SYSTEM TEST
                          771 *
 0FF6 0C 01 190E 18EE     772         MVC   IDDCR(2),DDCR      INITIALIZE DDCR
 0FFC 0C 01 1910 18F0     773         MVC   IDDDR(2),DDDR        AND DDDR VALUES
                          774 *
 1002 38 80 18F9          775         TBN   IND,BGNSW          BRANCH IF NOT
 1006 C0 10 1026          776         BT    BGN02                PROGRAM RESTART
                          777 *
 100A 0C 09 1849 189E     778         MVC   MSG(10),NDERRS     INITIALIZE
 1010 0C 09 1879 189E     779         MVC   MSG2(10),NDERRS      LOG MESSAGE AREAS
                          780 *
 1016 3C 00 1863          781         MVI   DGSNS,0            INITIALIZE
 101A 0C 16 1862 1863     782         MVC   DGSNS-1(23),DGSNS    SENSE DATA
 1020 0C 17 1893 1863     783         MVC   DGSNS2(24),DGSNS
                          784 *
 1026 3C 80 18F9          785 BGN02   MVI   IND,BGNSW          RESET PROGRAM INDICATORS
                          786 *
 102A C2 01 1904          787         LA    ADRTBL,XR1         POINT TO DRV WORK AREA ADDR TBL
                          788 *
 102E C2 02 192F          789         LA    DRVWK1,XR2         STORE DRIVE 1
 1032 74 02 01            790         ST    1(,XR1),XR2          WORK AREA ADDRESS IN TABLE
 1035 D2 01 02            791         LA    2(,XR1),XR1            AND ADVANCE TABLE POINTER
                          792 *
 1038 BC 00 00            793         MVI   DIND(,XR2),0       RESET DRIVE DEPENDENT IND
                          794 *
 103B C2 02 1946          795         LA    DRVWK2,XR2         STORE DRIVE 2
 103F 74 02 01            796         ST    1(,XR1),XR2          WORK AREA ADDRESS IN TABLE
 1042 D2 01 02            797         LA    2(,XR1),XR1            AND ADVANCE TABLE POINTER
                          798 *
 1045 BC 00 C0            799         MVI   DIND(,XR2),0       RESET DRIVE DEPENDENT IND
                          800 *
 1048 7C FF 00            801 BGN06   MVI   0(,XR1),X'FF'      MOVE TERMINATOR TO ADDR TABLE
                          802 *
 1048 C2 01 1904          803         LA    ADRTBL,XR1         POINT TO START OF ADDRESS TABLE
 104F 34 01 1903          804         ST    ADRPTR,XR1         INITIALIZE ADDRESS TABLE PTR
 1053 75 02 01            805         L     1(,XR1),XR2        FIRST DRIVE WK AREA ADDR TO XR2
                          806 *
 1056 BA 40 00            807         SBN   DIND(,XR2),LPSW    SET DRIVE LOOP INDICATOR
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          808 *
 1059 C0 87 0000          809 BGNX    B     *-*                RETURN TO CALLING ROUTINE
                          810 *
                          811 *--------------------------------------------------------------------------
                          812 *              REPEAT TEST ON NEXT DRIVE
                          813 *
 105D F3 C4 7E            814 NXDRV   SIO   X'7E',X'C4'        RESET AND DISABLE 3340 INTRPS
                          815 *
 1060 0D 01 0A01 0A01     816         CLC   PID(2),IDADR       GO TO SUPERVISOR
 1066 C0 01 0A0A          817         BNE   ENTRY                IF RUNNING SYSTEM TEST
                          818 *
 106A 35 01 1903          819 NXD01   L     ADRPTR,XR1         GET ADDRESS TABLE POINTER
                          820 *
 106E 7D FF 02            821         CLI   2(,XR1),X'FF'      BRANCH IF ALL DRIVES
 1071 F2 81 0E            822         JE    NXD02                HAVE BEEN TESTED
                          823 *
 1074 75 02 03            824         L     3(,XR1),XR2        POINT TO NEXT DRV WORK AREA
                          825 *
 1077 D2 01 02            826         LA    2(,XR1),XR1        ADVANCE ADDRESS
 107A 34 01 1903          827         ST    ADRPTR,XR1           TABLE POINTER
                          828 *
 107E C0 87 10A2          829         B     LOOP               GO TO TEST NEXT DRIVE
                          830 *
 1082 C2 01 1904          831 NXD02   LA    ADRTBL,XR1         RE-INITIALIZE
 1086 34 01 1903          832         ST    ADRPTR,XR1           ADDRESS TABLE POINTER AND
 108A 75 02 01            833         L     1(,XR1),XR2            POINT TO FIRST DRIVE AREA
                          834 *
 108D 38 40 18F9          835         TBN   IND,HLTSW          CONTINUE TESTING IF
 1091 F2 90 0A            836         JF    NXDRVX               NO ERRORS OCCURRED
                          837 *
 1094 38 40 18F9          838         SBF   IND,HLTSW          RESET ERROR HALT INDICATOR
                          839 *
 1098 C0 87 0222          840         B     HALT               ERROR HALT
 109C C100          109D  841 ERRHLT  DC    AL2(HLTXX)
                          842 *
 109E C0 87 0000          843 NXDRVX  B     *-*                RETURN TO CALLING ROUTINE
                          844 *
                          845 *--------------------------------------------------------------------------
                          846 *              SETUP TEST LOOP ADDRESS
                          847 *
 10A2 0C 01 190E 18EE     848 LOOP    MVC   IDDCR(2),DDCR      RE-INITIALIZE
 10A8 0C 01 1910 18F0     849         MVC   IDDDR(2),DDDR        DDCR AND DDDR VALUES
                          850 *
 10AE B8 40 00            851         TBN   DIND(,XR2),LPSW    TEST DRIVE LOOP INDICATOR
 10B1 BA 40 00            852         SBN   DIND(,XR2),LPSW    RESET INDICATOR
 10B4 C0 90 1059          853         BF    EGNX               BRANCH IF IND WAS OFF
                          854 *
 10B8 C0 87 0000          855 LOOPX   B     *-*                RETURN TO CALLING ROUTINE
                          856 *
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          858 ********************************************************************************
                          859 *                                                                              *
                          860 *              3340 COMMAND EXECUTION SUBROUTINES                              *
                          861 *                                                                              *
                          862 ********************************************************************************
                          863 *
                          864 *              RECALIERATE COMMAND
                          865 *
10BC 34 08 1158           866 RECAL    ST     SEEKX+3,ARR              SAVE RETURN ADDRESS
                          867 *
10C0 BC 00 05             868          MVI    Q(,XR2),X'00'            SETUP Q AND R
10C3 BC 01 06             869          MVI    R(,XR2),X'01'              BYTES FOR SIO COMMAND
                          870 *
10C6 EC 09 14 18C6        871          MVC    NN(10,XR2),NULLS         CLEAR DDCF AREA
                          872 *
10CB F2 87 6B             873          J      SEEKA                    GO TO EXECUTE COMMAND
                          874 *
                          875 *--------------------------------------------------------------------------
                          876 *              SEEK COMMAND
                          877 *
10CE 34 08 192E           878 SEEK     ST     WORKN,ARR                SETUP POINTER TO
10D2 35 01 192E           879          L      WORKN,XR1                  SUBRTN CALL PARAMETERS
                          880 *
10D6 1C 02 192E 02        881          MVC    WORK+3,2(3,XP1)          MOVE PARAMETERS TO WORK AREA
                          882 *
10DB 3C 08 1928           883          MVI    WORK,11                  SETUP MULTIPLIER FOR 12 HEADS
                          884 *
10DF B8 80 00             885          TBN    CIND(,XR2),CEDM          BRANCH IF NOT
10E2 F2 90 0B             886          JF     SK01                       CE DATA MODULE
                          887 *
10E5 3C 01 192B           888          MVI    WORK,1                   SETUP MULTIPLIER FOR 2 HEADS
                          889 *
10E9 7D 01 00             890          CLI    0(,XR1),1                BYPASS TEST IF HEAD
10EC C0 84 105D           891          BH     NXDRV                      ADDRESS IS GREATER THAN 1
                          892 *
10F0 BC 00 05             893 SK01     MVI    Q(,XR2),X'00'            SETUP Q AND R
10F3 BC 00 06             894          MVI    R(,XR2),X'00'              BYTES FOR SIO COMMAND
                          895 *
10F6 BC 09 14 18C6        896          MVC    NN(10,XR2),NULLS         CLEAR DDCF AREA
                          897 *
10FB 1E 01 192E 02        898 SK02     ALC    WORK+3,2(2,XR1)          MULTIPLY PHYSICAL
1100 0F 00 192B 18C8      899          SLC    WORK(1),P1                 CYLINDER ADDRESS
1106 C0 01 10FB           900          BNZ    SK02                         BY NUMBER OF HEADS
                          901 *
110A 0E 01 192E 192C      902          ALC    WORK+3(2),WORK+1         ADD HEAD ADDRESS
                          903 *
1110 D2 01 03             904          LA     3(,XR1),XR1              SETUP
1113 34 01 1158           905          ST     SEEKX+3,XR1                RETURN ADDRESS
                          906 *
1117 C2 01 0000           907          LA     0,XR1                    DIVIDE BY 20
1118 0D 01 192E 18D6      908 SK03     CLC    WORK+3(2),P20              TO GET CYLINDER
1121 F2 82 0D             909          JL     SK04                         SEEK ARGUMENT IN
1124 D2 01 01             910          LA     1(,XR1),XR1                    INDEX REGISTER 1 AND
1127 0F C1 192E 18D6      911          SLC    WORK+3(2),P20                    HEAD SEEK ARGUMENT
112D C0 87 111B           912          B      SK03                               IN WORK AREA
                          913 *
1131 B4 01 0D             914 SK04     ST     CC(,XR2),XR1             STORE SEEK
1134 BC 01 0F 192E        915          MVC    HH(,XR2),WORK+3(2)         ARGUMENT IN DDCF
                          916 *
1139 C0 87 142C           917 SEEKA    B      XEQ                      GO TO EXECUTE COMMAND
                          918 *
113D 0D C1 1910 1914      919          CLC    IDDDR(2),RDDDR           GO TO ERROR END IF
1143 C0 01 1658           920          BNE    ERR16                      RESIDUAL DDDR IS INCORRECT
                          921 *
1147 0D 09 191E 1928      922          CLC    IDDCFN(10),RDDCFN        GO TO ERROR END IF
114D C0 01 1668           923          BNE    ERR18                      RESIDUAL DDCF IS INCORRECT
                          924 *
1151 AC 03 0A 0F          925          MVC    PA(4,XR2),HH(,XR2)       SAVE CURRENT PHYSICAL ADDRESS
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          926 *
1155 C0 87 0000           927 SEEKX    B      *-*                      RETURN TO CALLING ROUTINE
                          928 *
                          929 *--------------------------------------------------------------------------
                          930 *              READ HOME ADDRESS AND RECORD ZERO COUNT EVEN
                          931 *
1159 34 08 119E           932 RDHAE    ST     RDHAOX+3,ARR             SAVE RETURN ADDRESS
                          933 *
115D BC 01 05             934          MVI    Q(,XR2),X'01'            SETUP Q AND R
1160 BC 01 06             935          MVI    R(,XR2),X'01'              BYTES FOR SIO COMMAND
                          936 *
1163 F2 87 0A             937          J      RDHAOA                   GO TO EXECUTE COMMAND
                          938 *
                          939 *--------------------------------------------------------------------------
                          940 *              READ HOME ADDRESS AND RECORD ZERO COUNT ODD
                          941 *
1166 34 08 119E           942 RDHAO    ST     RDHAOX+3,ARR             SAVE RETURN ADDRESS
                          943 *
116A BC 01 05             944          MVI    Q(,XR2),X'01'            SETUP Q AND R
116D BC 09 06             945          MVI    R(,XR2),X'09'              BYTES FOR SIO COMMAND
                          946 *
1170 8C 09 14 18C6        947 RDHAOA   MVC    NN(10,XR2),NULLS         CLEAR DDCF AREA
                          948 *
1175 C0 87 142C           949          B      XEQ                      GO TO EXECUTE COMMAND
                          950 *
1179 2D 03 1923 0A        951          CLC    RDDCF+4(4),PA(,XR2)      GO TO ERROR EXIT IF
117E C0 01 1668           952          BNE    ERR18                      HA READ IS INCORRECT
                          953 *
1182 35 01 1910           954          L      IDDDR,XR1                SAVE RESIDUAL DDDF
1186 9C 0F 13 08          955          MVC    DL(9,XR2),8(,XR1)          FOR USE IN NEXT DDCF
                          956 *
118A D2 01 09             957          LA     9(,XR1),XR1              CALCULATE EXPECTED
118D 34 01 192E           958          ST     WORKN,XR1                  RESIDUAL DDDR
                          959 *
1191 0D 01 192E 1914      960          CLC    WORKN(2),RDDDR           GO TO ERROR END IF
1197 C0 01 1658           961          BNE    ERR16                      RESIDUAL DDDR IS INCORRECT
                          962 *
119B C0 87 0000           963 RDHAOX   B      *-*                      RETURN TO CALLING ROUTINE
                          964 *
                          965 *--------------------------------------------------------------------------
                          966 *              READ RECORD ZERO KEY-DATA ODD
                          967 *
119F 34 08 11DA           968 RDR0O    ST     RDR0OX+3,ARR             SAVE RETURN ADDRESS
                          969 *
11A3 BC 01 05             970          MVI    Q(,XR2),X'01'            SETUP Q AND R
11A6 BC 08 06             971          MVI    R(,XR2),X'08'              BYTES FOR SIO COMMAND
                          972 *
11A9 BC 00 10             973          MVI    RR(,XR2),0               CLEAR DDCF RR FIELD
11AC BC 00 14             974          MVI    NN(,XR2),0               CLEAR DDCF NN FIELD
                          975 *
11AF C0 87 142C           976          B      XEQ                      GO TO EXECUTE COMMAND
                          977 *
11B3 8D 08 13 1927        978 RDR0OA   CLC    DL(9,XR2),RDDCF+8        GO TO ERROR END IF
11B8 C0 01 1668           979          BNE    ERR18                      RESIDUAL DDCF IS INCORRECT
                          980 *
11BC BC 00 10             981          MVI    RR(,XR2),0               CLEAR RR FIELD
                          982 *
11BF 35 01 1910           983          L      IDDDR,XR1                CALCULATE
11C3 B6 01 11             984          A      KL(,XR2),XR1               EXPECTED
11C6 B6 01 13             985          A      DL(,XR2),XR1                 RESIDUAL DDDR
11C9 34 01 192E           986          ST     WORKN,XR1
                          987 *
11CD 0D 01 192E 1914      988          CLC    WORKN(2),RDDDR           GO TO ERROR END IF
11D3 C0 01 1658           989          BNE    ERR16                      RESIDUAL DDDR IS INCORRECT
                          990 *
11D7 C0 87 0000           991 RLR0OX   B      *-*                      RETURN TO CALLING ROUTINE
                          992 *
                          993 *--------------------------------------------------------------------------
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          994 *              READ COUNT-KEY-DATA
                          995 *
 11DB 34 08 11DA          996 RDCKD    ST    RDR00X+3,ARR          SAVE RETURN ADDRESS
                          997 *
 11DF BC 01 05            998          MVI   Q(,XR2),X'01'         SETUP Q AND R
 11E2 BC 02 06            999          MVI   R(,XR2),X'02'           BYTES FOR SIO COMMAND
                         1000 *
 11E5 BC 03 13 18C6      1001          MVC   DL(4,XR2),NULLS       CLEAR KL, DL, AND NN FIELDS
                         1002 *
 11EA 35 01 11DA         1003          L     RDR00X+3,XR1          MOVE RECORD
 11EE 9C C0 10 00        1004          MVC   RR(1,XR2),0(,XR1)       NUMBER TO DDCF
                         1005 *
 11F2 C0 87 142C         1006          B     XEQ                   GO TO EXECUTE COMMAND
                         1007 *
 11F6 BC 02 13 1927      1008          MVC   DL(3,XR2),RDDCF+8     SAVE KEY AND DATA LENGTHS READ
                         1009 *
 11FB 0E 01 11DA 18C8    1010          ALC   RDR0CX+3(2),P1        SETUP RETURN ADDRESS
                         1011 *
 1201 C0 87 1183         1012          B     RDR00A                GO TO CHECK RESIDUAL VALUES
                         1013 *
                         1014 *-------------------------------------------------------------------
                         1015 *              READ KEY-DATA
                         1016 *
 1205 34 08 1261         1017 RDKD    ST    RDKDX+3,ARR           SAVE RETURN ADDRESS
                         1018 *
 1209 BC 01 05           1019          MVI   Q(,XR2),X'01'         SETUP Q AND R
 120C BC 00 06           1020          MVI   R(,XR2),X'00'           BYTES FOR SIO COMMAND
                         1021 *
 120F 35 01 1261         1022 RDKDA   L     RDKDX+3,XR1           MOVE RECORD
 1213 9C 00 10 00        1023          MVC   RR(1,XR2),0(,XR1)       NUMBER AND NN
 1217 9C 00 14 01        1024          MVC   NN(1,XR2),1(,XR1)         VALUE TO DDCF
                         1025 *
 121B C0 87 142C         1026          B     XEQ                   GO TO EXECUTE COMMAND
                         1027 *
 121F AE 00 10 14        1028          ALC   RR(1,XR2),NN(,XR2)    CALCULATE EXPECTED RESIDUAL RR
                         1029 *
 1223 3D FF 1928         1030          CLI   RDDCF+9,X'FF'         GO TO
 1227 C0 01 1668         1031          BNE   ERR18                   ERROR END
 122B 8D 08 13 1927      1032          CLC   DL(9,XR2),RDDCF+8         IF RESIDUAL
 1230 C0 01 1668         1033          BNE   ERR18                       DDCF IS INCORRECT
                         1034 *
 1234 BC 00 10           1035          MVI   RR(,XR2),0            CLEAR RR FIELD
                         1036 *
 1237 35 01 1910         1037          L     IDDDR,XR1             CALCULATE
 123B B6 01 11           1038 RDKDB   A     KL(,XR2),XR1            EXPECTED
 123E B6 01 13           1039          A     DL(,XR2),XR1              RESIDUAL
 1241 8E 00 14 18DE      1040          ALC   NN(1,XR2),N1                DDDR VALUE
 1246 C0 02 123B         1041          BNM   RDKDB
                         1042 *
 124A 34 01 192E         1043          ST    WORKN,XR1             GO TO ERROR
 124E 0D 01 192E 1914    1044          CLC   WORKN(2),RDDDR          END IF RESIDUAL
 1254 C0 01 1658         1045          BNE   ERR16                     DDDR IS INCORRECT
                         1046 *
 1258 0E 01 1261 18CA    1047          ALC   RDKDX+3(2),P2         SETUP RETURN ADDRESS
                         1048 *
 125E C0 87 0000         1049 RDKDX   B     *-*                   RETURN TO CALLING ROUTINE
                         1050 *
                         1051 *-------------------------------------------------------------------
                         1052 *              READ VERIFY KEY-DATA
                         1053 *
 1262 34 08 12A9         1054 RDVKD   ST    RDVKDX+3,ARR          SAVE RETURN ADDRESS
                         1055 *
 1266 BC 01 05           1056          MVI   Q(,XR2),X'01'         SETUP Q AND R
 1269 BC 03 06           1057          MVI   R(,XR2),X'03'           BYTES FOR SIO COMMAND
                         1058 *
 126C BC 02 13 18C6      1059          MVC   DL(3,XR2),NULLS       CLEAR KL AND DL FIELDS
                         1060 *
 1271 35 01 12A9         1061          L     RDVKDX+3,XR1          MOVE RECORD
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

 1275 9C 00 10 00        1062          MVC   RR(1,XR2),0(,XR1)       NUMBER AND NN
 1279 9C 00 14 01        1063          MVC   NN(1,XR2),1(,XR1)         VALUE TO DDCF
                         1064 *
 127D C0 87 142C         1065          B     XEQ                   GO TO EXECUTE COMMAND
                         1066 *
 1281 AE 00 10 14        1067          ALC   RR(1,XR2),NN(,XR2)    CALCULATE EXPECTED RESIDUAL RR
                         1068 *
 1285 3D FF 1928         1069          CLI   RDDCF+9,X'FF'         GO TO
 1289 C0 01 1668         1070          BNE   ERR18                   ERROR END
 128D 8D 05 10 1924      1071          CLC   RR(6,XR2),RDDCF+5         IF RESIDUAL
 1292 C0 01 1668         1072          BNE   ERR18                       DDCF IS INCORRECT
                         1073 *
 1296 0D 01 1910 1914    1074          CLC   IDDDR(2),RDDDR        GO TO ERROR END IF
 129C C0 01 1658         1075          BNE   ERR16                   RESIDUAL DDDR IS INCORRECT
                         1076 *
 12A0 0E 01 12A9 18CA    1077          ALC   RDVKDX+3(2),P2        SETUP RETURN ADDRESS
                         1078 *
 12A6 C0 87 0000         1079 RDVKDX  B     *-*                   RETURN TO CALLING ROUTINE
                         1080 *
                         1081 *-------------------------------------------------------------------
                         1082 *              READ AND RESET BUFFERED LOG
                         1083 *
 12AA 34 08 1302         1084 RDLOG   ST    RDSNSX+3,ARR          SAVE RETURN ADDRESS
                         1085 *
 12AE BC 01 05           1086          MVI   Q(,XR2),X'01'         SETUP Q AND R
 12B1 BC 05 06           1087          MVI   R(,XR2),X'05'           BYTES FOR SIO COMMAND
                         1088 *
 12B4 C0 87 142C         1089          B     XEQ                   GO TO EXECUTE COMMAND
                         1090 *
 12B8 C0 87 12F0         1091          B     RDSNSA                GO TO CHECK RESIDUAL VALUES
                         1092 *
                         1093 *-------------------------------------------------------------------
                         1094 *              READ DIAGNOSTIC SENSE DATA
                         1095 *
 12BC 34 08 1302         1096 RDSNS   ST    RDSNSX+3,ARR          SAVE RETURN ADDRESS
                         1097 *
 12C0 BC 01 05           1098          MVI   Q(,XR2),X'01'         SETUP Q AND R
 12C3 BC 07 06           1099          MVI   R(,XR2),X'07'           BYTES FOR SIO COMMAND
                         1100 *
 12C6 C0 87 142C         1101          B     XEQ                   GO TO EXECUTE COMMAND
                         1102 *
 12CA 35 01 1910         1103          L     IDDDR,XR1             SET INDICATOR
 12CE 79 02 02           1104          TBF   2(,XR1),BIT6            IF SENSE DATA
 12D1 F2 90 03           1105          JF    RDSNSB                    INDICATES THAT A CE     KMG
 12D4 BA 80 00           1106          SBN   DIND(,XR2),CEDM              DATA MODULE IS MOUNTED
                         1107 *
 12D7 78 02 01           1108 RDSNSB  TBN   1(,XR1),BIT6           SET INDICATOR IF SENSE     KMG
 12DA F2 90 03           1109          JF    RDSNSA                  DATA INDICATES THAT THE  KMG
 12DD BA 08 00           1110          SBN   DIND(,XR2),NOWR           'READ ONLY' SW IS ON   KMG
                         1111 *                                                               KMG
 12E0 35 01 1910         1112 RDSNSA  L     IDDDR,XR1             CALCULATE
 12E4 D2 01 18           1113          LA    24(,XR1),XR1            EXPECTED
 12E7 34 01 192E         1114          ST    WORKN,XR1                 RESIDUAL DDDR
                         1115 *
 12EB 0D 01 192E 1914    1116          CLC   WORKN(2),RDDDR        GO TO ERROR END IF
 12F1 C0 01 1658         1117          BNE   ERR16                   RESIDUAL DDDR IS INCORRECT
                         1118 *
 12F5 0D 09 191E 1928    1119          CLC   IDDCFN(10),RDDCFN     GO TO ERROR END IF
 12FB C0 01 1668         1120          BNE   ERR18                   RESIDUAL DDCF IS INCORRECT
                         1121 *
 12FF C0 87 0000         1122 RDSNSX  B     *-*                   RETURN TO CALLING ROUTINE
                         1123 *
                         1124 *-------------------------------------------------------------------
                         1125 *              WRITE HOME ADDRESS AND RECORD ZERO COUNT ODD
                         1126 *
 1303 34 08 1342         1127 WRHAD   ST    WRR00X+3,ARR          SAVE RETURN ADDRESS
                         1128 *
 1307 BC 02 05           1129          MVI   Q(,XR2),X'02'         SETUP Q AND R
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   130A BC 06 06          1130          MVI   R(,XR2),X'06'          BYTES FOR SIO COMMAND
                          1131 *
   130D BC 08 14 18C6     1132 WRHAOA   MVC   NN(9,XR2),NULLS        CLEAR DDCF AREA
   1312 AC 03 0F 0A       1133          MVC   HH(4,XR2),PA(,XR2)     MOVE PHYSICAL ADDRESS TO DDCF
   1316 BC 02 13 18D4     1134          MVC   DL(3,XR2),P8           MOVE R0 KL & DL TO DDCF
                          1135 *
   131B F2 87 0A          1136          J     WRR00A                 GO TO EXECUTE COMMAND
                          1137 *
                          1138 *-------------------------------------------------------------
                          1139 *              WRITE RECOPD ZERO KEY-DATA ODD
                          1140 *
   131F 34 08 1342        1141 WRR00    ST    WRR00X+3,ARR           SAVE RETURN ADDRESS
                          1142 *
   1322 BC 02 05          1143          MVI   Q(,XR2),X'02'          SETUP Q AND R
   1325 BC 06 06          1144          MVI   R(,XR2),X'06'            BYTES FOR SIO COMMAND
                          1145 *
   1328 C0 87 142C        1146 WRR00A   B     XEQ                    GO TO EXECUTE COMMAND
                          1147 *
   132C 8D 08 13 1927     1148          CLC   DL(9,XR2),RDDCF+8      GO TO ERROR END IF
   1331 C0 01 1668        1149          BNE   ERR18                    RESIDUAL DDCF IS INCORRECT
                          1150 *
   1335 0D C1 1910 1914   1151          CLC   IDDDR(2),RDDDR         GO TO ERROR END IF
   1338 C0 01 1658        1152          BNE   ERR16                    RESIDUAL DDDR IS INCORRECT
                          1153 *
   133F C0 87 0000        1154 WRR00X   B     *-*                    RETURN TO CALLING ROUTINE
                          1155 *
                          1156 *-------------------------------------------------------------
                          1157 *              WRITE COUNT-KEY-DATA
                          1158 *
   1343 34 08 1380        1159 WRCKD    ST    WRCKDX+3,ARR           SAVE RETURN ADDRESS
                          1160 *
   1347 BC 02 05          1161          MVI   Q(,XR2),X'02'          SETUP Q AND R
   134A BC 02 06          1162          MVI   R(,XR2),X'02'            BYTES FOR SIO COMMAND
                          1163 *
   134D 35 01 1380        1164 WRCKDA   L     WRCKDX+3,XR1             MOVE RECORD
   1351 9C 00 10 00       1165          MVC   RR(1,XR2),0(,XR1)          NUMBER AND NN
   1355 9C C0 14 01       1166          MVC   NN(1,XR2),1(,XR1)            VALUE TO DDCF
                          1167 *
   1359 C0 87 142C        1168          B     XEQ                    GO TO EXECUTE COMMAND
                          1169 *
   135D AE 00 10 14       1170          ALC   RR(1,XR2),NN(,XR2)     CALCULATE EXPECTED
   1361 BC FF 14          1171          MVI   NN(,XR2),X'FF'           RESIDUAL RR AND NN VALUES
                          1172 *
   1364 8D 08 13 1927     1173          CLC   DL(9,XR2),RDDCF+8      GO TO ERROR END IF
   1369 C0 01 1668        1174          BNE   ERR18                    RESIDUAL DDCF IS INCORRECT
                          1175 *
   136D 0D 01 1910 1914   1176          CLC   IDDDR(2),RDDDR         GO TO ERROR END IF
   1373 C0 01 1658        1177          BNE   ERR16                    RESIDUAL DDDR IS INCORRECT
                          1178 *
   1377 0E 01 1380 18CA   1179          ALC   WRCKDX+3(2),P2         SETUP RETURN ADDRESS
                          1180 *
   137D C0 87 0000        1181 WRCKDX   B     *-*                    RETURN TO CALLING ROUTINE
                          1182 *
   1381 C0 87 134D        1183          B     WRCKDA                 GO TO EXECUTE COMMAND
                          1184 *
                          1185 *-------------------------------------------------------------
                          1186 *              WRITE REPEAT KEY-DATA
                          1187 *
   1385 34 08 13C5        1188 WRREP    ST    WRREPX+3,ARR           SAVE RETURN ADDRESS
                          1189 *
   1389 BC 02 05          1190          MVI   Q(,XR2),X'02'          SETUP Q AND R
   138C BC 03 06          1191          MVI   R(,XR2),X'03'            BYTES FOR SIO COMMAND
                          1192 *
   138F 35 01 13C5        1193          L     WRREPX+3,XR1             MOVE RECORD
   1393 9C C0 10 00       1194          MVC   RR(1,XR2),0(,XR1)          NUMBER AND NN
   1397 9C C0 14 01       1195          MVC   NN(1,XR2),1(,XR1)            VALUE TO DDCF
                          1196 *
   139B C0 87 142C        1197          B     XEQ                    GO TO EXECUTE COMMAND
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          1198 *
   139F AE 00 10 14       1199          ALC   RR(1,XR2),NN(,XR2)     CALCULATE EXPECTED
   13A3 BC FF 14          1200          MVI   NN(,XR2),X'FF'           RESIDUAL RR AND NN VALUES
                          1201 *
   13A6 8D 08 13 1927     1202          CLC   DL(9,XR2),RDDCF+8      GO TO ERROR END IF
   13AB C0 01 1668        1203          BNE   ERR18                    RESIDUAL DDCF IS INCORRECT
                          1204 *
   13AF BC 00 10          1205          MVI   PR(,XP2),0             CLEAR RR FIELD
                          1206 *
   13B2 0D C1 1910 1914   1207          CLC   IDDDR(2),RDDDR         GO TO ERROR END IF
   13B8 C0 01 1658        1208          BNE   ERR16                    RESIDUAL DDDR IS INCORRECT
                          1209 *
   13BC 0E 01 13C5 18CA   1210          ALC   WRREPX+3(2),P2         SETUP RETURN ADDRESS
                          1211 *
   13C2 C0 87 0000        1212 WRREPX   B     *-*                    RETURN TO CALLING ROUTINE
                          1213 *
                          1214 *-------------------------------------------------------------
                          1215 *              WRITE KEY-DATA
                          1216 *
   13C6 34 08 1261        1217 WRKD     ST    RDKDX+3,ARR            SAVE RETURN ADDRESS
                          1218 *
   13CA BC 02 05          1219          MVI   Q(,XR2),X'02'          SETUP Q AND R
   13CD BC 00 06          1220          MVI   R(,XR2),X'00'            BYTES FOR SIO COMMAND
                          1221 *
   13D0 C0 87 120F        1222          B     RDKDA                  GO TO EXECUTE COMMAND
                          1223 *
                          1224 *-------------------------------------------------------------
                          1225 *              SCAN EQUAL
                          1226 *
   13D4 34 08 140F        1227 SCANE    ST    SCANHX+3,ARR           SAVE RETURN ADDRESS
                          1228 *
   13D8 BC 03 05          1229          MVI   Q(,XR2),X'03'          SETUP Q AND R
   13DB BC 00 06          1230          MVI   R(,XR2),X'00'            BYTES FOR SIO COMMAND
                          1231 *
   13DE C0 87 13EC        1232          B     SCANHA                 GO TO EXECUTE COMMAND
                          1233 *
                          1234 *-------------------------------------------------------------
                          1235 *              SCAN HIGH OR EQUAL
                          1236 *
   13E2 34 08 140F        1237 SCANH    ST    SCANHX+3,ARR           SAVE RETURN ADDRESS
                          1238 *
   13E6 BC 03 05          1239          MVI   Q(,XR2),X'03'          SETUP Q AND R
   13E9 BC 02 06          1240          MVI   R(,XR2),X'02'            BYTES FOR SIO COMMAND
                          1241 *
   13EC 35 01 140F        1242 SCANHA   L     SCANHX+3,XR1             MOVE RECORD
   13F0 9C 00 10 00       1243          MVC   RR(1,XR2),0(,XR1)          NUMBER AND NN
   13F4 9C 00 14 01       1244          MVC   NN(1,XR2),1(,XR1)            VALUE TO DDCF
                          1245 *
   13F8 C0 87 142C        1246          B     XEQ                    GO TO EXECUTE COMMAND
                          1247 *
   13FC 0D 01 1910 1914   1248          CLC   IDDDR(2),RDDDR         GO TO ERROR END IF
   1402 C0 01 1658        1249          BNE   ERR16                    RESIDUAL DDDR IS INCORRECT
                          1250 *
   1406 0E 01 140F 18CA   1251          ALC   SCANHX+3(2),P2         SETUP RETURN ADDRESS
                          1252 *
   140C C0 87 0000        1253 SCANHX   B     *-*                    RETURN TO CALLING ROUTINE
                          1254 *
                          1255 *
                          1256 *-------------------------------------------------------------
                          1257 *              SCAN READ OR EQUAL
                          1258 *
   1410 34 08 140F        1259 SCNRE    ST    SCANHX+3,ARR           SCAN RETURN ADDRESS
                          1260 *
   1414 BC 03 05          1261          MVI   Q(,XR2),X'03'          SET UP Q AND R
   1417 BC 0C 06          1262          MVI   R(,XR2),X'0C'            BYTES FOR SIO COMMAND
                          1263 *
   141A C0 87 13EC        1264          B     SCANHA                 GO TO EXECUTE COMMAND
                          1265 *
```

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```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1266 *-------------------------------------------------
                         1267 *                SCAN READ OR HIGH OR EQUAL
                         1268 *
141E 34 08 140F          1269 SCNRH    ST    SCANHX+3,ARR        SAVE RETURN ADDRESS
                         1270 *
1422 BC 03 05            1271          MVI   Q(,XR2),X'03'       SET UP Q AND R
1425 BC 0D 06            1272          MVI   R(,XR2),X'0D'         BYTES FOR SIO COMMAND
                         1273 *
1428 C0 87 13EC          1274          B     SCANHA
                         1275 *
```


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```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1277 ********************************************************************
                         1278 *                                                                  *
                         1279 *          COMMON 3340 COMMAND EXECUTION SUBROUTINE                *
                         1280 *                                                                  *
                         1281 ********************************************************************
                         1282 *
142C 34 08 1577          1283 XEQ      ST    XEQX+3,ARR          SAVE RETURN ADDRESS
                         1284 *
1430 3C 80 14D0          1285          MVI   ERANCH+1,X'80'      NO-OP THE INSTRUCTIONS
1434 3C 80 14DC          1286          MVI   JMP+1,X'80'
1438 0D 01 0A01 0A01     1287          CLC   PID(2),IDADR        IS IT RUNNING STANDALONE
143E F2 01 12            1288          JNE   XEQ00
1441 3C 10 14DC          1289          MVI   JMP+1,X'10'         IF RUNNING STANDALONE, CHECK
1445 3C 87 14D0          1290          MVI   BRANCH+1,X'87'        ATTACHMENT AND SEEK BUSY
                         1291 *
1449 C0 87 0212          1292          B     TEST                GO TO CHECK SNS SWS
                         1293 *
144D 0C 01 192A 18C6     1294          MVC   SNS(2),NULLS        CLEAR SENSE AREA
                         1295 *
1453 F3 C4 80            1296 XEQ00    SIO   X'80',X'C4'         ENABLE 3340 INTERRUPTS
                         1297 *
1456 2C 01 14C0 06       1298          MVC   SIO+2,R(2,XR2)      MOVE Q AND R BYTES TO SIO
145B 2E 00 14BF 01       1299          ALC   SIO+1,DRVADR(1,XR2)   ADD DRIVE ADDRESS TO Q BYTE
                         1300 *
1460 2C 00 14BB 01       1301          MVC   TIORDY+1(1),DRVADR(,XR2) SETUP Q BYTE IN TIO
1465 2C 00 14D4 01       1302          MVC   TIOBSY+1(1),DRVADR(,XR2)   'NOT RDY / UNIT CHECK' AND
146A 3A 01 14D4          1303          SBN   TIOBSY+1,X'01'           'SEEK BUSY' INSTRUCTIONS
                         1304 *
146E 2C 09 191E 14       1305          MVC   IDDCFN,NN(10,XR2)   SAVE INITIAL DDCF
                         1306 *
1473 35 01 190E          1307          L     IDDCR,XR1           MOVE DDCF
1477 6C 09 09 14         1308          MVC   9(10,XR1),NN(,XR2)    TO EXECUTION AREA
                         1309 *
147B C1 C2 1578          1310 TIO      TIO   ERR01,X'C2'         ERR IF ATTACHMENT BUSY
                         1311 *
147F 31 C6 190E          1312 LIO      LIO   IDDCR,X'C6'         LOAD DDCF ADDRESS IN DDCR
1483 31 C4 1910          1313          LIO   IDDDR,X'C4'         LOAD DDDF ADDRESS IN DDDR
                         1314 *
1487 30 C6 1912          1315          SNS   RDDCR,X'C6'         SENSE DDCR
148B 30 C4 1914          1316          SNS   RDDDR,X'C4'         SENSE DDDR
                         1317 *
148F 0D 01 1910 1914     1318          CLC   IDDDR(2),RDDDR      ERROR END IF
1495 F2 01 E7            1319          JNE   ERR02                 DDCR INCORRECT
                         1320 *
1498 0D 01 1910 1914     1321          CLC   IDDDR(2),RDDDR      ERROR END IF
149E C0 01 1586          1322          BNE   ERR03                 DDDR INCORRECT
                         1323 *
14A2 B8 04 05            1324          TBN   Q(,XR2),BIT5        BRANCH IF
14A5 F2 10 12            1325          JT    TIORDY                READ IPL COMMAND
                         1326 *
14A8 3A 04 18F9          1327          SBN   IND,OPEND           SET OP END EXPECTED INDICATOR
                         1328 *
14AC BD 00 05            1329          CLI   Q(,XR2),0           BRANCH IF NOT
14AF F2 01 08            1330          JNE   TIORDY                RECAL OR SEEK COMMAND
                         1331 *
14B2 3B 04 18F9          1332          SBF   IND,OPEND           RESET OP END EXPECTED INDICATOR
14B6 3A 02 18F9          1333          SBN   IND,SKEND           SET SEEK COMPLETE EXP INDICATOR
                         1334 *
14BA C1 00 159C          1335 TIORDY   TIO   ERR05,*-*           ERROR END IF DRIVE NOT READY
                         1336 *
14BE F3 00 00            1337 SIO      SIO   *-*,*-*             ISSUE 3340 START I/O COMMAND
                         1338 *
14C1 0D 01 0A01 0A01     1339          CLC   PID(2),IDADR        NO TEST FOR ATTACHMENT BUSY
14C7 C0 01 14D3          1340          BNE   TIOBSY              IF RUNNING SYSTEM TEST
                         1341 *
14CB C1 C2 14D3          1342          TIO   TIOBSY,X'C2'        ERROR END IF
14CF C0 00 15A4          1343 BRANCH   BC    ERR06,X'00'           ATTACHMENT DID NOT GO BUSY
                         1344 *
```

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```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   14D3 C1 00 14E1          1345 TIOBSY   TIO   XEQ01,*-*          BRANCH IF SEEK BUSY
                            1346 *
   14D7 38 02 18F9          1347          TBN   IND,SKEND
   14DB F2 00 CD            1348 JMP      JC    ERR07,X'00'        ERROR END IF
                            1349 *                                   SEEK IN PROGRESS
   14DE F2 87 11            1350          J     XEQ02
                            1351 *
   14E1 38 02 18F9          1352 XEQ01    TBN   IND,SKEND          SKIP IF
   14E5 F2 10 0A            1353          JT    XEQ02                SEEK IN PROGRESS
                            1354 *
   14E8 0C 00 14EF 14D4     1355          MVC   *+7(1),TIOBSY+1
   14EE C1 00 15B2          1356          TIO   ERR08,*-*          ERROR END IF
                            1357 *                                   STILL SEEK BUSY
   14F2 0C 01 18FF 18C6     1358 XEQ02    MVC   TIMER(2),NULLS     INITIALIZE TIMER COUNT
                            1359 *
   14F8 3D 00 18FF          1360 XEQ02A   CLI   TIMER,0            SKIP IF LOW ORDER
   14FC F2 01 0A            1361          JNE   XEQ03                TIMER BYTE NOT ZERO
                            1362 *
   14FF 0D 01 0A01 0A01     1363          CLC   PID(2),IDADR       GO TO SUPERVISOR
   1505 C0 01 0A0A          1364          BNE   ENTRY                IF RUNNING SYSTEM TEST
                            1365 *
   1509 0E 01 18FF 18CA     1366 XEQ03    ALC   TIMER(2),P2        ERROR END IF ATTACHMENT
   150F C0 A0 15D0          1367          BOL   ERR09                BUSY FAILS TO GO OFF
   1513 C1 C2 14F8          1368          TIO   XEQ02A,X'C2'
                            1369 *
   1517 30 C6 1912          1370          SNS   RDDCR,X'C6'        SENSE DDCR
   151B 30 C4 1914          1371          SNS   RDDDR,X'C4'        SENSE DDDR
                            1372 *
   151F 0C 01 18FF 18C6     1373          MVC   TIMER(2),NULLS     INITIALIZE TIMER COUNT
                            1374 *
   1525 3D 00 18FF          1375 XEQ03A   CLI   TIMER,0            SKIP IF LOW ORDER
   1529 F2 01 0A            1376          JNE   XEQ04                TIMER BYTE NOT ZERO
                            1377 *
   152C 0D 01 0A01 0A01     1378          CLC   PID(2),IDADR       GO TO SUPERVISOR
   1532 C0 01 0A0A          1379          BNE   ENTRY                IF RUNNING SYSTEM TEST
                            1380 *
   1536 0E 01 18FF 18CA     1381 XEQ04    ALC   TIMER(2),P2        ERROR END IF EXPECTED
   153C C0 A0 1623          1382          BOL   ERR10                INTERRUPTS FAIL TO OCCUR
   1540 C1 C4 1548          1383          TIO   XEQ04A,X'C4'       INTERRUPT PENDING
                            1384 *
   1544 C0 87 1525          1385          B     XEQ03A
                            1386 *
   1548 C0 87 17C2          1387 XEQ04A   B     DASDI
                            1388 *
   154C 0D 01 0A01 0A01     1389 XEQ05    CLC   PID(2),IDADR       GO TO SUPERVISOR
   1552 C0 01 0A0A          1390          BNE   ENTRY                IF RUNNING SYSTEM TEST
                            1391 *
   1556 38 20 18F9          1392          TBN   IND,INTERR         BRANCH IF ERROR
   155A C0 10 168F          1393          BT    ERRXX                DETECTED IN INTERRUPT RTN
                            1394 *
   155E 35 01 190E          1395          L     IODCR,XR1          SAVE
   1562 1C 09 1928 09       1396          MVC   RDDCFN,9(10,XR1)     RESIDUAL DDCF
                            1397 *
   1567 0D 01 190E 1912     1398          CLC   IODCR(2),RDDCR     GO TO ERROR END IF
   156D C0 01 1660          1399          BNE   ERR17                RESIDUAL DDCR IS INCORRECT
                            1400 *
   1571 F3 C4 7E            1401          SIO   X'7E',X'C4'        RESET AND DISABLE INTERRUPTS
                            1402 *
   1574 C0 87 0000          1403 XEQX     B     *-*                RETURN TO CALLING ROUTINE
                            1404 *
```


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```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                            1406 ********************************************************************************
                            1407 *                                                                              *
                            1408 *                        ERROR ENDING CONDITIONS                               *
                            1409 *                                                                              *
                            1410 ********************************************************************************
                            1411 *
                            1412 *                ATTACHMENT BUSY PRIOR TO COMMAND EXECUTION
                            1413 *
   1578 3C 01 18FD          1414 ERR01    MVI   ERRID,X'01'        SETUP ERROR NUMBER
   157C F2 87 55            1415          J     ERR09B
                            1416 *
                            1417 *--------------------------------------------------------------------------
                            1418 *                DDCR FAILED TO LOAD CORRECTLY
                            1419 *
   157F 3C 02 18FD          1420 ERR02    MVI   ERRID,X'02'        SETUP ERROR NUMBER
   1583 F2 87 04            1421          J     ERR03A
                            1422 *
                            1423 *--------------------------------------------------------------------------
                            1424 *                DDDR FAILED TO LOAD CORRECTLY
                            1425 *
   1586 3C 03 18FD          1426 ERR03    MVI   ERRID,X'03'        SETUP ERROR NUMBER
                            1427 *
   158A F3 C4 02            1428 ERR03A   SIO   X'02',X'C4'         DISABLE 3340 INTERRUPTS
   158D 30 C5 192A          1429          SNS   SNS,X'C5'          SENSE ATTACHMENT STATUS
                            1430 *
   1591 38 01 192A          1431          TBN   SNS,BIT7           BRANCH IF
   1595 F2 10 4E            1432          JT    ERR0C                ADAPTER CHECK
                            1433 *
   1598 C0 87 1747          1434          B     LCGERR             GO TO LOG ERROR
                            1435 *
                            1436 *--------------------------------------------------------------------------
                            1437 *                UNIT CHECK OR NOT READY PRIOR TO SIO
                            1438 *
   159C 3C 05 18FD          1439 ERR05    MVI   ERRID,X'05'        SETUP ERROR NUMBER
   15A0 C0 87 168F          1440          B     ERRXX
                            1441 *
                            1442 *--------------------------------------------------------------------------
                            1443 *                ATTACHMENT DID NOT GO BUSY AFTER SIO
                            1444 *
   15A4 3C 06 18FD          1445 ERR06    MVI   ERRID,X'06'        SETUP ERROR NUMBER
   15A8 F2 87 0B            1446          J     ERR08A
                            1447 *
                            1448 *--------------------------------------------------------------------------
                            1449 *                SEEK COMMAND DID NOT SET SEEK BUSY
                            1450 *
   15AB 3C 07 18FD          1451 ERR07    MVI   ERRID,X'07'        SETUP ERROR NUMBER
   15AF F2 87 04            1452          J     ERR08A
                            1453 *
                            1454 *--------------------------------------------------------------------------
                            1455 *                SEEK BUSY WITH NO SEEK IN PROGRESS
                            1456 *
   15B2 3C 08 18FD          1457 ERR08    MVI   ERRID,X'08'        SETUP ERROR NUMBER
                            1458 *
   15B6 0C 01 18FF 18C6     1459 ERR08A   MVC   TIMER(2),NULLS      INITIALIZE TIMER COUNT
                            1460 *
   15BC 39 06 18F9          1461 ERR08B   TBF   IND,OPEND+SKEND     LOOP UNTIL
   15C0 F2 10 0A            1462          JT    ERR08C               COUNTER OVERFLOWS
   15C3 0E 01 18FF 18C8     1463          ALC   TIMER(2),P1            OR ALL EXPECTED
   15C9 C0 20 15BC          1464          BNOL  ERR08B                   INTERRUPTS HAVE OCCURRED
                            1465 *
   15CD F2 87 04            1466 ERR08C   J     ERR09B
                            1467 *
                            1468 *--------------------------------------------------------------------------
                            1469 *                ATTACHMENT BUSY FAILED TO GO OFF
                            1470 *
   15D0 3C 09 18FD          1471 ERR09    MVI   ERRID,X'09'        SETUP ERROR NUMBER
                            1472 *
   15D4 F3 C4 7E            1473 ERR09B   SIO   X'7E',X'C4'         RESET AND DISABLE INTERRUPTS
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   15D7 3B 20 18F9             1474          SBF   IND.INTERR              IGNORE INTERRUPT ERRORS
                               1475 *
   15DB F2 87 B1               1476          J     ERRXX
                               1477 *
                               1478 *-------------------------------------------------------------
                               1479 *              DRIVE X UNIT CHECK OR NO-OP STATUS
                               1480 *
   15DE 3C 0A 18FD             1481 ERR0A    MVI   ERRID.X'0A'             SETUP ERROR NUMBER
   15E2 C0 87 1747             1482          B     LOGERR                  GO TO LOG ERROR
                               1483 *
                               1484 *-------------------------------------------------------------
                               1485 *              ADAPTER CHECK
                               1486 *
   15E6 3C 0C 18FD             1487 ERR0C    MVI   ERRID.X'0C'             SETUP ERROR NUMBER
                               1488 *
   15EA 0C 01 192E 192A        1489          MVC   WORKN(2).SNS            SAVE SENSE BYTES AND
   15F0 F2 87 0C               1490          J     ERR0FA                    GO TO BUILD FMT 3 SENSE DATA
                               1491 *
                               1492 *-------------------------------------------------------------
                               1493 *              ADAPTER SENSE BYTES DO NOT INDICATE CAUSE OF INTERRUPT
                               1494 *
   15F3 3C 0E 18FD             1495 ERR0E    MVI   ERRID.X'0E'             SETUP ERROR NUMBER
   15F7 C0 87 1747             1496          B     LOGERR                  GO TO LOG ERROR
                               1497 *
                               1498 *-------------------------------------------------------------
                               1499 *              ADAPTER CHECK ON READ DIAGNOSTIC SENSE COMMAND
                               1500 *
   15FB 3C 0F 18FD             1501 ERR0F    MVI   ERRID.X'0F'             SETUP ERROR NUMBER
                               1502 *
   15FF 3C 00 1985             1503 ERR0FA   MVI   DDDF+23.0               CLEAR READ
   1603 0C 16 1984 1985        1504          MVC   DDDF+22(23).DDDF+23       DIAG SENSE DATA AREA
                               1505 *
   1609 0C 01 196F 192E        1506          MVC   DDDF+1(2).WORKN         BUILD
   160F 31 C7 18F8             1507          LIO   SNS23.X'C7'               FORMAT 3
   1613 30 C7 1971             1508          SNS   DDDF+3.X'C7'                DIAGNOSTIC
   1617 3C 30 1975             1509          MVI   DDDF+7.X'30'                  SENSE DATA
                               1510 *
   161B 3A 01 18F9             1511          SBN   IND.SNSAVL              SET SENSE DATA AVAILABLE IND
                               1512 *
   161F C0 87 1747             1513          B     LOGERR                  GO TO LOG EPROR
                               1514 *
                               1515 *-------------------------------------------------------------
                               1516 *              EXPECTED OP END INTERRUPT DID NOT OCCUR
                               1517 *
   1623 C1 C4 163C             1518 ERR10    TIO   ERR12.X'C4'             BRANCH IF INTERRUPT PENDING
                               1519 *
   1627 38 04 18F9             1520          TBN   IND.OPEND               BRANCH IF NO OP END
   162B F2 90 07               1521          JF    ERR11                     INTERRUPT OUTSTANDING
                               1522 *
   162E 3C 10 18FD             1523          MVI   ERRID.X'10'             SETUP ERROR NUMBER
                               1524 *
   1632 F2 87 5A               1525          J     ERRXX
                               1526 *
                               1527 *-------------------------------------------------------------
                               1528 *              EXPECTED SEEK COMPLETE INTERRUPT DID NOT OCCUR
                               1529 *
   1635 3C 11 18FD             1530 ERR11    MVI   ERRID.X'11'             SETUP ERROR NUMBER
   1639 F2 87 53               1531          J     ERRXX
                               1532 *
                               1533 *-------------------------------------------------------------
                               1534 *              INTERRUPT PENDING. BUT INTERRUPT DID NOT OCCUP
                               1535 *
   163C 3C 12 18FD             1536 ERR12    MVI   ERRID.X'12'             SETUP ERROR NUMBER
   1640 F2 87 4C               1537          J     ERRXX
                               1538 *
                               1539 *-------------------------------------------------------------
                               1540 *              EXPECTED SCAN EQUAL DID NOT OCCUR
                               1541 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1643 3C 13 18FD             1542 ERR13    MVI   ERRID.X'13'             SETUP ERROR NUMBER
   1647 F2 87 45               1543          J     ERRXX
                               1544 *
                               1545 *-------------------------------------------------------------
                               1546 *              EXPECTED SCAN HIT DID NOT OCCUR
                               1547 *
   164A 3C 14 18FD             1548 ERR14    MVI   ERRID.X'14'             SETUP ERROR NUMBER
   164E F2 87 3E               1549          J     ERRXX
                               1550 *
                               1551 *-------------------------------------------------------------
                               1552 *              UNEXPECTED SCAN HIT CONDITION
                               1553 *
   1651 3C 15 18FD             1554 ERR15    MVI   ERRID.X'15'             SETUP ERROR NUMBER
   1655 F2 87 37               1555          J     ERRXX
                               1556 *
                               1557 *-------------------------------------------------------------
                               1558 *              INCORRECT RESIDUAL DDDR
                               1559 *
   1658 3C 16 18FD             1560 ERR16    MVI   ERRID.X'16'             SETUP ERROR NUMBER
   165C C0 87 1747             1561          B     LOGERR                  GO TO LOG ERROR
                               1562 *
                               1563 *-------------------------------------------------------------
                               1564 *              INCORRECT RESIDUAL DDCR
                               1565 *
   1660 3C 17 18FD             1566 ERR17    MVI   ERRID.X'17'             SETUP ERROR NUMBER
   1664 C0 87 1747             1567          B     LOGERR                  GO TO LOG ERROR
                               1568 *
                               1569 *-------------------------------------------------------------
                               1570 *              INCORRECT RESIDUAL DDCF
                               1571 *
   1668 3C 18 18FD             1572 ERR18    MVI   ERRID.X'18'             SETUP ERROR NUMBER
   166C C0 87 1747             1573          B     LOGERR                  GO TO LOG ERROR
                               1574 *
                               1575 *-------------------------------------------------------------
                               1576 *              INCORRECT RESIDUAL DDDF
                               1577 *
   1670 3C 19 18FD             1578 ERR19    MVI   ERRID.X'19'             SETUP ERROR NUMBER
   1674 C0 87 1747             1579          B     LOGERR                  GO TO LOG ERROR
                               1580 *
                               1581 *-------------------------------------------------------------
                               1582 *              UNEXPECTED SCAN EQUAL CONDITION
                               1583 *
   1678 3C 1A 18FD             1584 ERR1A    MVI   ERRID.X'1A'             SETUP ERROR NUMBER
   167C F2 87 10               1585          J     ERRXX
                               1586 *
                               1587 *-------------------------------------------------------------
                               1588 *              INTERRUPT DID NOT CAUSE INTERRUPT PENDING TIO CONDITION
                               1589 *
   167F 3C 1C 18FD             1590 ERR1C    MVI   ERRID.X'1C'             SETUP ERROR NUMBER
   1683 C0 87 1747             1591          B     LOGERR                  GO TO LOG ERROR
                               1592 *
                               1593 *-------------------------------------------------------------
                               1594 *              UNEXPECTED INTERRUPT
                               1595 *
   1687 3C 1E 18FD             1596 ERR1E    MVI   ERRID.X'1E'             SETUP ERROR NUMBER
   168B C0 87 1747             1597          B     LOGERR                  GO TO LOG ERROR
                               1598 *
                               1599 *-------------------------------------------------------------
                               1600 *              COMPLETE ERROR PROCESSING
                               1601 *
   168F F3 C4 7E               1602 ERRXX    SIO   X'7E'.X'C4'             RESET AND DISABLE INTERRUPTS
                               1603 *
   1692 38 20 18F9             1604          TBN   IND.INTERR              BRANCH IF INTERRUPT
   1696 F2 10 0D               1605          JT    ERRXXA                    DETECTED ERROR CONDITION
                               1606 *
   1699 0D 01 192A 18C6        1607          CLC   SNS(2).NULLS            BRANCH IF SENSE BYTES
   169F F2 01 04               1608          JNE   ERRXXA                    HAVE ALREADY BEEN RETRIEVED
                               1609 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1610          SNS   SNS,X'C5'                SENSE ADAPTER STATUS
                         1611 *
                         1612 ERRXXA   TBN   SNS,BIT7                 BRANCH IF
                         1613          BT    ERR0C                      ADAPTER CHECK
                         1614 *
                         1615          MVC   **7(1),TIORDY+1          GO TO READ DIAGNOSTIC
                         1616          TIO   ERRXXB,*-*                 SENSE DATA IF DRV NOT READY
                         1617 *
                         1618          MVC   **6,UCKMSK(1,XR2)        BYPASS READ
                         1619          TBF   SNS-1,*-*                  DIAGNOSTIC SENSE
                         1620          JT    ERRXXD                       IF NO UNIT CHECK
                         1621 *
                         1622 ERRXXB   MVC   SIOSNS+1,DRVADR(1,XR2)    BUILD READ
                         1623          SBN   SIOSNS+1,BIT7                DIAGNOSTIC SENSE COMMAND
                         1624 *
                         1625          TIO   ERRXXD,X'C2'               SKIP IF ATTACHMENT BUSY
                         1626 *
                         1627          LIO   DGSNS8,X'C4'               LOAD DDDR TO SENSE AREA ADDR
                         1628 *
                         1629          SNS   WORKN,X'C4'                BYPASS READ
                         1630          CLC   WORKN(2),DGSNS8              DIAGNOSTIC SENSE
                         1631          JNE   ERRXXD                         IF INCORRECT DDDR LOAD
                         1632 *
                         1633 SIOSNS   SIO   X'07',*-*                   READ DIAGNOSTIC SENSE DATA
                         1634 *
                         1635          MVC   TIMER(2),NULLS             INITIALIZE TIMER COUNT
                         1636 *
                         1637          CLC   PID(2),IDADR               GO TO SUPERVISOR
                         1638          BNE   ENTRY                        IF RUNNING SYSTEM TEST
                         1639 *
                         1640 ERRXXC   ALC   TIMER(2),P1                 WAIT FOR FALL OF
                         1641          BOL   ERRXXD                       ATTACHMENT BUSY
                         1642          TIO   ERRXXC,X'C2'                   OR TIMEOUT
                         1643 *
                         1644          SBN   IND,SNSAVL                 SET SENSE DATA AVAILABLE IND
                         1645 *
                         1646          SNS   WORKN,X'C5'                BRANCH IF READ
                         1647          TBN   WORKN,BIT7                   DIAGNOSTIC SENSE
                         1648          BT    ERR0F                          ENDED IN ADAPTER CHECK
                         1649 *
                         1650 ERRXXD   TBN   IND,INTERR                 GO TO LOG ERROR
                         1651          BF    LOGERR                       NOT INTERRUPT DETECTED ERROR
                         1652 *
                         1653          TBN   IND,TIOERR                 BRANCH IF
                         1654          BT    ERR1C                        INTERRUPT PENDING FAILURE
                         1655 *
                         1656          TBN   IND,DRVERR                 BRANCH IF
                         1657          BT    ERR0A                        UNIT CHECK
                         1658 *
                         1659          TBF   SNS,BIT3+BIT5              BRANCH IF
                         1660          TBF   SNS-1,X'0F'                  NO INTERRUPT
                         1661          BT    ERR0E                          BITS IN ADAPTER STATUS
                         1662 *
                         1663          TBF   SNS,BIT3                   BRANCH IF
                         1664          TBF   SNS-1,X'0F'                  NOT ATTENTION
                         1665          BF    ERR1E                          INTERRUPT
                         1666 *
                         1667          B     BGN01                      GO TO RESET ATTENTION
                         1668 *

16A2 30 C5 192A
16A6 38 01 192A
16AA C0 10 15E6
16AE 0C 00 16B5 14BB
16B4 C1 00 16C4
16B8 2C 00 16BE 03
16BD 39 00 1929
16C1 F2 10 4F
16C4 2C 00 16E3 01
16C9 3A 01 16E3
16CD C1 C2 1713
16D1 31 C4 18EC
16D5 30 C4 192E
16D9 0D 01 192E 18EC
16DF F2 01 31
16E2 F3 00 07
16E5 0C 01 18FF 18C6
16EB 0D 01 0A01 0A01
16F1 C0 01 0A0A
16F5 0E 01 18FF 18C8
16FB C0 A0 1713
16FF C1 C2 16F5
1703 3A 01 18F9
1707 30 C5 192E
1708 38 01 192E
170F C0 10 15FB
1713 3E 20 18F9
1717 C0 90 1747
1718 3E 08 18F9
171F C0 10 167F
1723 38 10 18F9
1727 C0 10 15DE
1728 39 14 192A
172F 39 0F 1929
1733 C0 10 15F3
1737 39 10 192A
173B 39 0F 1929
173F C0 90 1687
1743 C0 87 0FCD
1747 85 01 16
174A 7C 00 2F
174D 5C 16 2E 2F
1751 38 01 18F9
1755 F2 90 47
1758 4C 17 2F 1985
175D 3D 80 196E
1761 F2 01 1A
1764 3D 02 196F
1768 F2 01 13
176B 4C 09 15 1882
1770 38 40 18FA
1774 F2 10 40
1777 3A 40 18FA
177B F2 87 2F
177E 3D 40 196E
1782 F2 01 1A
1785 3D 15 1975
1789 F2 01 13
178C 4C 09 15 18A8
1791 38 80 18FA
1795 F2 10 1F
1798 3A 80 18FA
179C F2 87 0E
179F C0 87 021E
17A3 01
17A4 18FD
17A6 18BC
17A8 4C 09 15 18BC
17AD 3A 40 18F9
17B1 0C 00 109D 18FD
17B7 3B 3F 18F9
17BB BB C0 00
17BE C0 87 105D
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1670 ********************************************************************************
                         1671 *                                                                              *
                         1672 *                        ERROR LOG SUBROUTINE                                  *
                         1673 *                                                                              *
                         1674 ********************************************************************************
                         1675 *
                    1834 1676          USING LOG,XR1                    XR1 POINTS TO LOG AREA
                         1677 *
                         1678 LOGERR   L     LOG8(,XR2),XR1             SETUP LOG AREA POINTER
                         1679 *
                         1680          MVI   DGSNS(,XR1),0                CLEAR DIAGNOSTIC
                         1681          MVC   DGSNS-1(23,XR1),DGSNS(,XR1)    SENSE DATA AREA
                         1682 *
                         1683          TBN   IND,SNSAVL                 BRANCH IF NO
                         1684          JF    LOGER                        DIAGNOSTIC SENSE DATA
                         1685 *
                         1686          MVC   DGSNS(24,XR1),DDDF+23      LOG SENSE DATA
                         1687 *
                         1688          CLI   DDDF,X'80'                 BRANCH IF NOT
                         1689          JNE   CKRDY                        WRITE INHIBIT
                         1690          CLI   DDDF+1,X'02'                   COMMAND REJECT
                         1691          JNE   CKRDY
                         1692 *
                         1693          MVC   MSG(10,XR1),WRITE          MOVE WR INHIBIT MSG TO LOG
                         1694 *
                         1695          TBN   IND2,RDONLY                BYPASS HALT IF
                         1696          JT    LOGX                         PREVIOUS RD ONLY DETECTED
                         1697 *
                         1698          SBN   IND2,RDONLY                SET READ ONLY INDICATOR AND
                         1699          J     SETHLT                       GO TO SETUP FOR ERROR HALT
                         1700 *
                         1701 CKRDY    CLI   DDDF,X'40'                 BRANCH IF
                         1702          JNE   LOGER                        OTHER THAN
                         1703          CLI   DDDF+7,X'15'                   NORMAL INTERVENTION
                         1704          JNE   LOGER                            REQUIRED CONDITION
                         1705 *
                         1706          MVC   MSG(10,XR1),NRDY           MOVE NOT RDY MSG TO LOG
                         1707 *
                         1708          TBN   IND2,NOTRDY                BYPASS HALT IF PREVIOUS
                         1709          JT    LOGX                         NOT READY CONDITION DETECTED
                         1710 *
                         1711          SBN   IND2,NOTRDY                SET NOT READY INDICATOR AND
                         1712          J     SETHLT                       GO TO SETUP FOR ERROR HALT
                         1713 *
                         1714 LOGER    B     UNPACK                     UNPACK
                    17A3 1715          DC    IL1'1'                       ERROR
                    17A5 1716          DC    AL2(ERRID)                     IDENTIFIER
                    17A7 1717          DC    AL2(ERRNO)                       TO PRINT FIELD
                         1718 *
                         1719          MVC   MSG(10,XR1),ERRNO          LOG ERROR IDENTIFIER
                         1720 *
                         1721 SETHLT   SBN   IND,HLTSW                   SET ERROR HALT INDICATOR
                         1722          MVC   ERRHLT(1),ERRID            SETUP ERROR HALT
                         1723 *
                         1724 LOGX     SBF   IND,X'3F'                  RESET PROGRAM INDICATORS
                         1725          SBF   DIND(,XR2),CEDM+LPSW       RESET DRIVE INDICATORS
                         1726 *
                         1727          B     NXDRV                      GO TO TRY NEXT DRIVE
                         1728 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1730 ********************************************************************************
                         1731 *                                                                              *
                         1732 *                  3340 DEVICE END INTERRUPT SUBROUTINE                        *
                         1733 *                                                                              *
                         1734 ********************************************************************************
                         1735 *
 17C2 34 08 1829         1736 DASDI    ST    DASDIX+3,ARR          SETUP RETURN ADDRESS
 17C6 34 02 1901         1737          ST    DAXR2,XR2             SAVE INDEX REGISTER 2
                         1738 *
 17CA 30 C5 192A         1739 DASD00   SNS   SNS,X'C5'             SAVE SENSE BYTES
                         1740 *
 17CE 38 01 192A         1741          TBN   SNS,BIT7              BRANCH IF
 17D2 F2 10 49           1742          JT    DASD04                  ADAPTER CHECK
                         1743 *
 17D5 35 02 1903         1744          L     ADRPTR,XR2            SETUP POINTER TO
 17D9 B5 02 01           1745          L     1(,XR2),XR2             DRIVE DEPENDENT WORK AREA
                         1746 *
 17DC 38 10 192A         1747          TBN   SNS,BIT3              BRANCH IF
 17E0 38 04 18F9         1748          TBN   IND,OPEND               EXPECTED OP END
 17E4 F2 10 17           1749          JT    DASD01                    INTERRUPT OCCURRED
                         1750 *
 17E7 2C 00 17ED 02      1751          MVC   *+6,SKMSK(1,XR2)      GET SK INTRP MASK FROM DRV AREA
 17EC 38 00 1929         1752          TBN   SNS-1,*-*             BRANCH IF
 17F0 38 02 18F9         1753          TBN   IND,SKEND               INTERRUPT IS
 17F4 F2 90 27           1754          JF    DASD04                    NOT EXPECTED
                         1755 *
 17F7 3B 02 18F9         1756          SBF   IND,SKEND             RESET SEEK INTRP EXPECTED IND
 17FB F2 87 04           1757          J     DASD02                GO TO TEST FOR UNIT CHECK
                         1758 *
 17FE 3B 04 18F9         1759 DASD01   SBF   IND,OPEND             RESET OP END EXPECTED INDICATOR
                         1760 *
 1802 2C 00 1808 03      1761 DASD02   MVC   *+6,UCKMSK(1,XR2)      GET UNIT CK MASK FROM DRV AREA
 1807 39 00 1929         1762          TBF   SNS-1,*-*             BRANCH IF
 1808 39 08 192A         1763          TBF   SNS,BIT4                UNIT CHECK OR
 180F F2 90 08           1764          JF    DASD03                    ND-OP STATUS
                         1765 *
 1812 C1 C4 1822         1766          TIO   DASD05,X'C4'          BR IF INTERRUPT PENDING,
 1816 3A 08 18F9         1767          SBN   IND,TIOERR              ELSE SET ERROR INDICATOR
                         1768 *
 181A 3A 10 18F9         1769 DASD03   SBN   IND,DRVERR            SET DRIVE ERROR INDICATOR
                         1770 *
 181E 3A 20 18F9         1771 DASD04   SBN   IND,INTERR            SET ANY ERROR INDICATOR
                         1772 *
 1822 35 02 1901         1773 DASD05   L     DAXR2,XR2             RESTORE INDEX REGISTER 2
                         1774 *
                         1775 *
 1826 C0 87 0000         1776 DASDIX   B     *-*                   HANDLE NEXT INTERRUPT
                         1777 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1779 ********************************************************************************
                         1780 *                                                                              *
                         1781 *                  ERROR LOG AREA AND MESSAGE CONSTANTS                        *
                         1782 *                                                                              *
                         1783 ********************************************************************************
                         1784 *
                  182A   1785 ERRLOG   EQU   *
                         1786 *
 182A 80          182A   1787          DC    XL1'80'
 182B 08          182B   1788          DC    IL1'8'
 182C F3F3F4F040D3D6C7   1833 1789     DC    CL8'3340 LOG'
                         1790 *
 1834 80          1834   1791 LOG     DC    XL1'80'
 1835 14          1835   1792          DC    IL1'20'
 1836 C4D9C9E5C540F140   183F 1793     DC    CL10'DRIVE 1 - '
 183E 6040               1793
 1840             1849   1794 MSG     DS    CL10
 184A 40          184A   1795          DC    XL1'40'
 184B 18          184B   1796          DC    IL1'24'
 184C             1863   1797 DGSNS   DS    XL24
                         1798 *
 1864 80          1864   1799 LOG2    DC    XL1'80'
 1865 14          1865   1800          DC    IL1'20'
 1866 C4D9C9E5C540F240   186F 1801     DC    CL10'DRIVE 2 - '
 186E 6040               1801
 1870             1879   1802 MSG2,   DS    CL10
 187A 40          187A   1803          DC    XL1'40'
 187B 18          187B   1804          DC    IL1'24'
 187C             1893   1805 DGSNS2  DS    XL24
                         1806 *
 1894 FF          1894   1807          DC    XL1'FF'
                         1808 *
 1895 D5D640C5D9D9D6D9   189E 1809 NOERRS  DC    CL10'NO ERRORS '
 189D E240               1809
 189F D5D6E340D9C5C1C4   18A8 1810 NRDY    DC    CL10'NOT READY '
 18A7 E840               1810
 18A9 D9C5C1C440D6D5D3   18B2 1811 NWRITE  DC    CL10'READ ONLY '
 18B1 E840               1811
 18B3 C5D9D940C8D3E340   18BC 1812 ERRNO   DC    CL10'ERR HLT XX'
 18BB E7E7               1812
                         1813 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1815 ********************************************************************************
                         1816 *                                                                              *
                         1817 *                    CONSTANTS AND RESERVED STORAGE AREAS                      *
                         1818 *                                                                              *
                         1819 ********************************************************************************
                         1820 *
                         1821 *              CONSTANTS
                         1822 *
 188D 0000000000000000 18C6 1823 NULLS    DC    10XL1'00'
 18C5 0000             1823
                         1824 *
                         1825 *
 18C7 0001             18C8 1826 P1       DC    IL2'1'
 18C9 0002             18CA 1827 P2       DC    IL2'2'
 18CB 0004             18CC 1828 P4       DC    IL2'4'
 18CD 00000005         18D0 1829 P5       DC    IL4'5'
 18D1 00000008         18D4 1830 P8       DC    IL4'8'
 18D5 0014             18D6 1831 P20      DC    IL2'20'
 18D7 00000100         18DA 1832 P256     DC    IL4'256'
 18DB 015D             18DC 1833 P349     DC    IL2'349'
                         1834 *
 18DD FFFF             18DE 1835 N1       DC    IL2'-1'
                         1836 *
 18DF FFFFFFFF         18E2 1837 FFPTN    DC    4XL1'FF'          SCAN TEST MASK
 18E3 7777FFAA         18E6 1838 WCPTN    DC    XL4'7777FFAA'     WORST CASE TEST PATTERN
                         1839 *
                         18E7 1840 PATRN    EQU   *
 18E7                    18EA 1841          DS    XL4               TEST PATTERN TEMPORARY STORAGE
                         1842 *
 18EB 196E               18EC 1843 DGSNS0   DC    AL2(DDDF)         ADDR OF RD DIAG SENSE AREA
                         1844 *
 18ED 1964               18EE 1845 DDCR     DC    AL2(DDCF)         INITIAL DDCR INITIALIZATION VALUE
 18EF 196E               18F0 1846 DDDR     DC    AL2(DDDF)         INITIAL DDDR INITIALIZATION VALUE
                         1847 *
                         1848 *-------------------------------------------------------------------------------
                         1849 *              SVP INTERFACE CONTROL BYTES
                         1850 *
 18F1 2009               18F2 1851 SVSRST   DC    XL2'2009'           SYS RESET FLAG --> X REG
                         1852 *
 18F3 0003               18F4 1853 SVPREQ   DC    XL2'0003'           SET SVP REQUEST
                         1854 *
 18F5 C809               18F6 1855 CEMODE   DC    XL2'C809'           CE MODE INDICATORS --> X REG
                         1856 *
 18F7 0002               18F8 1857 SNS23    DC    XL2'0002'           SENSE ERROR BYTES
                         1858 *
                         1859 *-------------------------------------------------------------------------------
                         1860 *              COMMON INDICATORS AND WORK AREAS
                         1861 *
 18F9 00                 18F9 1862 IND      DC    XL1'0'            PROGRAM INDICATORS
 18FA 00                 18FA 1863 IND2     DC    XL1'0'
                         1864 *
 18FB                    18FC 1865 LPCNT    DS    XL2               ROUTINE LOOP COUNTER
                         1866 *
 18FD                    18FD 1867 ERRID    DS    XL1               ERROR IDENTIFIER TEMP STORAGE
                         1868 *
 18FE                    18FF 1869 TIMER    DS    XL2               TIMER COUNT
                         1870 *
 1900                    1901 1871 DAXR2    DS    XL2               XR2 STORAGE
                         1872 *
 1902                    1903 1873 ADRPTR   DS    XL2               DRIVE SELECTION POINTER
                         1874 *
                         1904 1875 ADRTBL   EQU   *
 1904                    190C 1876          DS    XL9               DRIVE SELECTION TABLE
                         1877 *
 190D                    190E 1878 IDDCR    DS    XL2               INITIAL DDCR VALUE
 190F                    1910 1879 IDDDR    DS    XL2               INITIAL DDDR VALUE
                         1880 *
 1911                    1912 1881 RDDCR    DS    XL2               RESIDUAL DDCR VALUE
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

 1913                    1914 1882 RDDDR    DS    XL2               RESIDUAL DDDR VALUE
                         1883 *
                         1915 1884 IDDCF    EQU   *                 INITIAL DDCF
 1915                    191E 1885 IDDCFN   DS    XL10
                         1886 *
                         191F 1887 RDDCF    EQU   *                 RESIDUAL DDCF
 191F                    1928 1888 RDDCFN   DS    XL10
                         1889 *
 1929                    192A 1890 SNS      DS    XL2               3340 ADAPTER SENSE INFO
                         1891 *
                         1928 1892 WORK     EQU   *                 GENERAL PURPOSE
 1928                    192E 1893 WORKN    DS    XL4                 WORK AREA
                         1894 *
                         192F 1895 DRVWK    EQU   *                 START OF DRV DEPENDENT WORK AREAS
                         1896 *-------------------------------------------------------------------------------
                         1897 *              DRIVE 1 INDICATORS AND WORK AREAS
                         1898 *
                         192F 1899 DRVWK1   EQU   *                 START OF DRIVE 1 WORK AREA
                         1900 *
 192F 00                 192F 1901 DIND     DC    XL1'00'           DRIVE DEPENDENT INDICATORS
                         1902 *
 1930 C0                 1930 1903 DRVADR   DC    XL1'C0'           DRIVE ADDRESS
                         1904 *
 1931 08                 1931 1905 SKMSK    DC    XL1'08'           SEEK COMPLETE INTERRUPT MASK
 1932 80                 1932 1906 UCKMSK   DC    XL1'80'           UNIT CHECK MASK
 1933 40                 1933 1907 SKRST    DC    XL1'40'           SEEK COMPLETE INTERRUPT RESET R BYTE
                         1908 *
 1934                    1934 1909 Q        DS    XL1               SIO Q BYTE
 1935                    1935 1910 R        DS    XL1               SIO R BYTE
                         1911 *
 1936                    1939 1912 PA       DS    XL4               CURRENT PHYSICAL ACCESS POSITION
                         1913 *
 193A                    193A 1914 FF       DS    XL1               FLAG VALUE
 193B                    193C 1915 CC       DS    XL2               CYLINDER ADDRESS
 193D                    193E 1916 HH       DS    XL2               HEAD ADDRESS
 193F                    193F 1917 RR       DS    XL1               RECORD NUMBER
 1940                    1940 1918 KL       DS    XL1               KEY LENGTH
 1941                    1942 1919 DL       DS    XL2               DATA LENGTH
 1943                    1943 1920 NN       DS    XL1               NUMBER OF RECORDS
                         1921 *
 1944 1834               1945 1922 LOGB     DC    AL2(LOG)          LOG AREA ADDRESS
                         1923 *
                         1924 *-------------------------------------------------------------------------------
                         1925 *              DRIVE 2 INDICATORS AND WORK AREAS
                         1926 *
                         1946 1927 DRVWK2   EQU   *                 START OF DRIVE 2 WORK AREA
                         1928 *
 1946 00                 1946 1929 DIND2    DC    XL1'00'           DRIVE DEPENDENT INDICATORS
                         1930 *
 1947 C8                 1947 1931 DRVAD2   DC    XL1'C8'           DRIVE ADDRESS
                         1932 *
 1948 04                 1948 1933 SKMSK2   DC    XL1'04'           SEEK COMPLETE INTERRUPT MASK
 1949 40                 1949 1934 UCKMS2   DC    XL1'40'           UNIT CHECK MASK
 194A 20                 194A 1935 SKRST2   DC    XL1'20'           SEEK COMPLETE INTERRUPT RESET R BYTE
                         1936 *
 1948                    1948 1937 Q2       DS    XL1               SIO Q BYTE
 194C                    194C 1938 R2       DS    XL1               SIO R BYTE
                         1939 *
 194D                    1950 1940 PA2      DS    XL4               CURRENT PHYSICAL ACCESS POSITION
                         1941 *
 1951                    1951 1942 FF2      DS    XL1               FLAG VALUE
 1952                    1953 1943 CC2      DS    XL2               CYLINDER ADDRESS
 1954                    1955 1944 HH2      DS    XL2               HEAD ADDRESS
 1956                    1956 1945 RR2      DS    XL1               RECORD NUMBER
 1957                    1957 1946 KL2      DS    XL1               KEY LENGTH
 1958                    1959 1947 DL2      DS    XL2               DATA LENGTH
 195A                    195A 1948 NN2      DS    XL1               NUMBER OF RECORDS
                         1949 *
```

C1F2 3340 SYSTEM TEST MODULE -- MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   195B 1864             195C 1950 LOG2A    DC    AL2(LOG2)          LOG AREA ADDRESS
                              1951 *
                              1952 *-------------------------------------------------------------------
                              1953 *
   1964                       1954          ORG   *,10,0       *** PROGRAM MAINTENANCE NOTE ***
                              1955 *                               DDCF AND DDDF MUST START
                              1956 *                               ON EVEN ADDRESS BOUNDARY
                              1957 *
                         1964 1958 DDCF     EQU   *                DDCF AREA
   1964                  196D 1959          DS    XL10
                              1960 *
                         196E 1961 DDDF     EQU   *                DDDF AREA
   196E                  1A71 1962          DS    260XL1
                              1963 *
```


C1F2 3340 SYSTEM TEST MODULE -- MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              1965 ********************************************************************
                              1966 *                                                                  *
                              1967 *                        SYMBOL DEFINITIONS                        *
                              1968 *                                                                  *
                              1969 ********************************************************************
                              1970 *
                              1971 *              LOCAL STORE REGISTERS
                              1972 *
                         0001 1973 XR1      EQU   X'01'            INDEX REGISTER 1
                         0002 1974 XR2      EQU   X'02'            INDEX REGISTER 2
                              1975 *
                         0008 1976 ARR      EQU   X'08'            CURRENT LEVEL ADDRESS RECALL REG
                              1977 *
                              1978 *-------------------------------------------------------------------
                              1979 *              MESSAGE / HALT IDENTIFIERS
                              1980 *
                         C100 1981 HLTXX    EQU   X'C100'          COMMON 3340 ERROR HALT
                              1982 *
                              1983 *-------------------------------------------------------------------
                              1984 *              COMMON PROGRAM INDICATORS (IND AND IND2)
                              1985 *
                         0080 1986 BGNSW    EQU   X'80'            PROGRAM RESTART INDICATOR
                         0040 1987 HLTSW    EQU   X'40'            ERROR HALT AFTER TESTING ALL DRIVES
                         0020 1988 INTERR   EQU   X'20'            ERROR DETECTED IN 3340 INTERRUPT RTN
                         0010 1989 DRVERR   EQU   X'10'            UNIT CHECK DETECTED IN INTRP RTN
                         0008 1990 TIOERR   EQU   X'08'            TIO INTRP PENDING FAILED
                         0004 1991 OPEND    EQU   X'04'            OP END INTERRUPT EXPECTED
                         0002 1992 SKEND    EQU   X'02'            SEEK COMPLETE INTERRUPT EXPECTED
                         0001 1993 SNSAVL   EQU   X'01'            READ SENSE DATA AVAILABLE
                              1994 *
                         0080 1995 NOTRDY   EQU   X'80'            NOT READY DRIVE DETECTED
                         0040 1996 RDONLY   EQU   X'40'            READ ONLY DATA MODULE DETECTED
                              1997 *
                              1998 *-------------------------------------------------------------------
                              1999 *              DRIVE DEPENDENT INDICATORS (DIND)
                              2000 *
                         0080 2001 CEDM     EQU   X'80'            CE DATA MODULE MOUNTED
                         0040 2002 LPSW     EQU   X'40'            DRIVE LOOP INDICATOR
                         0008 2003 NOWR     EQU   X'08'            DRIVE WRITE INHIBIT INDICATOR     KMG
                         0001 2004 SW       EQU   X'01'            GENERAL PURPOSE PROGRAM INDICATOR
                              2005 *
                              2006 *-------------------------------------------------------------------
                              2007 *              BIT POSITION SYMBOLS
                              2008 *
                         0040 2009 BIT1     EQU   X'40'
                         0010 2010 BIT3     EQU   X'10'
                         0008 2011 BIT4     EQU   X'08'
                         0004 2012 BIT5     EQU   X'04'
                         0002 2013 BIT6     EQU   X'02'
                         0001 2014 BIT7     EQU   X'01'
                              2015 *
                              2016 *-------------------------------------------------------------------
                              2017 *              DCP SECTION REFERENCE TABLE
                              2018 *
                         0212 2019 TEST     EQU   X'0212'          CHECK FOR USER INTERVENTION
                         0216 2020 LINK     EQU   X'0216'          TERMINATE SECTION
                         021E 2021 UNPACK   EQU   X'021E'          UNPACK DATA - HEX TO EBCDIC
                         0222 2022 HALT     EQU   X'0222'          HALT AND DISPLAY HALT IDENTIFIER
                              2023 *
                              2024 *-------------------------------------------------------------------
                              2025 *              OTHER REFERENCES EXTERNAL TO THIS SECTION
                              2026 *
                         0A01 2027 IDADR    EQU   X'0A01'          SECTION IDENTIFIER ADDRESS
                         0A0A 2028 ENTRY    EQU   X'0A0A'          SUPERVISOR ENTRY
                              2029 *
                         FFFF 2030          END
```

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ADRPTR	A	002	1903	1873	0804* 0819 0827* 0832* 1744
ADRTBL	A	001	1904	1875	0787 0803 0831
ARR	C	001	0008	1976	0748 0866 0878 0932 0972 0968 0996 1017 1054 1084 1096 1127 1141 1159 1188 1217 1227 1237 1259 1269 1283 1736
BEGIN	A	004	0FB4	0748	0041 0069 0099 0128 0166 0216 0269 0299 0356 0437 0518 0595 0654 0701
BGNSW	C	001	0080	1986	0037 0775 0785
BGNX	A	004	1059	0809	0755* 0853
BGN01	A	003	0FCD	0757	1667
BGN02	A	004	1026	0785	0776
BGN06	A	003	1048	0801	
BIT1	C	001	0040	2009	0488 0498 0549 0570 0620 0633
BIT3	C	001	0010	2010	1659 1663 1747
BIT4	C	001	0008	2011	1763
BIT5	C	001	0004	2012	1324 1659
BIT6	C	001	0002	2013	1104 1108
BIT7	C	001	0001	2014	0504 0537 0552 0576 0577 0642 1431 1612 1623 1647 1741
BRANCH	A	004	14CF	1343	1285* 1290*
CC	A	002	193C	1915	0914*
CC2	A	002	1953	1943	
CEDM	C	001	0080	2001	0885 1106 1725
CEMODE	A	002	18F6	1855	0766
CKRDY	A	004	177E	1701	1689 1691
C1F	A	001	0000	0007	
DASDI	A	004	17C2	1736	1387
DASDIX	A	004	1826	1776	1736*
DASD00	A	004	17CA	1739	
DASD01	A	004	17FE	1759	1749
DASD02	A	005	1802	1761	1757
DASD03	A	004	181A	1769	1764
DASD04	A	004	181E	1771	1742 1754
DASD05	A	004	1822	1773	1766
DAXR2	A	002	1901	1871	1737* 1773
DDCF	A	001	1964	1958	1845
DDCR	A	002	18EE	1845	0772 0848
DDDF	A	001	196E	1961	0397* 0398 0398* 0450* 0451 0451* 0452* 0479* 0531* 0532 0532* 0533* 0534* 0535* 0540 0540* 0555 0560 0573 0608* 0609 0609* 0610* 0611* 0623 0636 1503* 1504 1504* 1506* 1508* 1509* 1686 1688 1690 1701 1703 1843 1846
DDDR	A	002	18F0	1846	0773 0849
DGSNS	A	024	1863	1797	0781* 0782 0782* 0783 1680* 1681 1681* 1686*
DGSNS@	A	002	18EC	1843	1627 1630
DGSNS2	A	024	1893	1805	0783*
DIND	A	001	192F	1901	0227 0276 0306 0367 0665 0793* 0799* 0807* 0851 0852* 0885 1106* 1110* 1725*
DIND2	A	001	1946	1929	
DL	A	002	1942	1919	0185 0242 0327 0379* 0955* 0978 0985 1001* 1008* 1032 1039 1059* 1134* 1148 1173 1202
DL2	A	002	1959	1947	
DRVADR	A	001	1930	1903	1299 1301 1302 1622
DRVAD2	A	001	1947	1931	
DRVERR	C	001	0010	1989	1656 1769
DRVWK	A	001	192F	1895	0026
DRVWK1	A	001	192F	1859	0789
DRVWK2	A	001	1946	1927	0795
ENTRY	C	001	0A0A	2028	0770 0817 1364 1379 1390 1638
ERRHLT	A	002	109D	0841	1722*
ERRID	A	001	18FD	1867	1414* 1420* 1426* 1439* 1445* 1451* 1457* 1471* 1481* 1487* 1495* 1501* 1523* 1530* 1536* 1542* 1548* 1554* 1560* 1566* 1572* 1578* 1584* 1590* 1596* 1716 1722
ERRLOG	A	001	182A	1785	0021
ERRNO	A	010	188C	1812	1717 1719
ERRXX	A	003	168F	1602	1393 1440 1476 1525 1531 1537 1543 1549 1555 1585
ERRXXA	A	004	16A6	1612	1605 1608
ERRXXE	A	005	16C4	1622	1616
ERRXXC	A	006	16F5	1640	1642

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ERRXXD	A	004	1713	1650	1620 1625 1631 1641
ERR0A	A	004	15DE	1481	1657
ERR0C	A	004	15E6	1487	1432 1613
ERR0E	A	004	15F3	1495	1661
ERR0F	A	004	15FB	1501	1648
ERR0FA	A	004	15FF	1503	1490
ERR01	A	004	1578	1414	1310
ERR02	A	004	157F	1420	1319
ERR03	A	004	1586	1426	1322
ERR03A	A	003	158A	1428	1421
ERR05	A	004	159C	1439	1335
ERR06	A	004	15A4	1445	1343
ERR07	A	004	15AB	1451	1348
ERR08	A	004	15B2	1457	1356
ERR08A	A	006	15B6	1459	1446 1452
ERR08B	A	004	15BC	1461	1464
ERR08C	A	003	15CD	1466	1462
ERR09	A	004	15D0	1471	1367
ERR09@	A	003	15D4	1473	1415 1466
ERR1A	A	004	1678	1584	0621 0634
ERR1C	A	004	167F	1590	1654
ERR1E	A	004	1687	1595	1665
ERR10	A	004	1623	1518	1382
ERR11	A	004	1635	1530	1521
ERR12	A	004	163C	1536	1518
ERR13	A	004	1643	1542	0489 0550 0571
ERR14	A	004	164A	1548	0486 0496 0499 0547 0568 0618 0631
ERR15	A	004	1651	1554	0458 0464 0470 0477
ERR16	A	004	1658	1560	0920 0961 0989 1045 1075 1117 1152 1177 1208 1249
ERR17	A	004	1660	1566	1399
ERR18	A	004	1668	1572	0186 0243 0328 0923 0952 0979 1031 1033 1070 1072 1120 1149 1174 1203
ERR19	A	004	1670	1578	0191 0248 0333 0416 0556 0561 0574 0624 0637
FF	A	001	193A	1914	
FFPTN	A	001	18E2	1837	0555 0560 0623
FF2	A	001	1951	1942	
HALT	C	001	0222	2022	0840
HH	A	002	193E	1916	0915* 0925 1133*
HH2	A	002	1955	1944	
HLTSW	C	001	0040	1987	0835 0838 1721
HLTXX	C	001	C100	1981	0841
IDADR	C	001	0A01	2027	0769 0816 1287 1339 1363 1378 1389 1637
IDDCF	A	001	1915	1884	
IDDCFN	A	010	191E	1885	0922 1119 1305*
IDDCR	A	002	190E	1878	0144* 0772* 0848* 1307 1312 1395 1398
IDDDR	A	002	1910	1879	0050* 0145* 0188 0196 0197* 0245 0253 0254* 0330 0338 0339* 0374 0389* 0395* 0404* 0410* 0411 0421 0422* 0537 0552 0576 0577* 0773* 0849* 0915 0954 0983 1037 1074 1103 1112 1151 1176 1207 1248 1313 1318 1321
IND	A	001	18F9	1862	0037* 0775 0785* 0835 0838* 1327* 1332* 1333* 1347 1352 1392 1461 1474* 1511* 1520 1604 1644* 1650 1653 1656 1683 1721* 1724* 1748 1753 1756* 1759* 1767* 1769* 1771*
IND2	A	001	18FA	1863	1695 1698* 1708 1711*
INTERR	C	001	0020	1988	1392 1474 1604 1650 1771
JMP	A	003	14DB	1348	1286* 1289*
KL	A	001	1940	1918	0984 1038
KL2	A	001	1957	1946	
LINK	C	001	0216	2020	
LIO	A	004	147F	1312	
LOG	A	001	1834	1791	1676 1922
LOG@	A	002	1945	1922	1678
LOGER	A	004	179F	1714	1684 1702 1704
LOGERR	A	003	1747	1678	1434 1482 1496 1513 1561 1567 1573 1579 1591 1597 1651
LOGX	A	004	1787	1724	1696 1709
LOG2	A	001	1864	1799	1950
LOG2@	A	002	195C	1950	

C1F2 3340 SYSTEM TEST MODULE -- MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
LOOP	A	006	10A2	0848	0058 0088 0117 0155 0205 0260 0347 0507 0583 0645 0735 0829
LOOPX	A	004	10B8	0855	0751*
LPCNT	A	002	18FC	1865	0039* 0057* 0214* 0259* 0374* 0395 0410 0413* 0418* 0516* 0582* 0699* 0714 0733* 0734
LPSW	C	001	0040	2002	0807 0851 0852 1725
MSG	A	010	1849	1794	0778* 1693* 1706* 1719*
MSG2	A	010	1879	1802	0779*
NN	A	001	1943	1920	0871* 0896* 0947* 0974* 1024* 1028 1040* 1063* 1067 1132* 1166* 1170 1171* 1195* 1199 1200* 1244* 1305 1308
NN2	A	001	195A	1948	
NOERRS	A	010	189E	1809	0778 0779
NOTRDY	C	001	0080	199E	1708 1711
NOWR	C	001	0008	2003	0227 0276 0306 0367 0665 1110
NPDY	A	010	18A8	1810	1706
NULLS	A	001	18C6	1823	0535 0696 0871 0896 0947 1001 1059 1132 1294 1358 1373 1459 1607 1635
NWRITE	A	010	18B2	1811	1693
NXDRV	A	003	105D	0814	0055 0083 0112 0150 0200 0228 0257 0277 0288 0307 0342 0368 0425 0501 0580 0639 0666 0687 0727 0891 1727
NXDRVX	A	004	109E	0843	0752* 0836
NXD01	A	004	106A	0819	
NXD02	A	004	1082	0831	0822
N1	A	002	18DE	1835	1040
OPEND	C	001	0004	1991	1327 1332 1461 1520 1748 1759
PA	A	004	1939	1912	0925* 0951 1133
PATRN	A	001	18E7	1840	0434* 0435* 0452 0503 0503* 0504* 0506 0592* 0593* 0610 0641 0641* 0642* 0644
PA2	A	004	1950	1940	
PFC	A	002	0A07	0020	
PID	A	002	0A01	0016	0698 0731 0769 0816 1287 1339 1363 1378 1389 1637
P1	A	002	18CE	1826	0057 0085 0114 0152 0202 0259 0344 0582 0733 0763 0899 1010 1463 1640
P2	A	002	18CA	1827	1047 1077 1179 1210 1251 1366 1381
P20	A	002	18D6	1831	0908 0911
P256	A	004	18DA	1832	0185 0242 0327 0413
P349	A	002	18DC	1833	0718
P4	A	002	18CC	1828	0193 0250 0335 0418
P5	A	004	18D0	1829	0379
P8	A	004	18D4	1830	1134
Q	A	001	1934	1909	0868* 0893* 0934* 0944* 0970* 0998* 1019* 1056* 1086* 1098* 1129* 1143* 1161* 1190* 1219* 1229* 1239* 1261* 1271* 1324 1329
Q2	A	001	194B	1937	0869* 0894* 0935* 0945* 0971* 0999* 1020* 1057* 1087* 1099* 1130* 1144* 1162* 1191* 1220* 1230* 1240* 1262* 1272* 1298
R	A	001	1935	1910	
RDCKD	A	004	11D8	0996	0141 0179 0182 0232 0239 0317 0324 0376 0672
RDDCF	A	001	191F	1887	0193* 0250* 0335* 0951 0978 1008 1030 1032 1069 1071 1148 1173 1202
RDDCFN	A	010	1928	1885	0922 1119 1396*
RDDCR	A	002	1912	1881	1315* 1370* 1398
RDDDR	A	002	1914	1882	0389 0404 0919 0960 0988 1044 1074 1116 1151 1176 1207 1248 1316* 1318 1321 1371*
RDHAE	A	004	1159	0932	0075 0081 0110 0139 0177 0230 0283 0313 0370 0448 0529 0606 0668 0712 0725
RDHAO	A	004	1166	0942	0147 0286
RDHAOA	A	005	1170	0947	0937
RDHAOX	A	004	119E	0963	0932* 0942*
RDKD	A	004	1205	1017	0400 0406
RDKDA	A	004	120F	1022	1222
RDKDB	A	003	1238	1038	1041
RDKDX	A	004	125E	1049	1017* 1022 1047* 1217*
RDLOG	A	004	12AA	1084	0048 0053
RDONLY	C	001	0040	1996	1695 1698
RDR00	A	004	119F	0968	0148
RDR00A	A	005	1183	0978	1012
RDR00X	A	004	11D7	0991	0968* 0996* 1003 1010*
RDSNS	A	004	128C	1096	0047 0052 0074 0104 0133 0171 0221 0274 0304 0361 0442 0523

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
					0600 0659 0706
RDSNSA	A	004	12E0	1112	1091 1109
RDSNSB	A	003	12D7	1108	1105
RDSNSX	A	004	12FF	1122	1084* 1096*
RDVKD	A	004	1262	1054	0683
RDVKDX	A	004	12A6	1079	1054* 1061 1077*
RECAL	A	004	10BC	0866	0045 0073 0103 0132 0170 0220 0273 0303 0360 0441 0522 0599 0658 0705
RR	A	001	193F	1917	0973* 0981* 1004* 1023* 1028* 1035* 1062* 1067* 1071 1165* 1170* 1194* 1199* 1205* 1243*
RR2	A	001	1956	1945	
RTN	A	001	0A03	0018	
RTNPFC	A	001	0A0D	0033	0020
R0A	A	006	0D13	0434	0358
R0AA	A	004	0D25	0441	
R0AB	A	004	0D34	0448	0438
R0AB1	A	004	0D82	0488	0485
R0AB2	A	004	0D98	0498	0495
R0AC	A	006	0DA4	0503	0439
R0B	A	004	0DB6	0516	
R0BA	A	004	0DC2	0522	
R0BE	A	004	0DD1	0529	0519 0578
R0BB1	A	004	0DFE	0542	0538
R0BB2	A	004	0E0C	0549	0546
R0BB3	A	006	0E29	0560	0553
R0BB4	A	004	0E33	0563	0558
R0BB5	A	004	0E41	0570	0567
R0BC	A	006	0E63	0582	0520
R0C	A	006	0E6D	0592	
R0CA	A	004	0E7F	0599	
R0CB	A	004	0E8E	0606	0596
R0CB1	A	004	0EB4	0620	0617
R0CB2	A	004	0ED4	0633	0630
R0CC	A	006	0EEA	0641	0597
R0D	A	004	0EFC	0654	
R0DA	A	004	0F04	0658	
R0DB	A	003	0F13	0665	0655
R0E	A	006	0F3D	0696	0656
R0EA	A	004	0F53	0705	
R0EA1	A	002	0F61	0710	0696* 0715 0729*
R0EB	A	004	0F66	0714	0702
R0EB1	A	005	0F70	0716	0719
R0EB2	A	002	0F89	0725	0715* 0716* 0717* 0718 0729
R0EC	A	006	0F92	0729	0703
R01	A	004	0A15	0039	0737
R01A	A	004	0A25	0047	0042
R01B	A	006	0A3D	0057	0043
R02	A	004	0A47	0067	
R02A	A	004	0A53	0073	0070
R02A1	A	001	0A63	0078	0067* 0085* 0087
R02B	A	006	0A6E	0085	0071
R03	A	004	0A7C	0097	
R03A	A	004	0A88	0103	0100
R03A1	A	001	0A94	0107	0097* 0114* 0116
R03B	A	006	0A9F	0114	0101
R04	A	004	0AAD	0126	
R04A	A	004	0AB9	0132	
R04B	A	004	0AC1	0135	0129
R04B1	A	001	0AC5	0136	0126* 0152* 0154
R04C	A	006	0AE5	0152	0130
R05	A	004	0AF3	0164	
R05A	A	004	0AFF	0170	
R05B	A	004	0B07	0173	0167
R05B1	A	001	0B0B	0174	0164* 0202* 0204
R05B2	A	004	0B0E	0177	0198
R05B3	A	005	0B29	0190	0194

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
R05C	A	006	084C	0202	0168
R06	A	004	085A	0214	
R06A	A	004	0866	0220	
R06B	A	003	0875	0227	0217 0255
R06B1	A	004	0880	0232	
R06B2	A	005	089D	0247	0251
R06C	A	006	08C0	0259	0218
R07	A	004	08CA	0269	
R07A	A	003	08DA	0276	0270
R08	A	004	08F8	0297	0271
R08A	A	004	0C04	0303	
R08B	A	003	0C0C	0306	0300
R08B1	A	001	0C17	0310	0297* 0344* 0346
R08B2	A	004	0C22	0317	0340
R08B3	A	005	0C3F	0332	0336
R08C	A	006	0C62	0344	0301
R09	A	004	0C70	0356	
R09A	A	004	0C78	0360	
R09B	A	003	0C87	0367	0357 0423
R09B2	A	005	0CF0	0415	0419
R2	A	001	194C	1938	
SCANE	A	004	13D4	1227	0454 0542
SCANH	A	004	13E2	1237	0460 0481 0613
SCANHA	A	004	13EC	1242	1232 1264 1274
SCANHX	A	004	140C	1253	1227* 1237* 1242 1251* 1259* 1269*
SCNRE	A	004	1410	1259	0466 0563
SCNRH	A	004	141E	1269	0473 0491 0626
SEEK	A	004	10CE	0878	0077 0106 0135 0173 0223 0279 0309 0363 0444 0525 0602 0661 0708 0721
SEEKA	A	004	1139	0917	0873
SEEKX	A	004	1155	0927	0866* 0905*
SETHLT	A	004	17AD	1721	1699 1712
SIO	A	003	14BE	1337	1298* 1299*
SIOSNS	A	003	16E2	1633	1622* 1623*
SKEND	C	001	0002	1992	1333 1347 1352 1461 1753 1756
SKMSK	A	001	1931	1905	1751
SKMSK2	A	001	1948	1933	
SKRST	A	001	1933	1907	
SKRST2	A	001	194A	1935	
SK01	A	003	10F0	0893	0886
SK02	A	005	10FB	0898	0900
SK03	A	006	111B	0908	0912
SK04	A	003	1131	0914	0909
SNS	A	002	192A	1890	0488 0498 0549 0570 0620 0633 1294* 1429* 1431 1489 1607 1610* 1612 1619 1659 1660 1663 1664 1739* 1741 1747 1752 1762 1763
SNSAVL	C	001	0001	1993	1511 1644 1683
SNS23	A	002	18F8	1857	1507
SVPREQ	A	002	18F4	1853	0760 0767
SW	C	001	0001	2004	
SYSRST	A	002	18F2	1851	0759
TEST	C	001	0212	2019	1292
TIMER	A	002	18FF	1869	1358* 1360 1366* 1373* 1375 1381* 1459* 1463* 1635* 1640*
TID	A	004	1478	1310	
TIOBSY	A	004	14D3	1345	1302* 1303* 1340 1342 1355
TIOERR	C	001	0008	1990	1653 1767
TIORDY	A	004	14BA	1335	1301* 1325 1330 1615
UCKMSK	A	001	1932	1906	1618 1761
UCKMS2	A	001	1949	1934	
UDTO	A	003	0A0C	0023	
UNPACK	C	001	021E	2021	1714
WCPTN	A	004	18E6	1838	0190 0247 0332 0415 0434 0533 0534 0573 0592 0636
WORK	A	001	1928	1892	0881* 0883* 0888* 0898* 0899* 0902 0902* 0908 0911* 0915
WORKN	A	004	192E	1893	0732* 0734 0748* 0749 0878* 0879 0958* 0960 0986* 0988 1043* 1044 1114* 1116 1489* 1506 1629* 1630 1646* 1647
WRCKD	A	004	1343	1159	0235 0320 0381 0675
WRCKDA	A	004	134D	1164	1183

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
WRCKDX	A	004	137D	1181	1159* 1164 1179*
WRHAD	A	004	1303	1127	0285
WRHADA	A	005	130D	1132	
WRKD	A	004	13C6	1217	0385 0391
WRREP	A	004	1385	1188	0679
WRREPX	A	004	13C2	1212	1188* 1193 1210*
WRR0D	A	004	131E	1141	0315 0372 0670
WRR0DA	A	004	1328	1146	1136
WRR0DX	A	004	133F	1154	1127* 1141*
XEQ	A	004	142C	1283	0917 0949 0976 1006 1026 1065 1089 1101 1146 1168 1197 1246
XEQX	A	004	1574	1403	1283*
XEQ00	A	003	1453	1296	1288
XEQ01	A	004	14E1	1352	1345
XEQ02	A	006	14F2	1358	1350 1353
XEQ02A	A	004	14F8	1360	1368
XEQ03	A	006	1509	1366	1361
XEQ03A	A	004	1525	1375	1385
XEQ04	A	006	1536	1381	1376
XEQ04A	A	004	1548	1387	1383
XEQ05	A	006	154C	1389	
XR1	C	001	0001	1973	0188* 0190 0245* 0247 0330* 0332 0411* 0415 0698* 0699 0714* 0716 0731* 0732 0749* 0751 0752 0754 0754* 0755 0762* 0763* 0787* 0790 0791 0791* 0796 0797 0797* 0801 0803* 0804 0805 0819* 0821 0824 0826 0826* 0827 0831* 0832 0833 0879* 0881 0890 0898 0904 0904* 0905 0907* 0910 0910* 0914 0954* 0955 0957 0957* 0958 0983* 0984* 0985* 0986 1003* 1004 1022* 1023 1024 1037* 1038* 1039* 1043 1061* 1062 1063 1103* 1104 1108 1112* 1113 1113* 1114 1164* 1165 1166 1193* 1194 1195 1242* 1243 1244 1307* 1308 1395* 1396 1676 1678* 1680 1681 1681 1686 1693 1706 1719
XR2	C	001	0002	1974	0026 0185 0227 0242 0276 0306 0327 0367 0379 0665 0789* 0790 0793 0795* 0796 0799 0805* 0807 0824* 0833* 0851 0852 0868 0869 0871 0885 0693 0894 0896 0914 0915 0925 0925 0934 0935 0944 0945 0947 0951 0955 0970 0971 0973 0974 0978 0981 0984 0985 0998 0999 1001 1004 1008 1019 1020 1023 1024 1028 1028 1032 1035 1038 1039 1040 1056 1057 1059 1062 1063 1067 1067 1071 1086 1087 1098 1099 1106 1110 1129 1130 1132 1133 1133 1134 1143 1144 1148 1161 1162 1165 1166 1170 1170 1171 1173 1190 1191 1194 1195 1199 1199 1200 1202 1205 1219 1220 1229 1230 1239 1240 1243 1244 1261 1262 1271 1272 1298 1299 1301 1302 1305 1308 1324 1329 1618 1622 1678 1725 1737 1744* 1745 1745* 1751 1761 1773*

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

C1F2 3340 SYSTEM TEST MODULE -- 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 GRD PN 42	47620 EC 827872	3340 SYSTEM TEST	MODULE-MODEL 12	84@@84@@ C1110 0	C1F20000
T.-Y>0¬I & B-4	QH%E& D ""@#-AT	9| YQ"<BGC#&HI&Y	*0H*&?<BGD.3 /1H	D+-D %HB&-G/0	QE UG6JQC1F20001
T.&Z*FJC /1H@0H*	KD%BGDE4| AT@F<T	JBS| HQ@BGC#&	HMOZ>OH*&?<BGD.3	/0 .I2</G1%PD1D	(B&MAEZ<C1F20002
TA&ZSDNX /1C+					MA"34C1F20003
T.&DJ C /1ER0H*	&P&8 BW<Q2C4<BW|	-/BS| HV<BGC#&	HS D¬0H*&?<BGD.3	/0 H2*THJ@$E1<	|C&UE| 4C1F20004
T &DLD<8					A:HYC1F20005
T.&.B N7 /1ER0H*	&P&8 BZ&02C4<BZL	-/BS| H1*BGC#&	H0&.V0H*&?<BGD.3	/0 H2*THJ@$E1<	|C&UE=.4C1F20006
T &.DD<8					A"1<C1F20007
T.-.4 C /1ER0H*	J60 : JU++-DRD<B	GDD$ /1F¬0H*&P&8	B%MQ2C4<B%P -/B	S| B0YIBH;F/Q	KC-UE8HMC1F20008
TE&%HB0? /0=4B0*	.L<BGD.3 /1H@0H*	&3-		ND&4	IA0MA;#-C1F20009
T.0%# N7 /1ER0H*	J60C /1G$ Q4BD1T	E0 DOECMAFJA(0<	Q9% AEX | JUXF<3	&%Z B@.HKM/GA-	MC-UE$BUC1F20010
T.&_Z+ DRDCYAFJC	U %+0H*&P&8 B0%	Q2C4<B0? -/BS| Y	Q"<BGC#&.)&? 0H*	&? _HK*VHJ4REJ<	|B0*CMS8C1F20011
T< >_0H*K?<BGD<8	N68B C DAA)0H*	JD*BGD)%A0H*L&0H	0H*J60H(/<Q6%	AEW-5 & .SYUG/U	ND&*C*Z@C1F20012
T. ?GFJA(0<Q9%	AEX | JUXF<3 &>	)+ DRDCYAFJC U _	50H*&P&@ F|0Q2<	A HS-UHA0QEA	+B-QA=Y-C1F20013
T.&?5DH. /0=4B*Y	.=<BGD.3 /1H@> -	0A &P*BGD<8 N7	/1ER0H*L 9BGD0$	/0 B%XH10@D&4	IA0MA#/0C1F20014
TH 0ODE4@ 0P0H*	|_ 0<CF. /1B@0H*	K?.-H < &DE7 /1C	+	HA0ND&4	.B&MA"Y-C1F20015
T< 1H N7 /1ER0H*	LG%BGD)%A0H*L&0H	W0H*J610(/<Q6%	AEW-5 JU&L&<CF+$	JR0C0 ?H2QSG/-	KC&UE*:<C1F20016
T. 1S JUXF<3 &0	"+ DRDCYAFJC U 0	S0H*&P&8 CA*Q2C4	.CA¬ AABS0H*|_ 2	G %HSQSG/0QEA	<B &B3S0C1F20017
T.02VCJ| /1B@0H*	K?<BGD<8 N68B C	DAA)0H*JD*BGD18	< JT@FJC /1G$ Q0	BD1T& B@ZIK<¬F1*	(B&MA03&C1F20018
T.03N0H*L&0HM0H*	L1-HDC DRDAUM0H*	L1-QEC DRDAT@|	RY 0%FR@RY<EGD-M	BA&0A B%XIKD)F1M	JC0UC8B<C1F20019
T.&4CFJ RE<BGD-M	GA 0AFJ Q"CMAFJ	< JT@F(Z(0<Q9%	AEX | JT&F<3 &3	0+ %HBQSG/UPD0@	(A0<A@:&C1F20020

C1F2 3340 SYSTEM TEST MODULE -- 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
T.&41 JU&+-DRD<B	&CH¬ /1A)C <Q:/T	W||8Q:<BGC#&((6	U0H*&?<BGD.3 /1C	+ %HB&-G/0QEAH	+B-QBKLQC1F20021
T.05/ N7 /1ER||@	E$&3=FW0E$&0BFP	Q:*BGD'&A <GCEVG	/1|S &CA01RJ0H*	MD D B4ZH1@REJ<	|C&UEE&<C1F20022
T.06J0*<DM*BGEA8	A <GCEVD@)1V?0H*	L8-D 0*<(-%BGEUY	8&AUD0I O&@BGEA8	A <GC .I2<¬F1M	JC&*C3Z<C1F20023
T.&6"CRT /1RH+D	RH%B&EU. /1A)C-	Q:ATY+-DQ:C7"F+T	JBS| YQ"<BGC#&	(4& _H2*TG1%PEJD	(B&MAKY*C1F20024
T. 7%CW| /1B@0H*	K?<BGD<8 N7 /1E	R||8E$-3"FW4E$-0	CFP&Q9-0AFPDQ9-0	A HS-UH/8*FA&	(B&MA@.*C1F20025
T.08*FO@Q1T-AFJC	2U O<AJV5FPL /1|	M &CA008<0H*OKT/	FK. UARC+ DRD|H	&C-4C BY%H/8EEA	+A0<A0R8C1F20026
T.&9HFP-Q8% AEXC	/083C&<R;JTS0 D	0*<BGEA A <GCCUG	/1RH+D RH%B&EU<	(0 H2*TG1UND&@	.A0<A:A8C1F20027
T.&98FP-Q9% AEX	8 JU&+-DRD<B&C)G	/1A)C0 O"ATH0 D	&Y-0CF+YQ9T3=F+X	/0 .I2M/GJ%PD0@	.A0<A)3%C1F20028
T.&:WC#&+T-#D0H*	&?<BGD.3 /1C+ E	)0H*JOL3"FW4<"/Z	%FW4< 1V1F+Y@"1V	20 %HB@SHA0QD&4	IA&<A6Q-C1F20029
T.-#N/1|S &CA00:	40H*OKT/ FK. DAR	8C&<R)1TS0 DO*<BGDE4	+ ATZF+U: JTZ|¬@	Q:* ADH. /0=4C1<	.HKM/GJUPD0@ .B&MA&--C1F20031
THO@AFK. DAR8C&<	R)1TW0 DO*<BGDE4	+ ATZF+U: JTZ|¬@	Q:* ADH. /0=4C1<	.HKM/GJUPD0@	.B&MA&--C1F20031
T< 82C37 /1B@0H*	K?<BGD<8 N68B C	DAA)0H*JO*BGD1#	/1G$ *BGD4<BD@B	GD8MBDO >HE<¬F1*	(B&MA7ZYC1F20032
T. *¬0H*KQ-HL0H*	&P&0AC6DQ1%HAB-D	4 JT@0H*|_ *WC9.	/1B@0H*K?<BGD<8	H2*TG14$E1<	|C&UC".%C1F20033
TI&=G0H*JOLMAF|O	< &=IC6D: &=I C?	=C8-(&=IF(3 / *	00H*&3-	UHA0EE/D	(B0*CR-0C1F20034
T.&=70H*JO*BGDE4	< &'/C8XB &%A(D	R.-8AF|0Q2 4AF|0	R.% ADH. /0YN(-	R.- _HKM/G1%REJD	(B0*CKL<C1F20035
T<&"Z(&CR./0AC.%	AG D&Y&|K &&4 JA	*&@J=<*MQ@TGEF|L	B ¬5V(-DQ2< AC*0	11JT6<*M .2%XG1%	MC *C8S0C1F20036
T.J PF|&(&YAB-G	&YHC DRC/T>C D	RDAT0+H Q=* &DBQ	<BJ/1FI8<BJ/9FI8	@ H2UVH1@$E1M	JC0MAKD%C1F20037
T<JAIFF<<E//SFF<	<E1SLFF<@-AT90-D	RA<HBFK'4 -GK &H	% CB /VF) HA4-D	B? ¬|@ I/UND&4	.A0MA1Y C1F20038
T(JA" <HAF&&4 JU	C)&HA>U OH* |	D¬-4AE-DH * AB-Y	5 JUC¬¬@B@YD+)&H	C4-EB(DR @BG C<	TF&-DK9-C1F20039
T<JB1DH.B JUD(D	R 7MB L/ F|X2U Y	#&AT90H*BH%D 0H*	0AF&8Q#-0AFJ	Q@./ .Y .K%XIJ*	&B&MA*IYC1F20040
T<1CV& C UAAR0H*	C&HDNS@ 0@ &E	<BJ&Q1?HGE3&HFK8	5 JU>G HR.-H@B1U	.>H @Z .| %I2<	¬F 4E5S&C1F20041
T<ADO JU.¬&D 0H&	&P$0 A$0 AY0IEAT	FG-DR.-H| AU.F<T	JC#C-DR./U%4-D	C(DJD 0HK*TG14	QE UB510C1F20042

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<AEGO-D 4AFK8	Q5?HBC1HA &@AFK8	O5%BGDJ>4 &6< &@	R.%8GEB0(JU&FJL	JRQC& ?H2UVHJU	ND0UG6B<C1F20043
T</E:BJU:FKT JR	Y. <HC@BG 4BAF	:? DE? DF@Y*H(-	JX.0AA$01AY01EAT	F0H*M.B4C 0.BD	MB &@M &C1F20044
T</F_FK<H0 DOECM	AFJ8*BA<H4-DI(D	R.-4AFK8RE< AEVT	/0 (-J6.0AA$0	HA.0 D.0 B*¬F1U	NB-QA°.*C1F20045
T<JG¬E<@GEB2(BA<	RI@ AEWS@ A 5 JU	&_-DJ_-DL(DR.-4	AFK8RE< AEVT /0	(-J6.0 <B-UH/8	MC&UD°D C1F20046
T<AH& &0@ -E< 1<	Q1TMAD)D* A OH*	M.H0BD1UXC-DJ&/T	H0H*J%3&HDWF@ &0	@ O5 & B-UHA8	EE&41°EUC1F20047
T</ICDWF* A X	M *BGEB2> A M|¬@	RH< AEWS(BA<RI@	AEWS@ A 5 JU&_-D	J_-DLT~ M ZH/8	RE&4A4E0C1F20048
T./12F(# /H#(D	R.-4AFK8RE< AEV-	+ JI/F<. /0 (-	KD$0AA$0CAY0BD1T	F(&D %HJUPD0@	(B&MA9.DC1F20049
T<AHTDDW* A X	M *BGEB2> A M|¬@	RH< AEWS(AJ RI<	AEW-(JU&FJL JR	QC-DKD& 0.B-WH/8	RE&4A@/<C1F20050
T<1.PF<. /0 (-	L .0AA$0EA%BGEB3	/1.-(-L .0AA$0	GA%BGEB05 JU&:&H	B@Z C>Y ; Z1J%	PD0UAMA%C1F20051
T<J<I -G2U +:B	5 JU&4-DQ(DR.-4	AFK8RE< AEV-(BJU	:FKT JRY0H* C&	HD4H@ -M .SQSHA0	QE/H.°Q-C1F20052
T</<@? OFT -MF<E	% 0@HT HLF(L2/0Y	4BA(B? HE? OF0H*	M.H4HD1UX0 DOE 4	AFJ RE< A C >HSQ	/E1 G7-DC1F20053
T<I(0EVT /0 (-	L-.0BA$0BATMAD8B	* A X M *BGEB2	> A M?|&MT&-LFK¬	JRYC&DRD 3.2%	¬D0UA41-C1F20054
T</+TFJL JRQC-D	L-ATH0H* <BGD44	4BA|E? HE? <F(&D	L1R0 D B* A&A0H*	M.H8 DAK@ B4/E1<	.B&MA8H*C1F20055
T<J|N°1K(BA<RI@	AEWS@ A (JU&FJL	JRQC-DL1JTH0H*	C&HDWF@ -O@ $	/1H|(- .2M)F1*	LD&YF;K-C1F20056
T<J&GE =@ O0@ $	/1|%(-MC#0CA$0	BATMAE =* A X	M *BGEB0(JU&FJL	JRQC-D B@.HKM	RC0%A=.<C1F20057
T<J&9E 802%BG	4BA&|? <E? OF0H*	L#C&HE =@ O0BC&$	/1|%(-N)32 E(	@-A.*C&D .2%XH1U	NB0<A1ZYC1F20058
T<JJ.B-DH ¬HADT0	&E(0@/1L&0H*8D-0	AFKYQ1?|D-B0AE<	F.- M?0D% AK# K0	E(&A+-D .SUUG1-	0C-YA0&UC1F20059
T.1K$E(&%BJU:ECM	AF&9%B&UM0*HN:CG	FF&811AU&<<QRDTC	DFJ&(JU&FJL2 ;*	(JU& B@YISH:F/Q	KB-MA:IHC1F20060
T<AL<FJL JOF> &	E@/ K+-&0=&4 A¬H	ABC%DF|U: /T90&	NX|< 4AB-DH *	AE(|AO- B8YHJ4	RC0MAKE8C1F20061
T.1L8E(| AOU0&	M8L-BF|X2 <72/1D	8 /T9@/ HC M#1L	M0& N%-0AF|B@1T4	F|"2 B8DHE&-G/*	(B&MA;B@C1F20062
T<AM_ &Y(&YAB-G	&YHC-D0"1TH0H	N4<GBE|-01/UK<<&	RE 0AF|B@1T4 F|"	2 &Y(& .12M/GJU	ND&@EPR0C1F20063
T<AN:B-DH * AB-Y	+ JT"F<. YAQT0*&	AK<BGEKP /1¬BC&D	H &YA0 CH8T--F|X	DAE|(& 7H2D)FJM	JC&%AJ:-C1F20064

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<JO& JU+G URH U	(JU+FJ. JR-B8J	=0H* C0AF|72/5M	8 /T*8Y*D| <Q"¬|	D TCEFKY <KYTGAD	(B0@B0R C1F20065
T<APA+ DRH?H&L%B	GE4*8AJT*0H*0T30	FF|72/0%8A1T*8Y*	D| -Q"&0AF|8Q1TU	FF|X2D >HS-UGJQ	KC-YC"&UC1F20066
T<AP2B-8AF|8Q2<	-E$32/0&8BJT*B8J	=+2 Q=¬H&%L0HF|7	/1)G| 0Q"&0AFK8	RH?HGC _H2*TG1-	J8-0D&D%C1F20067
T.JG-| 8Q"*BGE4*	8C1T*| R/&0DFQ&	R/&0AFD8R.TGGF|-	011V1|C R)LYAF|X	/0 H2*TG1%REJ<	|B0*C8SQC1F20068
T<JRKE4¬A1AQ8+ &	Q=¬H&A30&F|72/5Y	8CJT*8Y)L|AHQ"¬H	GLC0LF|72/4M8EAT	*8Y*=|AM B0VG/*	&B&MA)C0C1F20069
T.1EBF|72/3*8E/T	*0H*PJ30PF|7 /1)	G|A-Q"*BGE4*8FJT	*0H*PJ30EF|72/1	8GAT* B8YIE *FA&	&C -A1D8C1F20070
T./E10H*PJ30;F|7	/1)G8@J=+8 Q=¬H	&C&4AFKYQ1?HAACC	EFKY8 JUD0A N9-0	E.M >HS0SF1U	K80*C5H-C1F20071
T.1$/E.?A A$D.	07-<9 AUZ@/A|.	080D: JST0*HPC3G	DF+001AU>C&DR./T	%8-D1 B0DISH:F/N	+B&MA*&*C1F20072
T./*&80 GC DQ"1T	FC&DH &YA0 DHB-8	AF|802<B-E1|A0/$	5+-DQ=LCEFK88 JU	>0A %HB&-GA-	0C -F4.UC1F20073
T./*"E¬%8HAT90I	PJ3-HF|X DAR"+A	Q=* &E)89EAUD+&8	RH* &E¬<9DAUD+&@	RH* .KUVHJ4REJD	(B&MA0E8C1F20074
T<J)1UAEG0H*|3$M	AEX0 .500.S88 JT	98ZAGLA*?FQM*-AV	>8-DE|&HRS"HAD40	IEJS2+D ?I2	*E Q8*.-C1F20075
T<J:TF|.2DD :&AT	:8Y*?|M RS?HAFT4	NFPP2 J(<BJMQECS	F|.2DA8:-AT:8Y*	+0H*8G-D ZH/8	0C0-AN8DC1F20076
T./¬KF|4Q?D0IEJS	8+U Q=&0 DI4Q"L%	"F|W#0 C /1A)(-	GHL&8F&D01JUD+ D	RH?H .KUVHJ4OD/	<B <A8T%C1F20077
T<A-CDDU5 /UC_&H	A+A RHT-DF|X2DA*	% A¬_ T- FKU8 /T	98Z X+0HQ=-HGAC%	DF|U% B8XHA0	PD 0EP9 C1F20078
T</-6F -C+& RHLU	HFK.2U TA1A-S+--	0=LY&F|U:HAT9(&H	R *8G B B||3*|A	4*8G-ALD 8D)FJM	J8-QA988C1F20079
T8A-"6*XV1MC1&FA					K/<C1F20080
T J/.&A-					*J<C1F20081
TB1/?-ALD6*XV1MC	2&FA				8H<C1F20082
T J/#&A-					1JDC1F20083
T+/T+"*P0&<PR6)$	R8UCN5>(6*PA1+/	6*PA1DC05)	Y&<P	R&MCH4=(9=* D - D	8IUC1F20084
TE1TW M H A&	D N7"""""""!	7)"=D			¬8QC1F20085
TC1T:FO8RRAV>H U	8-I H				A8<A8K8C1F20086

C1F2 3340 SYSTEM TEST MODULE -- 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

    . .   .....   ................  ................  ................  ................  ..... .
TAAU3 < H-D                                                                                     7 DC1F20087

      . . . ..    ................  ................  ................  ................  ....
TA/VHFC& 2 J H                                                                                  A11HC1F20088

  .   ........    ................  ................  ................  ................  ....
T JV*FF&                                                                                        ARCUC1F20089

                     ... ... .   ..  ...   ... .    ... ..........  .....
E***#E7*=-DC*PH$  =*7M&F|   |  C    F%   ASC   R A  SO   Q                  12160630750  219761.UC1F20090
```

--- LAST PAGE ---

C111 3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                            2 *                                          LAST CHG:11 05 75
                            3          DECK  4
                            4          SEQ   0
                            5          TREP
   0000                     6 C11      START 0
                            7 ********************************************************************************
                            8 *                                                                              *
                            9 *                          SECTION PREFACE                                     *
                           10 *                                                                              *
                           11 ********************************************************************************
                           12 *
   0A00                    13          ORG   X'0A00'
                           14 *
   0A00 C111          0A01 15 PID      DC    XL2'C111'          SECTION ID AND REVISION LEVEL
   0A02 00            0A02 16          DC    XL1'00'            SECTION FLAGS
   0A03 01            0A03 17 RTN      DC    XL1'01'            CURRENT ROUTINE NUMBER
   0A04 0000          0A05 18          DC    XL2'C000'          RESERVED
   0A06 0A3A          0A07 19 PFC      DC    AL2(RTNPFC)        ADDRESS OF ROUTINE PREFACE
   0A08 FFFF          0A09 20          DC    XL2'FFFF'          RESERVED
                           21 *
   0A0A C15000        0A0C 22 UDT0     DC    XL3'C15000'        3340 UDT ENTRY
                           23 *
   0A0D               0A18 24          DS    XL12               RESERVED
                           25 *
   0A19 00            0A19 26 COM      DC    XL1'00'            3340 PGM COMMUNICATIONS AREA
   0A1A               0A1A 27          DS    XL1                RESERVED
                           28 *
   0A1B               0A1C 29 LDRID    DS    AL2                MICROCODE LDR (C17) IN STG IND
   0A1D               0A1E 30 AMOPID   DS    AL2                AMOP (C19) IN STG INDICATOR
   0A1F               0A20 31 FA0ID    DS    AL2                3340 MICRO-CODE (FA0) IN STG
                           32 *
   0A21               0A39 33 SVPFC    DS    XL25               SECTION PREFACE STORAGE AREA
                           34 *
```


C111 3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                           36 ********************************************************************************
                           37 *                                                                              *
                           38 *            LOAD SECTIONS C17 AND FA0 IF REQUIRED                             *
                           39 *                                                                              *
                           40 ********************************************************************************
                           41 *
   0A3A 01            0A3A 42 RTNPFC   DC    XL1'01'            ROUTINE 01
   0A3B 00            0A3B 43          DC    XL1'00'
   0A3C FFFF          0A3D 44          DC    XL2'FFFF'          ONLY ONE ROUTINE IN SECTION
                           45 *
   0A3E 0D 00 0232 0A00    46          CLC   UTAB(,),PID-1      BRANCH IF NOT
   0A44 C0 01 0A79         47          BNE   BGNTST               LOADING FROM 3340
                           48 *
   0A48 0D 01 0A1C 0A70    49          CLC   LDRID(2),C17       GO TO LOAD LOADER
   0A4E F2 01 09           50          JNE   LDRLD                IF NOT YET LOADED
                           51 *
   0A51 0D 01 6C01 0A70    52          CLC   LDR+1(2),C17       BRANCH IF LOADER IS
   0A57 F2 81 17           53          JE    LDRGO                STILL IN MAIN STORAGE
                           54 *
   0A5A C0 87 021A         55 LDRLD    B     PRINT              PRINT MESSAGE
   0A5E 46            0A5E 56          DC    XL1'46'              'LOADING SECTION C17'
   0A5F 13            0A5F 57          DC    AL1(MSG02N-MS302+1)
   0A60 100A          0A61 58          DC    AL2(MSG02N)
   0A62 C100          0A63 59          DC    AL2(HLT00)
                           60 *
   0A64 0C 18 0A39 0A18    61          MVC   SVPFC(25),COM-1    SAVE SECTION PREFACE
                           62 *
   0A6A C0 87 022A         63          B     LOAD               LOAD SECTION C17
   0A6E 04            0A6E 64          DC    XL1'04'
   0A6F 0C17          0A70 65 C17      DC    XL2'0C17'
                           66 *
   0A71 3A 10 0A19         67 LDRGO    SBN   COM,FA0FLG         SET 'LOAD FA0 ONLY' FLAG
                           68 *
   0A75 C0 87 6C02         69          B     LDR+2              GO TO SECTION C17 TO LOAD FA0
                           70 *
```

C111 3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                           72 ************************************************************
                           73 *                                                          *
                           74 *          MICRO-PROCESSOR INITIALIZATION AND OP REG TESTS *
                           75 *                                                          *
                           76 ************************************************************
                           77 *
0A79 C0 87 021A            78 BGNTST   B     PRINT                 PRINT MESSAGE
0A7D 46              0A7D  79          DC    XL1'46'                 'START 3340
0A7E 1D              0A7E  80          DC    AL1(MSG01N-MSG01+1)       CONTROL STORE TEST'
0A7F 0FF7            0A80  81          DC    AL2(MSG01N)
0A81 C100            0A82  82          DC    AL2(HLT00)
                           83 *
                           84 *-------------------------------------------------------------
                           85 *               HALT MICROPROCESSOR
                           86 *
0A83 F3 C4 7E              87 MPHLT    SIO   X'7E',X'C4'           RESET AND DISABLE 3340 INTRPS
                           88 *
0A86 31 C5 10C9            89          LIO   K04,X'C5'             SET K0 AND K4 (HALT IOP)
0A8A 31 C5 10CD            90          LIO   K034,X'C5'            SET K3 (CLOCK RESET)
                           91 *
                           92 *-------------------------------------------------------------
                           93 *               RESET EXTERNAL REGISTERS
                           94 *
0A8E C2 01 1104            95          LA    EXTBL,XR1             POINT TO EXT REG ADDR TABLE
                           96 *
0A92 3C 00 112B            97          MVI   C,0                   CLEAR OP REG
0A96 3C 00 112D            98          MVI   Y,0                     C AND Y FIELDS
                           99 *
0A9A 3C 00 112C           100 EXTRST   MVI   CR,0                  CLEAR OP REG CR FIELD
0A9E C0 87 0E65           101          B     LOP                   LOAD OP REG
                          102 *
0AA2 31 C5 10D9           103          LIO   LEXTZ,X'C5'           R4-R7 --> EXTERNAL ZONE REG
                          104 *
0AA6 1C 01 112D 01        105          MVC   Y,1(2,XR1)            EXT ADDR & DATA --> OP CR & Y
0AAB C0 87 0E65           106          B     LOP                   LOAD OP REG
                          107 *
0AAF 31 C5 10D7           108          LIO   LEXTAR,X'C5'          R3-R7 --> EXT ADDR REG (EXTAR)
0AB3 31 C5 10EF           109          LIO   LALUD,X'C5'           OP REG Y --> A REG --> D REG
0AB7 31 C5 10DD           110          LIO   LEXT,X'C5'            D REG --> EXTERNAL REG
                          111 *
0ABB D2 01 02             112          LA    2(,XR1),XR1           ADVANCE EXT ADDR TBL POINTER
                          113 *
0ABE 7D FF 00             114          CLI   0(,XR1),X'FF'         LOOP UNTIL
0AC1 C0 01 0A9A           115          BNE   EXTRST                  END OF ADDRESS TABLE
                          116 *
                          117 *-------------------------------------------------------------
                          118 *               RESET MODE BUFFER
                          119 *
0AC5 3C 06 112B           120          MVI   C,X'06'               BUILD
0AC9 3C 80 112C           121          MVI   CR,X'80'                'SMODE'
0ACD 3C 80 112D           122          MVI   Y,X'80'                   MICRO-INSTRUCTION
                          123 *
0AD1 C0 87 0E51           124 MBRST    B     LXOP                  EXECUTE 'SMODE' INSTRUCTION
                          125 *
0AD5 0E 00 112C 10F7      126          ALC   CR(1),FOUR            ADVANCE MODE BUFFER ADDRESS
                          127 *
0ADB 38 20 112C           128          TBN   CR,BIT2               LOOP UNTIL ALL MODE BUFFER
0ADF C0 90 0AD1           129          BF    MBRST                   LOCATIONS HAVE BEEN RESET
                          130 *
                          131 *-------------------------------------------------------------
                          132 *               INITIALIZE ADDRESS LOCAL STORE (ALS)
                          133 *
0AE3 3C 02 112B           134          MVI   C,X'02'               BUILD 'SABI'
0AE7 3C 80 112C           135          MVI   CR,X'80'                MICRO-INSTRUCTION
                          136 *
0AEB 3C 00 112D           137 ALSLD    MVI   Y,0                   SET EVEN ALS LOCATIONS TO X'00'
0AEF C0 87 0E51           138          B     LXOP                  EXECUTE 'SABI' INSTRUCTION
                          139 *
```


C111 3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
0AF3 3A 20 112C           140          SBN   CR,BIT2              BUILD 'SADI' MICRO-INSTRUCTION
0AF7 C0 87 0E51           141          B     LXOP                  EXECUTE 'SADI' INSTRUCTION
                          142 *
0AFB 3A 01 112C           143          SBN   CR,BIT7               SETUP ODD ALS ADDRESS
                          144 *
0AFF 3C BF 112D           145          MVI   Y,X'BF'               SET ODD ALS LOCATIONS TO X'BF'
0B03 C0 87 0E51           146          B     LXOP                  EXECUTE 'SADI' INSTRUCTION
                          147 *
0B07 3B 20 112C           148          SBF   CR,BIT2               BUILD 'SABI' MICRO-INSTRUCTION
0B0B C0 87 0E51           149          B     LXOP                  EXECUTE 'SABI' INSTRUCTION
                          150 *
0B0F 0E 00 112C 10F5      151          ALC   CR(1),ONE             ADVANCE ALS ADDRESS
                          152 *
0B15 38 20 112C           153          TBN   CR,BIT2               LOOP UNTIL ALL ALS LOCATIONS
0B19 C0 90 0AEB           154          BF    ALSLD                   HAVE BEEN INITIALIZED
                          155 *
                          156 *-------------------------------------------------------------
                          157 *               INITIALIZE ZONE LOCAL STORAGE (ZLS)
                          158 *
0B1D 3C 03 1128           159          MVI   C,X'03'               BUILD
0B21 3C 80 112C           160          MVI   CR,X'80'                'SZI'
0B25 3C 00 112D           161          MVI   Y,X'00'                   MICRO-INSTRUCTION
                          162 *
0B29 C0 87 0E51           163 ZLSLD    B     LXOP                  EXECUTE 'SZI' INSTRUCTION
                          164 *
0B2D 0E 00 112C 10F5      165          ALC   CR(1),ONE             ADVANCE ZLS ADDRESS
                          166 *
0B33 38 20 112C           167          TBN   CR,BIT2               LOOP UNTIL ALL ZLS
0B37 C0 90 0B29           168          BF    ZLSLD                   LOCATIONS HAVE BEEN RESET
                          169 *
                          170 *-------------------------------------------------------------
                          171 *               INITIALIZE INDEX, CSAR, AND ADDRESS COMPARE REGS
                          172 *
0B3B 3C 00 1128           173          MVI   C,0                   X'00' --> OP REG C
0B3F 3C 00 112C           174          MVI   LR,0                  X'00' --> OPREG CR
0B43 3C BF 112D           175          MVI   Y,X'BF'               INDEX VALUE --> OP REG Y
0B47 C0 87 0E65           176          B     LOP                   LOAD OP REGISTER
                          177 *
0B4B 31 C5 10EF           178          LIO   LALUD,X'C5'           Y REG --> A REG --> D REG
0B4F 31 C5 10E7           179          LIO   LINDEX,X'C5'          D REG --> INDEX REG
                          180 *
0B53 3C 00 112D           181          MVI   Y,0                   X'00' --> OP REG Y
0B57 C0 87 0E65           182          B     LOP                   LOAD OP REGISTER
                          183 *
0B5B 31 C5 10EF           184          LIO   LALUD,X'C5'           Y REG --> A REG --> D REG
0B5F 31 C5 10E1           185          LIO   LCSADR,X'C5'          X'0000' --> CSAR & ADDR COMPARE
                          186 *
0B63 31 C5 10C9           187          LIO   K04,X'C5'             RESET K2
0B67 31 C5 10C5           188          LIO   RSPCR,X'C5'           RESET PCR LATCH AND X REG
                          189 *
                          190 *-------------------------------------------------------------
                          191 *               CHECK FOR SUCCESSFULL INITIALIZATION
                          192 *
0B6B 31 C7 10C7           193          LIO   SIDLE,X'C7'           SENSE IDLE STATUS
0B6F 30 C7 1136           194          SNS   WORKN,X'C7'
                          195 *
0B73 3D F7 1136           196          CLI   WORKN,X'F7'           GO TO ERROR HALT IF
0B77 C0 01 0D8C           197          BNE   IOPERR                  INCORRECT IDLE SENSE
                          198 *
0B7B 31 C5 10CB           199          LIO   K023,X'C5'            SET K2 (SERVICE MODE)
0B7F 31 C5 10E5           200          LIO   SVACC,X'C5'           SERVICE ACCESS CYCLE
0B83 31 C5 10CD           201          LIO   K034,X'C5'            SET K3 (CLOCK RESET)
0B87 31 C7 10CF           202          LIO   SPTR,X'C7'            SENSE ACCESS POINTER REG
0B8B 30 C7 1136           203          SNS   WORKN,X'C7'
                          204 *
0B8F 3D A1 1136           205          CLI   WORKN,X'A1'           GO TO ERROR HALT IF
0B93 C0 01 0D8C           206          BNE   IOPERR                  INCORRECT ACCESS POINTER
                          207 *
```

C111 3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0897 31 C7 10D8           208          LIO   SALS8,X'C7'             SENSE ALS8
   089A 30 C7 1134           209          SNS   WORKN-2,X'C7'
   089F 31 C7 10D1           210          LIO   SINDEX,X'C7'            SENSE ALSD & INDEX REG
   08A3 30 C7 1136           211          SNS   WORKN,X'C7'
                             212 *
   08A7 0D 01 1135 10F3      213          CLC   WORKN-1(2),NULLS        GO TO ERROR HALT IF
   08AD C0 01 0D8C           214          BNE   IOPERR                    INCORRECT MIAP VALUE
                             215 *
   08B1 3D BF 1136           216          CLI   WORKN,X'BF'             GO TO ERROR HALT IF
   08B5 C0 01 0D8C           217          BNE   IOPERR                    INCORRECT INDEX VALUE
                             218 *
                             219 *-------------------------------------------------------------------
                             220 *              TEST MICRO-PROCESSOR OP REG
                             221 *
   08B9 0C 02 112D 10F3      222          MVC   OPREG(3),NULLS          INITIALIZE TEST PATTERN
                             223 *
   08BF C0 87 0E65           224 OPTST    B     LOP                     LOAD OP REG
   08C3 C0 87 0E98           225          B     SOP                     SENSE OP REG
                             226 *
   08C7 38 20 1127           227          TBN   IOPIN,BIT2              ADJUST FOR HARDWARE
   08CB C0 10 0E8F           228          BT    INVERT                    INVERSION OF OP REG BITS
                             229 *
   08CF 0D 02 112D 1129      230          CLC   OPREG(3),IOPIN+2        GO TO ERROR HALT IF
   08D5 C0 01 0D8C           231          BNE   IOPERR                    OP REG INCORRECT
                             232 *
   08D9 0E 02 112D 1103      233          ALC   OPREG(3),X0801          ADVANCE OP REG TEST PATTERN
                             234 *
   08DF 38 40 1128           235          TBN   C,BIT1                  LOOP UNTIL TEST PATTERN
   08E3 C0 90 08BF           236          BF    OPTST                     EXCEEDS OP REG SIZE
                             237 *
```


C111 3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                             239 ********************************************************************
                             240 *                                                                  *
                             241 *              CONTROL STORAGE BIT PATTERNS TEST                   *
                             242 *                                                                  *
                             243 ********************************************************************
                             244 *
   08E7 0C 01 112F 10F3      245 BITEST   MVC   CSAR(2),NULLS            INITIALIZE CONTROL STORE ADDR
                             246 *
   08ED 3C 00 1126           247          MVI   REVSW,0                  RESET INDICATOR FOR ADDR TEST
                             248 *
   08F1 0C 03 10C3 10FF      249          MVC   LERRS(4),ZEROS           INITIALIZE SINGLE
   08F7 0C 03 10B9 10FF      250          MVC   RERRS(4),ZEROS             BIT ERROR COUNTERS
                             251 *
   08FD C0 87 0DE6           252 BTST01   B     LCSAR                    LOAD CONTROL STORE ADDR REG
                             253 *
   0C01 0C 02 1132 10F3      254          MVC   PATRN+2(3),NULLS         CLEAR ERROR PATTERN
   0C07 0C 02 112D 10F3      255          MVC   OPREG(3),NULLS           SETUP ALL ZEROS TEST PATTERN
                             256 *
   0C0D C0 87 0E0A           257          B     WRCS                     WRITE TEST PATTERN TO
   0C11 C0 87 0E1E           258          B     RDCS                       CONTROL STORE AND READ BACK
                             259 *
   0C15 0D 02 112D 1129      260          CLC   OPREG(3),IOPIN+2         GENERATE ERROR PATTERN
   0C1B C0 01 0EE7           261          BNE   GENPTN                     IF ANY CONTROL STORE ERROR
                             262 *
   0C1F 3A 01 112D           263          SBN   Y,BIT7                   SETUP FOR SHIFTING ONE PATTERN
                             264 *
   0C23 C0 87 0E0A           265 BTST02   B     WRCS                     WRITE TEST PATTERN TO
   0C27 C0 87 0E1E           266          B     RDCS                       CONTROL STORE AND READ BACK
                             267 *
   0C2B 0D 02 112D 1129      268          CLC   OPREG(3),IOPIN+2         GENERATE ERROR PATTERN
   0C31 C0 01 0EE7           269          BNE   GENPTN                     IF ANY CONTROL STORE ERROR
                             270 *
   0C35 0E 02 112D 112D      271          ALC   OPREG(3),OPREG           SHIFT TEST PATTERN LEFT
                             272 *
   0C39 38 40 1128           273          TBN   C,BIT1                   LOOP UNTIL ALL BIT
   0C3F C0 90 0C23           274          BF    BTST02                     POSITIONS HAVE BEEN TESTED
                             275 *
   0C43 3A 01 112D           276          SBN   Y,BIT7                   SETUP FOR SHIFTING ZERO PATTERN
                             277 *
   0C47 3A 20 1128           278 BTST03   SBN   C,BIT2                   SET INVERT BIT
   0C4B 3B 40 1128           279          SBF   C,BIT1                   RESET UNUSED BIT POSITION
                             280 *
   0C4F C0 87 0E0A           281          B     WRCS                     WRITE TEST PATTERN TO
   0C53 C0 87 0E1E           282          B     RDCS                       CONTROL STORE AND READ BACK
                             283 *
   0C57 0D 02 112D 1129      284          CLC   OPREG(3),IOPIN+2         GENERATE ERROR PATTERN
   0C5D C0 01 0EE7           285          BNE   GENPTN                     IF ANY CONTROL STORE ERROR
                             286 *
   0C61 0E 02 112D 112D      287          ALC   OPREG(3),OPREG           SHIFT TEST PATTERN LEFT
                             288 *
   0C67 38 20 1128           289          TBN   C,BIT2                   LOOP UNTIL ALL BIT
   0C6B C0 90 0C47           290          BF    BTST03                     POSITIONS HAVE BEEN TESTED
                             291 *
   0C6F C0 87 0F67           292          B     CKPTN                    GO TO ANALYZE ERROR PATTERN
                             293 *
   0C73 39 03 1125           294          TBF   IND,SBL+SBR              BRANCH IF NO
   0C77 F2 10 29             295          JT    ADRTST                     CONTROL STORE ERROPS
                             296 *
   0C7A 39 0C 1125           297          TBF   IND,MBL+MBR              GO TO ERROR
   0C7E C0 90 0D99           298          BF    CSERR                      HALT IF ANY
   0C82 38 03 1125           299          TBN   IND,SBL+SBR                  MULTI-BIT CONTROL
   0C86 C0 10 0D99           300          BT    CSERR                          STORAGE FAILURE
                             301 *
   0C8A C2 02 1116           302          LA    DTATBL-3,XR2             POINT TO DATA AREA ADDR TABLE
                             303 *
   0C8E E2 02 04             304 DATACK   LA    4(,XR2),XR2              ADVANCE POINTER
                             305 *
   0C91 2D 01 112F 00        306          CLC   CSAR,0(2,XR2)            GO TO ERROR HALT IF
```

C111 3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

    0C96 C0 82 0099              307          BL    CSERR                SINGLE BIT ERR IN DATA AREA
                                 308 *
    0C9A 2D 01 112F 02           309          CLC   CSAR.2(2.XR2)        BRANCH IF ADDRESS IS
    0C9F C0 84 0C8E              310          BH    DATACK                 NOT WITHIN MICRO-CODE AREA
                                 311 *
```


C111 3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT
                                 313 ***********************************************************************
                                 314 *                                                                     *
                                 315 *                CONTROL STORAGE ADDRESSING TEST                      *
                                 316 *                                                                     *
                                 317 *       ON FIRST PASS WRITE EACH CNTRL STORE LOC WITH ITS OWN ADDR    *
                                 318 *       THEN ON SECOND PASS REVERSE LEFT AND RIGHT DATA BYTES         *
                                 319 *       TO OBTAIN UNIQUE PATTERNS IN LEFT BYTE WITHIN A BLOCK         *
                                 320 *                                                                     *
                                 321 ***********************************************************************
                                 322 *
    0CA3 C0 87 0DE6              323 ADRTST   B     LCSAR                LOAD CONTROL STORE ADDR REG
                                 324 *
    0CA7 3D 01 1126              325          CLI   REVSW.1              BRANCH IF LEFT & RIGHT
    0CAB F2 01 0C                326          JNE   ATST05                 DATA BYTES ARE NOT REVERSED
                                 327 *
    0CAE 0C 00 112C 112F         328          MVC   CR(1).CSARD          REVERSE LEFT & RIGHT
    0CB4 0C 00 112D 112E         329          MVC   Y(1).CSARB             DATA BYTES ON 2ND PASS
                                 330 *
    0CBA C0 87 0E0A              331 ATST05   B     WRCS                 WRITE CONTROL STORE ADDR TO
    0CBE C0 87 0E1E              332          B     RDCS                   CONTROL STORE AND READ BACK
                                 333 *
    0CC2 0D 02 112D 1129         334          CLC   OPREG(3).IOPIN+2     BYPASS ERROR CORRECTION
    0CC8 F2 81 08                335          JE    ATST02                 IF NO CONTROL STORE ERROR
                                 336 *
    0CCB 3A 20 112B              337          SBN   C.BIT2               SET INVERT BIT AND
    0CCF C0 87 0E0A              338          B     WRCS                   RE-WRITE CONTROL STORE
                                 339 *
    0CD3 0E 00 112F 10F5         340 ATST02   ALC   CSARD(1).ONE         ADVANCE CONTROL STORE ADDR
                                 341 *
    0CD9 38 80 112F              342          TBN   CSARD.BIT0           LOOP UNTIL ENTIRE
    0CDD F2 90 11                343          JF    ATST06                 BLOCK HAS BEEN LOADED
                                 344 *
    0CE0 38 80 112F              345          SBF   CSARD.BIT0           ADVANCE CONTROL STG
    0CE4 0E 00 112E 10F5         346          ALC   CSARB(1).ONE           ADDRESS TO NEXT BLOCK
                                 347 *
    0CEA 38 20 112E              348          TBN   CSARB.BIT2           LOOP UNTIL ALL
    0CEE F2 10 0C                349          JT    ATST07                 BLOCKS HAVE BEEN LOADED
                                 350 *
    0CF1 3D 01 1126              351 ATST06   CLI   REVSW.1              IS THIS FIRST PASS?
    0CF5 C0 01 08FD              352          BNE   BTST01               GO TO BIT PATT TEST IF PASS 1
    0CF9 C0 87 0CA3              353          B     ADRTST                 OR CONTINUE WITH ADDRES TEST
                                 354 *
    0CFD 0C 01 112F 10F3         355 ATST07   MVC   CSAR(2).NULLS        INITIALIZE CONTROL STORE ADDR
                                 356 *
    0D03 C0 87 0DE6              357 ATST03   B     LCSAR                LOAD CONTROL STORE ADDR REG
                                 358 *
    0D07 3D 01 1126              359          CLI   REVSW.1              BRANCH IF LEFT & RIGHT
    0D0B F2 01 0C                360          JNE   ATST08                 DATA BYTES ARE NOT REVERSED
                                 361 *
    0D0E 0C 00 112C 112F         362          MVC   CR(1).CSARD          REVERSE LEFT & RIGHT
    0D14 0C 00 112D 112E         363          MVC   Y(1).CSARB             DATA BYTES ON 2ND PASS
                                 364 *
    0D1A C0 87 0E1E              365 ATST08   B     RDCS                 READ CONTROL STORE
                                 366 *
    0D1E 38 20 1127              367          TBN   IOPIN.BIT2           ADJUST FOR HARDWARE INVERTED
    0D22 C0 10 0EBF              368          BT    INVERT                 OP REG BITS IF REQUIRED
                                 369 *
    0D26 38 20 1127              370          SBF   IOPIN.BIT2           IGNORE INVERT BIT
                                 371 *
    0D2A 0D 02 112D 1129         372          CLC   OPREG(3).IOPIN+2     BRANCH IF NO
    0D30 F2 81 0C                373          JE    ATST04                 CONTROL STORE ERROR
                                 374 *
    0D33 C0 87 0EE7              375          B     GENPTN               GENERATE ERROR PATTERN
    0D37 C0 87 0F67              376          B     CKPTN                SET ERROR INDICATORS
    0D3B C0 87 0099              377          B     CSERR                GO TO ERROR HALT
                                 378 *
    0D3F 0E 00 112F 10F5         379 ATST04   ALC   CSARD(1).ONE         ADVANCE CONTROL STORE ADDR
                                 380 *
```

C111 3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   0D45 38 80 112F            381         TBN   CSARD,BIT0          LOOP UNTIL ENTIRE
   0D49 C0 90 0D03            382         BF    ATST03                BLOCK HAS BEEN TESTED
                              383 *
   0D4D 38 80 112F            384         SBF   CSARD,BIT0          ADVANCE CONTROL STG
   0D51 0E 00 112E 10F5       385         ALC   CSAR8(1),ONE          ADDRESS TO NEXT BLOCK
                              386 *
   0D57 38 20 112E            387         TBN   CSAR8,BIT2          LOOP UNTIL ALL
   0D5B C0 90 0D03            388         BF    ATST03                BLOCKS HAVE BEEN TESTED
                              389 *
   0D5F 3D 01 1126            390         CLI   REVSW,1             BRANCH TO END OF TEST
   0D63 F2 81 0E              391         JE    ENDTST                IF 2ND PASS
                              392 *
   0D66 3C 01 1126            393         MVI   REVSW,1             SET DATA BYTE REVERSED IND
   0D6A 0C 01 112F 10F3       394         MVC   CSAR(2),NULLS       INITIALIZE CONTROL ADDR REG
   0D70 C0 87 0CA3            395         B     ADRTST              REPEAT ADDR TEST
                              396 *
```


C111 3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                           398 ********************************************************************************
                           399 *                                                                              *
                           400 *                    SUCCESSFULL END OF TEST                                   *
                           401 *                                                                              *
                           402 ********************************************************************************
                           403 *
   0D74 C0 87 021A         404 ENDTST  B     PRINT                   PRINT MESSAGE
   0D78 46           0D78  405         DC    XL1'46'                   'END CS TEST'
   0D79 40           0D79  406         DC    AL1(MSG08N-MSG08+1)
   0D7A 10C3         0D7B  407         DC    AL2(MSG08N)
   0D7C C100         0D7D  408         DC    AL2(HLT00)
                           409 *
   0D7E 0D 00 0232 0A00    410         CLC   UTAB(1),PID-1             RE-LOAD MICROCODE IF
   0D84 C0 81 0C02         411         BE    LDR+2                       LOADING FROM 3340
                           412 *
   0D88 C0 87 0216         413         B     LINK                    TERMINATE SECTION
                           414 *
```

C111　3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              416 ***********************************************************************
                              417 *                                                                     *
                              418 *                  BUILD AND PRINT ERROR MESSAGES                     *
                              419 *                                                                     *
                              420 ***********************************************************************
                              421 *
                              422 *              MICOROPROCESSOR INITIALIZATION ERROR DETECTED
                              423 *
    0D8C C0 87 021A           424 IOPERR   B     PRINT                     PRINT
    0D90 C6             0D90  425          DC    XL1'C6'                     1001 ERROR MESSAGE
    0D91 1D             0D91  426          DC    AL1(MSG03N-MSG03+1)
    0D92 1027           0D93  427          DC    AL2(MSG03N)
    0D94 C101           0D95  428          DC    AL2(HLT01)
                              429 *
    0D96 F2 87 43             430          J     ERRHLT                    GO TO ERROR HALT
                              431 *
                              432 *---------------------------------------------------------------------
                              433 *              CONTROL STORAGE ERROR DETECTED
                              434 *
    0D99 38 0C 1125           435 CSERR    TBN   IND.MBL+MBR               BRANCH IF MULTI-BIT ERRORS
    0D9D F2 10 2F             436          JT    MERR                        IN BOTH LEFT AND RIGHT CS
                              437 *
    0DA0 38 08 1125           438          TBN   IND.MBL                   BRANCH IF MULTI-BIT
    0DA4 F2 10 18             439          JT    LERR                        ERROR IN LEFT CONTROL STORE
                              440 *
    0DA7 38 04 1125           441          TBN   IND.MBR                   BRANCH IF MULTI-BIT
    0DAB F2 10 07             442          JT    RERR                        ERROR IN RIGHT CONTROL STORE
                              443 *
    0DAE 38 80 1125           444          TBN   IND.LEL                   BRANCH IF LAST SINGLE BIT
    0DB2 F2 10 0D             445          JT    LERR                        ERROR IN LEFT CONTROL STORE
                              446 *
    0DB5 C0 87 021A           447 RERR     B     PRINT                     PRINT
    0DB9 C6             0DB9  448          DC    XL1'C6'                     1002 ERROR MESSAGE
    0DBA 1C             0DBA  449          DC    AL1(MSG04N-MSG04+1)           CONTROL STORE RIGHT
    0DBB 1043           0DBC  450          DC    AL2(MSG04N)
    0DBD C101           0DBE  451          DC    AL2(HLT01)
                              452 *
    0DBF F2 87 1A             453          J     ERRHLT
                              454 *
    0DC2 C0 87 021A           455 LERR     B     PRINT                     PRINT
    0DC6 C6             0DC6  456          DC    XL1'C6'                     1003 ERROR MESSAGE
    0DC7 1B             0DC7  457          DC    AL1(MSG05N-MSG05+1)           CONTROL STORE LEFT
    0DC8 105E           0DC9  458          DC    AL2(MSG05N)
    0DCA C101           0DCB  459          DC    AL2(HLT01)
                              460 *
    0DCC F2 87 0D             461          J     ERRHLT
                              462 *
    0DCF C0 87 021A           463 MERR     B     PRINT                     PRINT
    0DD3 C6             0DD3  464          DC    XL1'C6'                     1004 ERROR MESSAGE
    0DD4 25             0DD4  465          DC    AL1(MSG06N-MSG06+1)
    0DD5 1083           0DD6  466          DC    AL2(MSG06N)
    0DD7 C101           0DD8  467          DC    AL2(HLT01)
                              468 *
    0DD9 F2 87 00             469          J     ERRHLT
                              470 *
                              471 *---------------------------------------------------------------------
                              472 *              COMMON ERROR HALT
                              473 *
    0DDC C0 87 0222           474 ERRHLT   B     HALT                      ERROR HALT 01
    0DE0 C101           0DE1  475          DC    AL2(HLT01)
                              476 *
    0DE2 C0 87 0A79           477          B     BGNTST                    RESTART TEST
                              478 *
```


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```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              480 ***********************************************************************
                              481 *                                                                     *
                              482 *              SVP INTERFACE CONTROL SUBROUTINES                      *
                              483 *                                                                     *
                              484 ***********************************************************************
                              485 *
                              486 *              LOAD CONTROL STORAGE ADDRESS REGISTER (CSAR)
                              487 *
                              488 *
    0DE6 34 08 0E09           489 LCSAR    ST    LCSARX+3,ARR              SAVE RETURN ADDRESS
                              490 *
    0DEA 3C C0 1128           491          MVI   C,0                       X'00' --> OP REG C FIELD
    0DEE 0C 00 112C 112E      492          MVC   CR(1),CSARB               CSAR(B) VALUE --> OP REG CR FLD
    0DF4 0C 00 112D 112F      493          MVC   Y(1),CSARD                CSAR(D) VALUE --> OP REG Y FLD
                              494 *
    0DFA C0 87 0E65           495          B     LOP                       LOAD OP REG
                              496 *
    0DFE 31 C5 10EF           497          LIO   LALUD,X'C5'               OP REG Y --> A REG --> D REG
    0E02 31 C5 10DF           498          LIO   LDCSAR,X'C5'              CS ADDR --> CSAR
                              499 *
    0E06 C0 87 0000           500 LCSARX   B     *-*                       RETURN TO CALLING ROUTINE
                              501 *
                              502 *---------------------------------------------------------------------
                              503 *              WRITE CONTROL STORAGE
                              504 *
    0E0A 34 08 0E1D           505 WRCS     ST    WRCSX+3,ARR               SAVE RETURN ADDRESS
                              506 *
    0E0E C0 87 0E65           507          B     LOP                       LOAD OP REG
                              508 *
    0E12 31 C5 10E9           509          LIO   WRCSL,X'C5'               WRITE CONTROL STORE LEFT
    0E16 31 C5 10EB           510          LIO   WRCSR,X'C5'               WRITE CONTROL STORE RIGHT
                              511 *
    0E1A C0 87 0000           512 WRCSX    B     *-*                       RETURN TO CALLING ROUTINE
                              513 *
                              514 *---------------------------------------------------------------------
                              515 *              READ CONTROL STORAGE
                              516 *
    0E1E 34 08 0E50           517 RDCS     ST    RDCSX+3,ARR               SAVE RETURN ADDRESS
                              518 *
    0E22 31 C5 10D1           519          LIO   LOPC,X'C5'                RESET OP REG C
    0E26 31 C5 10D3           520          LIO   LOPCR,X'C5'               RESET OP REG CR
    0E2A 31 C5 10D5           521          LIO   LOPY,X'C5'                RESET OP REG Y
    0E2F 31 C5 10E3           522          LIO   CSACC,X'C5'               CONTROL STORE --> OP REG
                              523 *
    0E32 C0 87 0E98           524          B     SOP                       SENSE OP REGISTER
                              525 *
    0E36 39 20 1128           526          TBF   C,BIT2                    GO TO
    0E3A 39 20 1127           527          TBF   IOPIN,BIT2                  EXIT IF
    0E3E F2 10 0C             528          JT    RDCSX                         NO INVERT BITS ON
                              529 *
    0E41 38 20 1128           530          TBN   C,BIT2                    ADJUST FOR
    0E45 38 20 1127           531          TBN   IOPIN,BIT2                  HARDWARE INVERSION OF
    0E49 C0 90 0EBF           532          BF    INVERT                        OP REG BITS IF REQUIRED
                              533 *
    0E4D C0 87 0000           534 RDCSX    B     *-*                       RETURN TO CALLING ROUTINE
                              535 *
                              536 *---------------------------------------------------------------------
                              537 *              LOAD OP REG AND EXECUTE MICRO-INSTRUCTION
                              538 *
    0E51 34 08 0E64           539 LXOP     ST    LXOPX+3,ARR               SAVE RETURN ADDRESS
                              540 *
    0E55 C0 87 0E65           541          B     LOP                       LOAD OP REG
                              542 *
    0E59 31 C5 10C9           543          LIO   K04,X'C5'                 RESET K2 (SERVICE MODE)
    0E5D 31 C5 10ED           544          LIO   PROC,X'C5'                SERVICE PROCESS CYCLE
                              545 *
    0E61 C0 87 0000           546 LXOPX    B     *-*                       RETURN TO CALLING ROUTINE
                              547 *
```

C111   3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                                548 *---------------------------------------------------------------------
                                549 *                    LOAD OP REGISTER
                                550 *
   0E65 34 08 0E9A              551 LOP       ST     LOPX+3.ARR               SAVE RETURN ADDRESS
                                552 *
   0E69 31 C5 10C8              553           LIO    K024.X'C5'               SET K4 (SERVICE MODE)
                                554 *
   0E6D 3C 08 1136              555           MVI    WORKN.X'08'              BUILD SVP
   0E71 0C 00 1135 1128         556           MVC    WORKN-1(1).C               INTERFACE CONTROL
   0E77 31 C5 1136              557           LIO    WORKN.X'C5'              LOAD OP REG C
                                558 *
   0E7B 3A 02 1136              559           SBN    WOPKN.BIT6               BUILD SVP
   0E7F 0C 00 1135 112C         560           MVC    WORKN-1(1).CR              INTERFACE CONTROL
   0E85 31 C5 1136              561           LIO    WORKN.X'C5'              LOAD OP REG CR
                                562 *
   0E89 3A 01 1136              563           SBN    WORKN.BIT7               BUILD SVP
   0E8D 0C 00 1135 112D         564           MVC    WORKN-1(1).Y               INTERFACE CONTROL
   0E93 31 C5 1136              565           LIO    WORKN.X'C5'              LOAD OP REG Y
                                566 *
   0E97 C0 87 0000              567 LOPX      B      *-*                      RETURN TO CALLING ROUTINE
                                568 *
                                569 *
                                570 *---------------------------------------------------------------------
                                571 *                    SENSE OP REG
                                572 *
   0E9B 34 08 0EBE              573 SOP       ST     SOPX+3.ARR               SAVE RETURN ADDRESS
                                574 *
   0E9F 31 C7 1001              575           LIO    SOPC.X'C7'               SENSE OP REG C
   0EA3 30 C7 1135              576           SNS    WORKN.X'C7'
   0EA7 31 C7 1003              577           LIO    SOPCR.X'C7'              SENSE OP REG CR AND Y
   0EAB 30 C7 1128              578           SNS    IOPIN+1.X'C7'
                                579 *
   0EAF 0C 00 1129 1127         580           MVC    IOPIN+2(1).IOPIN         MOVE VALUES SENSED
   0EB5 0C 00 1127 1136         581           MVC    IOPIN(1).WORKN             TO INPUT WORK AREA
                                582 *
   0EBB C0 87 0000              583 SOPX      B      *-*                      RETURN TO CALLING ROUTINE
                                584 *
```


C111   3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                                586 *********************************************************************
                                587 *                                                                   *
                                588 *                     DATA PROCESSING SUBROUTINES                   *
                                589 *                                                                   *
                                590 *********************************************************************
                                591 *
                                592 *              ADJUST FOR HARDWARE INVERTED OP REG BITS
                                593 *
   0EBF 34 08 0EE6              594 INVERT    ST     IVRTX+3.ARR              SAVE RETURN ADDRESS
                                595 *
   0EC3 0C 02 1136 10FB         596           MVC    WORKN(3).NEG1
   0EC9 0F 02 1136 1129         597           SLC    WORKN(3).IOPIN+2         RESTORE
   0ECF 3B E0 1134              598           SBF    WORKN-2.X'E0'              HARDWARE
   0ED3 3B 1F 1127              599           SBF    IOPIN.X'1F'                  INVERTED
   0ED7 0E 00 1127 1134         600           ALC    IOPIN(1).WORKN-2               OP REG BITS
   0EDD 0C 01 1129 1136         601           MVC    IOPIN+2(2).WORKN
                                602 *
   0EE3 C0 87 0000              603 IVRTX     B      *-*                      RETURN TO CALLING ROUTINE
                                604 *
                                605 *---------------------------------------------------------------------
                                606 *                GENERATE ERROR PATTERN
                                607 *
   0EE7 34 08 0F66              608 GENPTN    ST     GENPX+3.ARR              SAVE RETURN ADDRESS
                                609 *
   0EEB 0C 00 0F04 1128         610           MVC    EOR1A+1(1).C             BUILD C BYTE
   0EF1 0C 00 0F08 1127         611           MVC    EOR1B+1(1).IOPIN           EXCLUSIVE OR
   0EF7 0C 00 0F0C 1128         612           MVC    EOR1C+1(1).C                 INSTRUCTION SEQUENCE
   0EFD 0C 00 0F10 1127         613           MVC    EOR1D+1(1).IOPIN
                                614 *
   0F03 3B 00 0F10              615 EOR1A     SBF    EOR1D+1.*-*              GENERATE
   0F07 3B 00 0F0C              616 ECR1B     SBF    EOR1C+1.*-*                ERROR PATTERN
   0F0B 3A 00 1130              617 EOR1C     SBN    PATRN.*-*                    FOR C BYTE
   0F0F 3A 00 1130              618 EOR1D     SBN    PATRN.*-*
                                619 *
   0F13 0C 00 0F2C 112C         620           MVC    EOR2A+1(1).CR            BUILD CR BYTE
   0F19 0C 00 0F30 1128         621           MVC    EOR2B+1(1).IOPIN+1         EXCLUSIVE OR
   0F1F 0C C0 0F34 112C         622           MVC    EOR2C+1(1).CR                INSTRUCTION SEQUENCE
   0F25 0C 00 0F38 1128         623           MVC    EOR2D+1(1).IOPIN+1
                                624 *
   0F2B 3B 00 0F38              625 EOR2A     SBF    EOR2D+1.*-*              GENERATE
   0F2F 3B 00 0F34              626 EOR2B     SBF    EOR2C+1.*-*                ERROR PATTERN
   0F33 3A 00 1131              627 EOR2C     SBN    PATRN+1.*-*                  FOR CR BYTE
   0F37 3A 00 1131              628 EOR2D     SBN    PATRN+1.*-*
                                629 *
   0F3B 0C 00 0F54 112D         630           MVC    EOR3A+1(1).Y             BUILD Y BYTE
   0F41 0C 00 0F58 1129         631           MVC    EOR3B+1(1).IOPIN+2         EXCLUSIVE OR
   0F47 0C 00 0F5C 112D         632           MVC    EOR3C+1(1).Y                 INSTRUCTION SEQUENCE
   0F4D 0C 00 0F60 1129         633           MVC    EOR3D+1(1).IOPIN+2
                                634 *
   0F53 3B 00 0F60              635 EOR3A     SBF    EOR3D+1.*-*              GENERATE
   0F57 3B 00 0F5C              636 EOR3B     SBF    EOR3C+1.*-*                ERROR PATTERN
   0F5B 3A 0C 1132              637 EOR3C     SBN    PATRN+2.*-*                  FOR Y BYTE
   0F5F 3A 00 1132              638 EOP3D     SBN    PATRN+2.*-*
                                639 *
   0F63 C0 87 0000              640 GENPX     B      *-*                      RETURN TO CALLING ROUTINE
                                641 *
                                642 *---------------------------------------------------------------------
                                643 *                ERROR PATTERN ANALYSIS
                                644 *
   0F67 34 08 0FDA              645 CKPTN     ST     CKPTNX+3.ARR             SAVE RETURN ADDRESS
                                646 *
   0F6B 3B 0F 1125              647           SBF    IND.MBL+MBR+SBL+SBR      RESET ERROR INDICATORS
                                648 *
   0F6F 0C 01 1134 1131         649           MVC    WORK+1(2).PATRN+1        SEPARATE
   0F75 0C 00 1135 1130         650           MVC    WORK+2(1).PATRN            LEFT / RIGHT
   0F7B 0C 00 1136 1132         651           MVC    WORK+3(1).PATRN+2            ERROR PATTERN BITS
   0F81 3B D3 1133              652           SBF    WORK.X'D3'
   0F85 3B EC 1135              653           SBF    WORK+2.X'EC'
```

```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

                           654 *
0F89 0E 01 1134 1134       655 CKPTNL   ALC   WORK+1(2),WORK+1      SHIFT ERROR PATTERN LEFT
0F8F F2 20 19              656          JNOL  CKPTNR                SKIP IF NO ERROR BIT FOUND
                           657 *
0F92 06 30 10C3 1100       658          AZ    LERRS(4),D1(1)        INCREMENT LEFT ERROR COUNTER
                           659 *
0F98 3A 80 1125            660          SBN   IND,LEL               SET 'LAST ERROR LEFT' IND
                           661 *
0F9C 38 02 1125            662          TBN   IND,SBL               CK FOR PREVIOUS SINGLE BIT ERR
0FA0 3A 02 1125            663          SBN   IND,SBL               SET 'SINGLE BIT LEFT' IND
0FA4 F2 90 04              664          JF    CKPTNR                SKIP IF FIRST LEFT BIT ERROR
                           665 *
0FA7 3A 08 1125            666          SBN   IND,MBL               SET 'MULTI BIT LEFT' IND
                           667 *
0FAB 0E 01 1136 1136       668 CKPTNR   ALC   WORK+3(2),WORK+3      SHIFT ERROR PATTERN LEFT
0FB1 F2 20 19              669          JNOL  CKPTNN                SKIP IF NO ERROR BIT FOUND
                           670 *
0FB4 06 30 1089 1100       671          AZ    RERRS(4),D1(1)        INCREMENT RIGHT ERROR COUNTER
                           672 *
0FBA 3B 80 1125            673          SBF   IND,LEL               RESET 'LAST ERROR LEFT' IND
                           674 *
0FBE 38 01 1125            675          TBN   IND,SBR               CK FOR PREVIOUS SINGLE BIT ERR
0FC2 3A 01 1125            676          SBN   IND,SBR               SET 'SINGLE BIT RIGHT' IND
0FC6 F2 90 04              677          JF    CKPTNN                SKIP IF FIRST RIGHT BIT ERROR
                           678 *
0FC9 3A 04 1125            679          SBN   IND,MBR               SET 'MULTI BIT RIGHT' IND
                           680 *
0FCD 0D 03 1136 10F3       681 CKPTNN   CLC   WORK+3(4),NULLS       LOOP UNTIL ALL
0FD3 C0 01 0F89            682          BNE   CKPTNL                  ERROR BITS PROCESSED
                           683 *
0FD7 C0 87 0000            684 CKPTNX   B     *-*                   RETURN TO CALLING ROUTINE
                           685 *
```



```
ERR LOC OBJECT CODE       ADDR STMT SOURCE STATEMENT

                           687 ********************************************************************************
                           688 *                                                                              *
                           689 *                              PRINT MESSAGES                                  *
                           690 *                                                                              *
                           691 ********************************************************************************
                           692 *
                      0FD8 693 MSG01    EQU   *
0FD8 E2E3C1D9E340F3F3 0FF7 694 MSG01N   DC    CL29'START 3340 CONTROL STORE TEST'
0FE3 F4F040C3D6D5E3D9      694
0FEB D6D340E2E3D6D9C5      694
0FF3 40E3C5E2E3            694
                           695 *
                      0FF8 696 MSG02    EQU   *
0FF8 D3D6C1C4C9D5C740 100A 697 MSG02N   DC    CL19'LOADING SECTION C17'
1000 E2C5C3E3C9D6D540      697
1008 C3F1F7                697
                           698 *
                      100B 699 MSG03    EQU   *
100B C5D9D940F1F0F0F1 1027 700 MSG03N   DC    CL29'ERR 1001 - ATTACHMENT FAILURE'
1013 406040C1E3E3C1C3      700
1018 C8D4C5D5E340C6C1      700
1023 C9D3E4D9C5            700
                           701 *
                      1028 702 MSG04    EQU   *
1028 C5D9D940F1F0F0F2 1043 703 MSG04N   DC    CL28'ERR 1002 - CONTROL STG RIGHT'
1030 40604 0C3D6D5E3D9     703
1038 D6D340E2E3C740D9      703
1040 C9C7C8E3              703
                           704 *
                      1044 705 MSG05    EQU   *
1044 C5D9D940F1F0F0F3 105E 706 MSG05N   DC    CL27'ERR 1003 - CONTROL STG LEFT'
104C 406040C3D6D5E3D9      706
1054 D6D340E2E3C740D3      706
105C C5C6E3                706
                           707 *
                      105F 708 MSG06    EQU   *
105F C5D9D940F1F0F0F4 1083 709 MSG06N   DC    CL37'ERR 1004 - CONTROL STG LEFT AND RIGHT'
1067 406040C3D6D5E3D9      709
106F D6D340E2E3C740D3      709
1077 C5C6E340C1D5C440      709
107F D9C9C7C8E3            709
                           710 *
                      1084 711 MSG08    EQU   *
1084 C5D5C440C3E240E3 1081 712          DC    CL46'END CS TEST - CORRECTABLE SINGLE BIT ERRORS - '
108C C5E2E3406040C3D6      712
1094 D9D9C5C3E3C1C2D3      712
109C C540E2C9D5C7D3C5      712
10A4 40C2C9E340C5D9D9      712
10AC DED9E2406040          712
1082 D9C3E260E7E7E7E7 1089 713 RERRS    DC    CL8'RCS-XXXX'
108A 6840             108B 714          DC    CL2'. '
10BC D3C3E260E7E7E7E7 10C3 715 LERRS    DC    CL8'LCS-XXXX'
                      10C3 716 MSG08N   EQU   *-1
                           717 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         719 ********************************************************************************
                         720 *                                                                              *
                         721 *              SVP INTERFACE CONTROL CONSTANTS                                 *
                         722 *                                                                              *
                         723 ********************************************************************************
                         724 *
 10C4 0001               10C5 725 RSPCR    DC    XL2'0001'          RESET PCR LATCH AND X REG
 10C6 0002               10C7 726 RNMODE   DC    XL2'0002'          RESET K REG (RUN MODE)
                         10C7 727 SIDLE    EQU   RNMODE             SENSE IDLE STATUS
 10C8 8802               10C9 728 K04      DC    XL2'8802'          SET K0 AND K4 (HALT IOP)
 10CA A802               10CB 729 K024     DC    XL2'A802'          SET K2 (SERVICE MODE)
 10CC 9802               10CD 730 K034     DC    XL2'9802'          SET K3 (CLOCK RESET)
 10CE 0005               10CF 731 SPTR     DC    XL2'0005'          SENSE ACCESS POINTER REG
 10D0 0008               10D1 732 LOPC     DC    XL2'0008'          LOAD OP REG C
                         10D1 733 SOPC     EQU   LOPC               SENSE OP REG C
                         10D1 734 SINDEX   EQU   SOPC               SENSE INDEX REG
 10D2 000A               10D3 735 LOPCR    DC    XL2'000A'          LOAD OP REG CR
                         10D3 736 SOPCR    EQU   LOPCR              SENSE OP REG CR
 10D4 0008               10D5 737 LOPY     DC    XL2'0008'          LOAD OP REG Y
 10D6 000C               10D7 738 LEXTAR   DC    XL2'000C'          R3-R7 --> EXT ADDR REG (EXTAR)
 10D8 010C               10D9 739 LEXTZ    DC    XL2'01CC'          R4-R7 --> EXTERNAL ZONE REG
 10DA 000D               10DB 740 SALSB    DC    XL2'000D'          SENSE ALSB
 10DC 020D               10DD 741 LEXT     DC    XL2'020D'          D REG --> EXTERNAL REG
 10DE 080D               10DF 742 LDCSAR   DC    XL2'080D'          LOAD CSAR
 10E0 0C0D               10E1 743 LCSADR   DC    XL2'0C0D'          LOAD CSAR AND ADDR COMPARE REG
 10E2 0E0E               10E3 744 CSACC    DC    XL2'0E0E'          CONTROL STORE --> OP REG
 10E4 8E0E               10E5 745 SVACC    DC    XL2'8E0E'          SERVICE ACCESS CYCLE
 10E6 8B0E               10E7 746 LINDEX   DC    XL2'8B0E'          LOAD INDEX REG
 10E8 AE0E               10E9 747 WRCSL    DC    XL2'AE0E'          WRITE CONTROL STORE LEFT
 10EA CE0E               10EB 748 WRCSR    DC    XL2'CE0E'          WRITE CONTROL STORE RIGHT
 10EC 000F               10ED 749 PROC     DC    XL2'000F'          SERVICE PROCESS CYCLE
 10EE 020F               10EF 750 LALUD    DC    XL2'020F'          OP REG Y --> A REG --> D REG
                         751 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         753 ********************************************************************************
                         754 *                                                                              *
                         755 *              CONSTANTS AND RESERVED STORAGE AREAS                            *
                         756 *                                                                              *
                         757 ********************************************************************************
                         758 *
 10F0 00000000           10F3 759 NULLS    DC    4XL1'00'
 10F4 0001               10F5 760 ONE      DC    IL2'1'
 10F6 0004               10F7 761 FOUR     DC    IL2'4'
 10F8 FFFFFFFF           10FB 762 NEG1     DC    IL4'-1'
                         763 *
 10FC F0F0F0F0           10FF 764 ZEROS    DC    CL4'0000'
 1100 F1                 1100 765 D1       DC    CL1'1'
                         766 *
 1101 000801             1103 767 X0801    DC    XL3'000801'        OP REG TEST PATTERN GENERATOR
                         768 *
                         1104 769 EXTBL    EQU   *                  EXTERNAL
 1104 2D80               1105 770 FTR      DC    XL2'2D80'            REGISTER
 1106 2D00               1107 771          DC    XL2'2D00'              ADDRESS
 1108 2F00               1109 772 SCN      DC    XL2'2F00'                TABLE
 110A 3300               110B 773 DXC      DC    XL2'3300'
 110C 2500               110D 774 FTG      DC    XL2'2500'
 110E 238F               110F 775 DST      DC    XL2'238F'
 1110 2300               1111 776          DC    XL2'2300'
 1112 2780               1113 777 FHF      DC    XL2'2780'
 1114 2700               1115 778          DC    XL2'2700'
 1116 3F00               1117 779 SS0      DC    XL2'3F00'
 1118 FF                 1118 780          DC    XL1'FF'            TERMINATOR
                         781 *
                         1119 782 DTATBL   EQU   *                  DATA AREA DEFINITION TABLE
 1119 002003FF           111C 783          DC    XL4'002003FF'      INSTRUCTION AREA LIMITS
 111D 060006FF           1120 784          DC    XL4'060006FF'      INSTRUCTION AREA LIMITS
 1121 0900FFFF           1124 785          DC    XL4'0900FFFF'      INSTRUCTION AREA LIMITS
                         786 *
 1125 00                 1125 787 IND      DC    XL1'0'             PROGRAM INDICATORS
 1126 00                 1126 788 REVSW    DC    XL1'0'             DATA BYTES REVERSED IND
                         789 *
                         1127 790 IOPIN    EQU   *                  COMMON IOP SENSE
 1127                    112A 791          DS    XL4                  DATA STORAGE AREA
                         792 *
 1128                    112D 793 OPREG    DS    XL3                OP REG DATA STORAGE AREA
                         1128 794 C        EQU   OPREG-2            OP REG C BYTE
                         112C 795 CR       EQU   OPREG-1            OP REG CR BYTE
                         112D 796 Y        EQU   OPREG              OP REG Y BYTE
                         797 *
 112E                    112F 798 CSAR     DS    XL2                CONTROL STORE ADDRESS
                         112E 799 CSARB    EQU   CSAR-1             CSAR BLOCK BYTE
                         112F 800 CSARD    EQU   CSAR               CSAR DISPLACEMENT BYTE
                         801 *
                         1130 802 PATRN    EQU   *                  ERROR PATTERN STORAGE AREA
 1130                    1132 803          DS    XL3
                         804 *
                         1133 805 WORK     EQU   *                  GENERAL PURPOSE
 1133                    1136 806 WORKN    DS    XL4                  WORK AREA
                         807 *
```

C111 3340 CONTROL STORE TEST - MOD 12

```
ERR LOC OBJECT CODE     ADDR STMT SOURCE STATEMENT

                         809 ********************************************************************************
                         810 *                                                                              *
                         811 *                          SYMBOL DEFINITIONS                                  *
                         812 *                                                                              *
                         813 ********************************************************************************
                         814 *
                         815 *                  LOCAL STORE REGISTERS
                         816 *
0001                     817 XR1      EQU   X'01'              INDEX REGISTER 1
0002                     818 XR2      EQU   X'02'              INDEX REGISTER 2
0008                     819 ARR      EQU   X'08'              ADDRESS RECALL REG (CURRENT LEVEL)
                         820 *
                         821 *-------------------------------------------------------------------------------
                         822 *                  MESSAGE / HALT IDENTIFIERS
                         823 *
C100                     824 HLT00    EQU   X'C100'            NO HALT (PRINTOUT ONLY)
C101                     825 HLTC1    EQU   X'C101'            ERROR HALT (AFYER PRINT)
                         826 *
                         827 *-------------------------------------------------------------------------------
                         828 *                  PROGRAM INDICATORS
                         829 *
0080                     830 LEL      EQU   X'80'                    LAST ERROR LEFT
0008                     831 MBL      EQU   X'08'                    CS ERR - MULTI-BIT LEFT
0004                     832 MBR      EQU   X'04'                    CS ERR - MULTI-BIT RIGHT
0002                     833 SBL      EQU   X'02'                    CS ERR - SINGLE BIT LEFT
0001                     834 SBR      EQU   X'01'                    CS ERR - SINGLE BIT RIGHT
                         835 *
                         836 *-------------------------------------------------------------------------------
                         837 *                  3340 PROGRAM COMMUNICATION AREA (COM) INDICATORS
                         838 *
0020                     839 MPLFLG   EQU   X'20'              MICRO-PROGRAM LOAD COMPLETE
0010                     840 FA0FLG   EQU   X'10'              LOAD SECTION FA0 ONLY
                         841 *
                         842 *-------------------------------------------------------------------------------
                         843 *                  BIT POSITION SYMBOLS
                         844 *
0080                     845 BIT0     EQU   X'80'
0040                     846 BIT1     EQU   X'40'
0020                     847 BIT2     EQU   X'20'
0002                     848 BIT6     EQU   X'02'
0001                     849 BIT7     EQU   X'01'
                         850 *
                         851 *-------------------------------------------------------------------------------
                         852 *                  DCP SECTION REFERENCE TABLE
                         853 *
0216                     854 LINK     EQU   X'0216'            LINK TO NEXT ROUTINE OR SECTION
021A                     855 PRINT    EQU   X'021A'            PRINT A MESSAGE
0222                     856 HALT     EQU   X'0222'            HALT AND DISPLAY HALT IDENTIFIER
0226                     857 PACK     EQU   X'0226'            PACK DATA - EBCDIC TO HEX
022A                     858 LOAD     EQU   X'022A'            LOAD NEXT SECTION OR RECORD
                         859 *
0232                     860 UTAB     EQU   X'0232'            DCP UDT TABLE
                         861 *
                         862 *-------------------------------------------------------------------------------
                         863 *                  OTHER REFERENCES EXTERNAL TO THIS SECTION
                         864 *
6C00                     865 LDR      EQU   X'6C00'            3340 MICROCODE LOADER PGM - MOD 12
                         866 *
FFFF                     867          END
```


C111 3340 CONTROL STORE TEST - MOD 12

CROSS-REFERENCE

```
SYMBOL   T LEN VALUE  DEFN   REFERENCES
ADRTST   A 004 0CA3   0323   0295  0353  0395
ALSLD    A 004 0AEB   0137   0154
AMOPID   A 002 0A1E   0030
ARR      C 001 0008   0819   0489  0505  0517  0539  0551  0573  0594  0608  0645
ATST02   A 006 0CD3   0340   0335
ATST03   A 004 0D03   0357   0382  0388
ATST04   A 006 0D3F   0379   0373
ATST05   A 004 0CBA   0331   0326
ATST06   A 004 0CF1   0351   0343
ATST07   A 003 0CFD   0355   0349
ATST08   A 004 0D1A   0365   0360
BGNTST   A 004 0A79   0078   0047  0477
BITEST   A 006 0BE7   0245
BIT0     C 001 0080   0845   0342  0345  0381  0384
BIT1     C 001 0040   0846   0235  0273  0279
BIT2     C 001 0020   0847   0128  0140  0148  0153  0167  0227  0278  0289  0337  0348  0367  0370
                               0387  0526  0527  0530  0531
BIT6     C 001 0002   0848   0559
BIT7     C 001 0001   0849   0143  0263  0276  0563
BTST01   A 004 0BFD   0252   0352
BTST02   A 004 0C23   0265   0274
BTST03   A 004 0C47   0278   0290
C        A 003 112B   0794   0097* 0120* 0134* 0159* 0173* 0235  0273  0278* 0279* 0289  0337* 0491*
                               0526  0530  0556  0610  0612
CKPTN    A 004 0F67   0645   0292  0376
CKPTNL   A 006 0F89   0655   0682
CKPTNN   A 006 0FCD   0681   0669  0677
CKPTNR   A 006 0FAB   0668   0656  0664
CKPTNX   A 004 0FD7   0684   0645*
COM      A 001 0A19   0026   0061  0067*
CR       A 003 112C   0795   0100* 0121* 0126* 0128  0135* 0140* 0143* 0148* 0151* 0153  0160* 0165*
                               0167  0174* 0328* 0362* 0492* 0560  0620  0622
CSACC    A 002 10E3   0744   0522
CSAR     A 002 112F   0798   0245* 0306  0309  0355* 0394* 0799  0800
CSARB    A 002 112E   0799   0329  0346* 0348  0363  0385* 0387  0492
CSARD    A 002 112F   0800   0328  0340* 0342  0345* 0362  0379* 0381  0384* 0493
CSERR    A 004 0C99   0435   0298  0300  0307  0377
C11      A 001 0000   0006
C17      A 002 0A70   0065   0049  0052
DATACK   A 003 0C8E   0304   0310
DST      A 002 110F   0775
DTATBL   A 001 1119   0782   0302
DXC      A 002 1108   0773
D1       A 001 1100   0765   0658  0671
ENDTST   A 004 0D74   0404   0391
EOR1A    A 004 0F03   0615   0610*
EOR1B    A 004 0F07   0616   0611*
EOR1C    A 004 0F08   0617   0612* 0616*
EOR1D    A 004 0F0F   0618   0613* 0615*
EOR2A    A 004 0F28   0625   0620*
EOR2B    A 004 0F2F   0626   0621*
EOR2C    A 004 0F33   0627   0622* 0626*
EOR2D    A 004 0F37   0628   0623* 0625*
EOR3A    A 004 0F53   0635   0630*
EOR3B    A 004 0F57   0636   0631*
EOR3C    A 004 0F5B   0637   0632* 0636*
EOR3D    A 004 0F5F   0638   0633* 0635*
ERRHLT   A 004 0DDC   0474   0430  0453  0461  0469
EXTBL    A 001 1104   0769   0095
EXTRST   A 004 0A9A   0100   0115
FA0FLG   C 001 0010   0840   0067
FA0ID    A 002 0A20   0031
FHF      A 002 1113   0777
FOUR     A 002 10F7   0761   0126
FTG      A 002 110D   0774
FTR      A 002 1105   0770
```

C111 3340 CONTROL STORE TEST - MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
GENPTN	A	004	0EE7	0608	0261 0269 0285 0375
GENPX	A	004	0F63	0640	0608*
HALT	C	001	0222	0856	0474
HLT00	C	001	C100	0824	0059 0082 0408
HLT01	C	001	C101	0825	0428 0451 0459 0467 0475
IND	A	001	1125	0787	0294 0297 0299 0435 0438 0441 0444 0647* 0660* 0662 0663* 0666* 0673* 0675 0676* 0679*
INVERT	A	004	0EBF	0594	0228 0368 0532
IOPERR	A	004	0D8C	0424	0197 0206 0214 0217 0231
IOPIN	A	001	1127	0790	0227 0230 0260 0266 0284 0334 0367 0370* 0372 0527 0531 0578* 0580 0580* 0581* 0597 0599* 0600* 0601* 0611 0613 0621 0623 0631 0633
IVRTX	A	004	0EE3	0603	0594*
K024	A	002	10CA	0729	0199 0553
K034	A	002	10CD	0730	0090 0201
K04	A	002	10C9	0728	0089 0187 0543
LALUD	A	002	10FF	0750	0109 0178 0184 0497
LCSADR	A	002	10E1	0743	0185
LCSAR	A	004	0DE6	0A89	0252 0323 0357
LCSARX	A	004	0F06	0500	0489*
LDCSAR	A	002	10DF	0742	0498
LDP	C	001	6C00	0E65	0052 0069 0411
LDRGO	A	004	0A71	0057	0053
LDRID	A	002	0A1C	0029	0049
LDRLD	A	004	0A5A	0055	0050
LFL	C	001	0080	0830	0444 0660 0673
LERP	A	004	0DC2	0455	0439 0445
LERRS	A	008	10C3	0715	0249* 065E*
LEXT	A	002	10DD	0741	0110
LEXTAR	A	002	10D7	0738	0108
LEXTZ	A	002	10D9	0739	0103
LINDEX	A	002	10E7	0746	0179
LINK	C	001	0216	0854	0413
LOAD	C	001	022A	0858	0063
LOP	A	004	0E65	0551	0101 0106 0176 0182 0224 0495 0507 0541
LOPC	A	002	10D1	0732	0519 0733
LOPCR	A	002	10D3	0735	0520 0736
LOPX	A	004	0E97	0567	0551*
LOPY	A	002	10D5	0737	0521
LXOP	A	004	0E51	0539	0124 0138 0141 0146 0149 0163
LXOPX	A	004	0E61	0546	0539*
MBL	C	001	0008	0831	0297 0435 0438 0647 0666
MBP	C	001	0004	0832	0297 0435 0441 0647 0679
MERST	A	004	0AD1	0124	0129
MERR	A	004	0DCF	0463	0436
MPHLT	A	003	0A83	0087	
MPLFLG	C	001	0020	0839	
MSG01	A	001	0FDA	0693	0080
MSG01N	A	029	0FF7	0694	0080 0081
MSG02	A	001	0FF8	0696	0057
MSG02N	A	019	100A	0697	0057 0058
MSG03	A	001	1008	0699	0426
MSG03N	A	029	1027	0700	0426 0427
MSG04	A	001	1028	0702	0449
MSG04N	A	028	1043	0703	0449 0450
MSG05	A	001	1044	0705	0457
MSG05N	A	027	105E	0706	0457 0458
MSG06	A	001	105F	0708	0465
MSG06N	A	037	1083	0709	0465 0466
MSG08	A	001	1084	0711	0406
MSG08N	A	001	10C3	0716	0406 0407
NEG1	A	004	10F8	0762	0596
NULLS	A	001	10F3	0759	0213 0222 0245 0254 0255 0355 0394 0681
ONE	A	002	10F5	0760	0151 0165 0340 0346 0379 0385
OPPEG	A	003	112D	0793	0222* 0230 0233* 0255* 0260 0268 0271 0271* 0284 0287 0287* 0334 0372 0794 0795 0796

C111 3340 CONTROL STORE TEST - MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
OPTST	A	004	0B8F	0224	0236
PACK	C	001	0226	0857	
PATRN	A	001	1130	0802	0254* 0617* 0618* 0627* 0628* 0637* 0638* 0649 0650 0651
PFC	A	002	0A07	0019	
PID	A	002	0A01	0015	0046 0410
PRINT	C	001	021A	0855	0055 0078 0404 0424 0447 0455 0463
PROC	A	002	10ED	0749	0544
RDCS	A	004	0E1E	0517	0258 0266 0282 0332 0365
RDCSX	A	004	0E4D	0534	0517* 0528
RERR	A	004	0D85	0447	0442
RERRS	A	008	1089	0713	0250* 0671*
REVSW	A	001	1126	0788	0247* 0325 0351 0359 0390 0393*
RNMODE	A	002	10C7	0726	0727
RSPCR	A	002	10C5	0725	0188
RTN	A	001	0A03	0017	
RTNPFC	A	001	0A3A	0042	0019
SALSB	A	002	10D8	0740	0208
SBL	C	001	0002	0833	0294 0299 0647 0662 0663
SBR	C	001	0001	0834	0294 0299 0647 0675 0676
SB0	A	002	1117	0779	
SCN	A	002	1109	0772	
SIDLE	A	002	10C7	0727	0193
SINDEX	A	002	10D1	0734	0210
SOP	A	004	0E98	0573	0225 0524
SOPC	A	002	10D1	0733	0575 0734
SOPCR	A	002	10D3	0736	0577
SOPX	A	004	0E88	0583	0573*
SPTR	A	002	10CF	0731	0202
SVACC	A	002	10E5	0745	0200
SVPFC	A	025	0A39	0033	0061*
UDT0	A	003	0A0C	0022	
UTAB	C	001	0232	0860	0046 0410
WORK	A	001	1133	0805	0649* 0650* 0651* 0652* 0653* 0655 0655* 0668 0668* 0681
WORKN	A	004	1136	0806	0194* 0196 0203* 0205 0209* 0211* 0213 0216 0555* 0556* 0557 0559* 0560* 0561 0563* 0564* 0565 0576* 0581 0596* 0597* 0598* 0600 0601
WRCS	A	004	0E0A	0505	0257 0265 0281 0331 0338
WRCSL	A	002	10E9	0747	0509
WRCSR	A	002	10EB	0748	0510
WRCSX	A	004	0E1A	U512	0505*
XR1	C	001	0001	0817	0095* 0105 0112 0112* 0114
XR2	C	001	0002	0818	0302* 0304 0304* 0306 0309
X0801	A	003	1103	0767	0233
Y	A	003	112D	0796	0098* 0105* 0122* 0137* 0145* 0161* 0175* 0181* 0263* 0276* 0329* 0363* 0493* 0564 0630 0632
ZEROS	A	004	10FF	0764	0249 0250
ZLSLD	A	004	0829	0163	0168

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

C111 3340 CONTROL STORE TEST - MOD 12

OBJECT CARD LISTING

THE CHARACTER • INDICATES A BLANK COLUMN AND THE CHARACTERS D̄ Ē H̄ 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  47600 EC 827827   3340 CONTROL STO  RE TEST - MOD 12  84@@84@@                  C1110000

TC Y<OJD  &  BT.  ""@E&                                                                          # 4C1110001

T  YR                                                                                           KHYC1110002

T+-Z4 &C""04  TH  H < A5XU( &Y*BXC  2 &U( U0ABXC2-J¬  /0HEJ/<&B%D CA-  H+&YQ0H*BH-&<E3Y  &R/U 40%C1110003

T+-D?0H)% %BG /7  FG&"70&C31G@11JC  I<*M&3*HAD&&@ AD  .|  J.L0 DK3 /09  V<*M&6J0ADK4A0H*  +RLD 5A%C1110004

T+-.D1JCP<*M&#3G  ED(7K &I°"0C  &D  E| QJH32 DK0@-AD  _0H*+M&8 DK0&'3-  -DK3 U .J| HJH32   DK0 &&MC1110005

T+-%V|  J.*BGCVD  :HAD%0H*+MLYADK0  @?1D_0H*+ML%-DK3   /09JC- J.AC5+B   J.<B&B>%@ 1D.|H   J.C0 5 @C1110006

T+-_- AD_0H*+M&8   DK0&'L--DK3 U %  Z|  JH30 DK0@?1D  _0H*+RLGED+@11JC  X|  J.*BGC#M11JC  ?<*M N9@C1110007

T+->$D+D11JCI<*M  &1LGGD<*011D6|¬*  J(% AC0011JC.<*M  &9LGED<4111C|<<*  J(T6/DL$  &6<<**  &63  KH0C1110008

T+-?D11D4<**&4LC  GDLQ( JD5D||  &6  <|$@J(% AC00< /D  _D|| /09V0H*+#3-  -DK¬ D :"C&HJ.JD  Z0 D )#YC1110009

T+-0JCQ0+ /D_D&<  8&AD.0I .?00ADK@  &@30 DKQ< 1CCD|@  < 1B9D|" /07#C H  J</C3C HJ.JC30H*  +B%  7:@C1110010

T+-1</08:C&HJ.JD  Z0 D+93YADK7 /08  H0H*+G-4BDK4JH*   AC>*+ /D_DK48&AD  .0I <H3YADK4:HAD  .+4  :I&C1110011

T+-2GDK? /08H0H*  +G-4BDK4JH* AC>*  + /D_DK4BHAD.0I   <J@BGC6*9 1DV@/   Z+&0JI*B&CPU8 1D  VCA  7K0C1110012

T+-3BCPXB /D08-H  D.&DJ.0C --6R.&D  J.0. / 2+0H*(9T4  ADK$2 &0< AD%DK@  < AD_DK# /08H0H*  +G-4 J20C1110013

T+-3' /D_DKX2-&-  :HAD.0H*+B-8 DK@  &'LS DK"2UAD#-AD  ?C- J./C5+B J.?H  &CC4ADK$  &?' 0H*  <Y00 0SUC1110014

T+-48 JD?D|| /07  #|&DJI?HAC 0 DK0  J.00 DK4J.%BGC/8  8HADX0A +?3%-DK*  ( /D_DKX2-&3 /0#  X0H* JC*C1110015

T+-53C6¬ /06RC-   J.1C5+H J.@B&C&<  #-AD?C- J./C5+B   J.%B&C&<' JD#@YD  +| DJI-0ADK@&@@B  GCH< $AMC1110016

T+-6>0H*BFUR D<|  A  4  THH <BA$ .   /0H00H*BF%Q)DB¬  A ¬HG&3-<DKP2DB@  8BADV@/ $+ &JI¬K  &A3-  2$0C1110017

T+-7Z-ADV@/ (0H*  BF%Q*0D|A ¬HGF%B  G /.FF1A;0&G2/07   /0HE1SM&-@DA@Y*   0H*BH%DA0H*H;L&  HC-U N.8C1110018

T+-8U|  JH00 DK0  J.-0 DK4J.@BGC#M  11JC?<*M&78BG     48 8)0H*+RLGED+U  11JC.0'*  C&HCV   11J  2D C1110019

T+-9¬4LGED(<11JC  N<*M&8&BGCZ%9HAD  .+K JI"H&CC--DK%  8HADX0I +?@BG     4B 9U0H*+RLGED<U  11J  PCHC1110020
```

C111 3340 CONTROL STORE TEST - 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

T+-:E#*BG   4B :  E<*M&230HDLQ< AD  5DK%11JD6+-HJ(-0   DLMJ.CGEDLQ: JD  6C  J(JD_<*MJ(%B  G    NHUC1110021

T+-#N(  -+?TGGD(D  011D6<**&43CGDK-  < ADZDK*< ADXDL$  /0  ( -+9-0BDLQ  &=0@BDLQJHL?-DL&  #G1D N.QC1110022

T+-@&I08 DK*J( 0  ADKUJ(%BG   4B °  WC  |AAD.C  |BAD  XC  |CAD.C  |DAD  X+0 |DC% C00: AD  0+-  3BRC1110023

T+-'.DL <  @%DK0  <  800K-<  @4DK0  <  @8DK-#  @B+0   |(CY DLD: AD1C    |NAD_C  |0ADZC    |PAD 53<C1110024

T+-=F.&0 C6 JHL%   C6 #  '*+- J<TY   DL. /0  ( -|6T%  |DKM< JD4DLD< AD  5DL < AD6DLH#41D  3+=0 ".&C1110025

T+-"ADLM+ JD4DLL  2HAUF<ACCD& :-AD  V+ HJILYBDKP2U &  :BADVC-DJ(/D6@S   RAT &>JD +8 JIL-  ADKM 2A@C1110026

T+-"8+-DJI¬H&ACY  DDKM( 1D6D||  &=  IOH*  +.T0)XT&||  3'|A 0'$N8'X044C  S8'$R1MCT1:.T4'$  A1<U 63QC1110027

T+/ 75*) 8%PC8@X  05MCC8¬¬E6)V 8¬C  0@MA-&<GT8@GC2(L  E5:( 1%GI4=LR1*P  RCMC1@|C2&FA 0'$  N8'U PL C1110028

T+/A25_( 8>|G5(X  I18TT1)XR&|G0@|(   QDCC5_PT6)$L&+.  T14CL1*$T1)XR&|G  0@|J QDCC5_PT6)$  L&+H 9H%C1110029

T+/B_8@) 4@PF84C  A5*J 6*XG2+|E5*J   0=I 8@PS84A-&<|  D6)XE0=|A0_|E&+.  I5*¬L1MCB2:( 1:X  R5_U '0*C1110030

T+/CY8UA-&(XC8WC  X9=¬XE4CL0=I-9=¬  X90 A  HH D-BW H   A& H  Y B0 < &0   C&H(B 4<C&8+T-:  .CD8 &Z%C1110031

T+/DTC%8+  @BC0         & D""""""C  0@|C1  -A.Q _ B@   <0 V B+|H0 X-B*   |0C" B C"0Q A?@  I |@ 2&&C1110032

T /DW"0                                                                                        9$-C1110033

E""'*E7*=¬DC"PH$  ="7M&F|   |   C     F%   ASC   R A  S0   Q                  13460630750  10676'.YC1110034
```

--- LAST PAGE ---

C122 3340 FUNCTION TESTS - MOD 12

LAST CHG:03 18 76

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                           2 *
                           3          DECK  4
                           4          SEQ   0
                           5          TREP
                           6 *
0000                       7 C12      START 0
                           8 ************************************************************
                           9 *                                                          *
                          10 *                      SECTION PREFACE                     *
                          11 *                                                          *
                          12 ************************************************************
                          13 *
                          14          ORG   X'0A00'
0A00                      15 *
0A00 C122           0A01  16 PID      DC    XL2'C122'     SECTION ID AND REVISION LEVEL
0A02 00             0A02  17          DC    XL1'00'       SECTION FLAGS
0A03 01             0A03  18 RTN      DC    XL1'01'       CURRENT ROUTINE NUMBER
0A04 0000           0A05  19          DC    XL2'0000'     RESERVED
0A06 0A3A           0A07  20 PFC      DC    AL2(RTN01)    ADDRESS OF FIRST ROUTINE PREFACE
0A08 FFFF           0A09  21          DC    XL2'FFFF'     RESERVED
                          22 *
0A0A C14000         0A0C  23 UDT0     DC    XL3'C14000'   3340 UDT
0A0D 101000         0A0F  24 UDT1     DC    XL3'101000'   5471 UDT FOR AMOP LINK
                          25 *
0A10                0A18  26          DS    XL9           RESERVED
                          27 *
0A19 00             0A19  28 COM      DC    XL1'00'       3340 PROGRAM COMMUNICATION AREA
0A1A                0A1A  29          DS    XL1           RESERVED
                          30 *
0A1B                0A1C  31 LDRID    DS    AL2           MICROCODE LDR (C17) IN STG INDICATOR
0A1D                0A1E  32 AMOPID   DS    AL2           AMOP (C19) IN STG INDICATOR
0A1F                0A20  33 FAOID    DS    AL2           ATTACHMENT MICRO-CODE (FA0) IN STG
                          34 *
0A21                0A39  35 SVPFC    DS    XL25          SECTION PREFACE STORAGE AREA
                          36 *
```


C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          38          USING DRVWK,XR2       INDEX REG 2 POINTS TO DRV WORK AREA
2642                      39 ************************************************************
                          40 *                                                          *
                          41 *          ROUTINE 01 - READ STATUS COMMANDS TEST          *
                          42 *                                                          *
                          43 ************************************************************
                          44 *
0A3A 01             0A3A  45 RTN01    DC    XL1'01'       ROUTINE NUMBER
0A3B 00             0A3B  46          DC    XL1'00'       ROUTINE FLAGS
0A3C 0A74           0A3D  47          DC    AL2(RTN02)    ADDRESS OF NEXT ROUTINE
                          48 *
                          49 R01      MVI   LPCNT,10      LOOP THIS ROUTINE 10 TIMES
                          50 *
0A3E 3C 0A 2613           51          B     BEGIN         PERFORM ROUTINE INITIALIZATION
0A42 C0 87 11F3     0A47  52          DC    AL2(R01A)     'LOOP' SUBROUTINE RETURN ADDRESS
0A46 0A4E           0A49  53          DC    AL2(R01B)     'NXDRV' SUBROUTINE RETURN ADDRESS
0A48 0A66                 54 *
                          55          B     RECAL         RECALIBRATE
0A4A C0 87 13D4           56 *
                          57 R01A     B     RDSNS         READ DIAGNOSTIC SENSE DATA
0A4E C0 87 16A0           58          B     RDLOG         READ AND RESET BUFFERED LOG
0A52 C0 87 1688           59 *
                          60          SBN   IDDDR,1       START DDDF ON ODD STORAGE ADDRESS
0A56 3A 01 2623           61 *
                          62          B     RDSNS         READ DIAGNOSTIC SENSE DATA
0A5A C0 87 16A0           63          B     RDLOG         READ AND RESET BUFFERED LOG
0A5E C0 87 1688           64 *
                          65          B     NXDRV         REPEAT FOR EACH DRIVE BEING TESTED
0A62 C0 87 12D3           66 *
                          67 R01B     SLC   LPCNT(1),P1   DECREMENT LOOP COUNTER
0A66 OF 00 2613 252F      68          BNZ   LOOP          REPEAT TEST 10 TIMES
0A6C C0 01 1328           69 *
                          70          B     LINK          GO TO NEXT ROUTINE
0A70 C0 87 0216           71 *
```

C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                               73 *****************************************************************
                               74 *                                                               *
                               75 *                 ROUTINE 02 - CYLINDER ZERO ACCESS TEST        *
                               76 *                                                               *
                               77 *****************************************************************
                               78 *
    0A74 02              0A74  79 RTN02    DC    XL1'02'          ROUTINE NUMBER
    0A75 00              0A75  80          DC    XL1'00'          ROUTINE FLAGS
    0A76 0AB1            0A77  81          DC    AL2(RTN03)       ADDRESS OF NEXT ROUTINE
                               82 *
    0A78 3C 00 0A94            83 R02      MVI   R02A1,0          INITIALIZE HEAD ADDR TO 0
                               84 *
    0A7C C0 87 11F3            85          B     BEGIN            PERFORM ROUTINE INITIALIZATION
    0A80 0A84            0A81  86          DC    AL2(R02A)        'LOOP' SUBROUTINE RETURN ADDRESS
    0A82 0A9F            0A83  87          DC    AL2(R02B)        'NXDRV' SUBROUTINE RETURN ADDRESS
                               88 *
    0A84 C0 87 13D4            89 R02A     B     RECAL            RECALIBRATE
    0A88 C0 87 16A0            90          B     RDSNS            DETERMINE DATA MODULE SIZE
    0A8C C0 87 14EA            91          B     RDHAE            READ HOME ADDR AND RO COUNT EVEN
                               92 *
    0A90 C0 87 13F8            93          B     SEEK             SEEK
    0A94                 0A94  94 R02A1    DS    IL1              PHYSICAL HEAD ADDRESS
    0A95 0000            0A96  95          DC    IL2'0'           PHYSICAL CYLINDER ADDRESS
                               96 *
    0A97 C0 87 14EA            97          B     RDHAE            READ HOME ADDR AND RO COUNT EVEN
                               98 *
    0A9B C0 87 12D3            99          B     NXDRV            REPEAT FOR EACH DRIVE BEING TESTED
                              100 *
    0A9F 0E 00 0A94 252F      101 R02B     ALC   R02A1(1),P1      INCREMENT HEAD ADDRESS
                              102 *
    0AA5 3D 0C 0A94           103          CLI   R02A1,12         LOOP UNTIL ALL HEADS
    0AA9 C0 82 132B           104          BL    LOOP               HAVE BEEN TESTED
                              105 *
    0AAD C0 87 0216           106          B     LINK             GO TO NEXT ROUTINE
                              107 *
```


C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              109 *****************************************************************
                              110 *                                                               *
                              111 *                 ROUTINE 03 - CE CYLINDER ACCESS TEST          *
                              112 *                                                               *
                              113 *****************************************************************
                              114 *
    0AB1 03              0AB1 115 RTN03    DC    XL1'03'          ROUTINE NUMBER
    0AB2 00              0AB2 116          DC    XL1'00'          ROUTINE FLAGS
    0AB3 0AEA            0AB4 117          DC    AL2(RTN04)       ADDRESS OF NEXT ROUTINE
                              118 *
    0AB5 3C 00 0ACD           119 R03      MVI   R03A1,0          INITIALIZE HEAD ADDR TO 0
                              120 *
    0AB9 C0 87 11F3           121          B     BEGIN            PERFORM ROUTINE INITIALIZATION
    0ABD 0AC1            0ABE 122          DC    AL2(R03A)        'LOOP' SUBROUTINE RETURN ADDRESS
    0ABF 0AD8            0AC0 123          DC    AL2(R03B)        'NXDRV' SUBROUTINE RETURN ADDRESS
                              124 *
    0AC1 C0 87 13D4           125 R03A     B     RECAL            RECALIBRATE
    0AC5 C0 87 16A0           126          B     RDSNS            DETERMINE DATA MODULE SIZE
                              127 *
    0AC9 C0 87 13F8           128          B     SEEK             SEEK (3340 PHYSICAL ADDRESS)
    0ACD                 0ACD 129 R03A1    DS    IL1                HEAD 0 - 11
    0ACE 015D            0ACF 130          DC    IL2'349'           CYLINDER 349
                              131 *
    0AD0 C0 87 14EA           132          B     RDHAE            READ HOME ADDR AND RO COUNT EVEN
                              133 *
    0AD4 C0 87 12D3           134          B     NXDRV            REPEAT FOR EACH DRIVE BEING TESTED
                              135 *
    0AD8 0E 00 0ACD 252F      136 R03B     ALC   R03A1(1),P1      INCREMENT HEAD ADDRESS
                              137 *
    0ADE 3D 0C 0ACD           138          CLI   R03A1,12         LOOP UNTIL ALL HEADS
    0AE2 C0 82 132B           139          BL    LOOP               HAVE BEEN TESTED
                              140 *
    0AE6 C0 87 0216           141          B     LINK             GO TO NEXT ROUTINE
                              142 *
```

C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              144 ********************************************************************
                              145 *                                                                  *
                              146 *             ROUTINE 04 - CYLINDER ZERO READ DATA TRANSFER TEST   *
                              147 *                                                                  *
                              148 ********************************************************************
                              149 *
    0AEA 04              0AEA 150 RTN04    DC    XL1'04'          ROUTINE NUMBER
    0AEB 00              0AEB 151          DC    XL1'00'          ROUTINE FLAGS
    0AEC 0B38            0AED 152          DC    AL2(RTN05)       ADDRESS OF NEXT ROUTINE
                              153 *
    0AEE 3C 00 0B06           154 R04      MVI   R04B1,0          INITIALIZE HEAD ADDR TO 0
                              155 *
    0AF2 C0 87 11F3           156          B     BEGIN            PERFORM ROUTINE INITIALIZATION
    0AF6 0B02            0AF7 157          DC    AL2(R04B)        'LOOP' SUBROUTINE RETURN ADDRESS
    0AF8 0B26            0AF9 158          DC    AL2(R04C)        'NXDRV' SUBROUTINE RETURN ADDRESS
                              159 *
    0AFA C0 87 13D4           160 R04A     B     RECAL            RECALIBRATE
    0AFE C0 87 16A0           161          B     RDSNS            DETERMINE DATA MODULE SIZE
                              162 *
    0B02 C0 87 13F8           163 R04B     B     SEEK             SEEK (3340 PHYSICAL ADDRESS)
    0B06                 0B06 164 R04B1    DS    IL1                HEAD 0 - 11
    0B07 0000            0B08 165          DC    IL2'0'             CYLINDER 0
                              166 *
    0B09 C0 87 14EA           167          B     RDHAE            READ HOME ADDR AND R0 COUNT EVEN
                              168 *
    0B0D C0 87 157E           169          B     RDCKD            READ COUNT-KEY-DATA
    0B11 00              0B11 170          DC    IL1'0'             RECORD 0 (EVEN)
                              171 *
    0B12 3A 01 2621           172          SBN   IDDCR,1          CHECK AGAIN USING
    0B16 3A 01 2623           173          SBN   IDDDR,1            ODD STORAGE ADDRESSES
                              174 *
    0B1A C0 87 14FD           175          B     RDHAO            READ HOME ADDR AND R0 COUNT ODD
    0B1E C0 87 153C           176          B     RDR00            READ KEY-DATA RECORD 0 ODD
                              177 *
    0B22 C0 87 12D3           178          B     NXDRV            REPEAT FOR EACH DRIVE BEING TESTED
                              179 *
    0B26 0E 00 0B06 252F      180 R04C     ALC   R04B1(1),P1      INCREMENT HEAD ADDRESS
                              181 *
    0B2C 3D 0C 0B06           182          CLI   R04B1,12         LOOP UNTIL ALL HEADS
    0B30 C0 82 132B           183          BL    LOOP               HAVE BEEN TESTED
                              184 *
    0B34 C0 87 0216           185          B     LINK             GO TO NEXT ROUTINE
                              186 *
```


C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              188 ********************************************************************
                              189 *                                                                  *
                              190 *             ROUTINE 05 - CE CYLINDER READ DATA TRANSFER TEST     *
                              191 *                                                                  *
                              192 ********************************************************************
                              193 *
    0B38 05              0B38 194 RTN05    DC    XL1'05'          ROUTINE NUMBER
    0B39 00              0B39 195          DC    XL1'00'          ROUTINE FLAGS
    0B3A 0BAF            0B3B 196          DC    AL2(RTN06)       ADDRESS OF NEXT ROUTINE
                              197 *
    0B3C 3C 00 0B54           198 R05      MVI   R05B1,0          INITIALIZE HEAD ADDR TO 0
                              199 *
    0B40 C0 87 11F3           200          B     BEGIN            PERFORM ROUTINE INITIALIZATION
    0B44 0B50            0B45 201          DC    AL2(R05B)        'LOOP' SUBROUTINE RETURN ADDRESS
    0B46 0B9D            0B47 202          DC    AL2(R05C)        'NXDRV' SUBROUTINE RET RN ADDRESS
                              203 *
    0B48 C0 87 13D4           204 R05A     B     RECAL            RECALIBRATE
    0B4C C0 87 16A0           205          B     RDSNS            DETERMINE DATA MODULE SIZE
                              206 *
    0B50 C0 87 13F8           207 R05B     B     SEEK             SEEK (3340 PHYSICAL ADDRESS)
    0B54                 0B54 208 R05B1    DS    IL1                HEAD 0 - 11
    0B55 015D            0B56 209          DC    IL2'349'           CYLINDER 349
                              210 *
    0B57 C0 87 14EA           211 R05B2    B     RDHAE            READ HOME ADDR AND R0 COUNT EVEN
                              212 *
    0B5B C0 87 1866           213          B     ORIENT           TRACK ORIENTATION DELAY
                              214 *
    0B5F C0 87 157E           215          B     RDCKD            READ COUNT-KEY-DATA
    0B63 00              0B63 216          DC    IL1'0'             RECORD 0 (EVEN)
                              217 *
    0B64 C0 87 1866           218          B     ORIENT           TRACK ORIENTATION DELAY
                              219 *
    0B68 C0 87 157E           220          B     RDCKD            READ COUNT-KEY-DATA
    0B6C 01              0B6C 221          DC    IL1'1'             RECORD 1
                              222 *
    0B6D 8D 02 14 2543        223          CLC   DL(3,XR2),P256   GO TO ERROR END IF
    0B72 C0 01 1B30           224          BNE   ERR18              RESIDUAL KL/DL INCORRECT
                              225 *
    0B76 35 01 2623           226          L     IDDDR,XR1        POINT TO RESIDUAL DDDF
                              227 *
    0B7A 4D 03 03 2551        228 R05B3    CLC   3(4,XR1),WCPTN   GO TO ERROR END IF
    0B7F C0 01 1B40           229          BNE   ERR19              RESIDUAL DDDF IS INCORRECT
                              230 *
    0B83 0F 01 263A 2533      231          SLC   RDDCF+8(2),P4    LOOP UNTIL ALL OF
    0B89 C0 01 0B7A           232          BNZ   R05B3              RESIDUAL DDDF HAS BEEN CHECKED
                              233 *
    0B8D 38 01 2623           234          TBN   IDDDR,1          READ AND CHECK
    0B91 3A 01 2623           235          SBN   IDDDR,1            RECORD 1 AGAIN
    0B95 C0 90 0B57           236          BF    R05B2                USING ODD STORAGE ADDRESS
                              237 *
    0B99 C0 87 12D3           238          B     NXDRV            REPEAT FOR EACH DRIVE BEING TESTED
                              239 *
    0B9D 0E 00 0B54 252F      240 R05C     ALC   R05B1(1),P1      INCREMENT HEAD ADDRESS
                              241 *
    0BA3 3D 0C 0B54           242          CLI   R05B1,12         LOOP UNTIL ALL HEADS
    0BA7 C0 82 132B           243          BL    LOOP               HAVE BEEN TESTED
                              244 *
    0BAB C0 87 0216           245          B     LINK             GO TO NEXT ROUTINE
                              246 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                          248 ********************************************************************************
                          249 *                                                                              *
                          250 *              ROUTINE 06 - WRITE DATA TRANSFER TEST                           *
                          251 *                                                                              *
                          252 ********************************************************************************
                          253 *
  OBAF 06                 254 RTN06    DC    XL1'06'            ROUTINE NUMBER
  OBB0 00                 255          DC    XL1'00'            ROUTINE FLAGS
  OBB1 0C33               256          DC    AL2(RTN07)         ADDRESS OF NEXT ROUTINE
                          257 *
  OBB3 3C 0A 2613         258 R06      MVI   LPCNT,10           LOOP THIS TEST 10 TIMES
                          259 *
  OBB7 C0 87 11F3         260          B     BEGIN              PERFORM ROUTINE INITIALIZATION
  OBBB OBCE               261          DC    AL2(R06B)          'LOOP' SUBROUTINE RETURN ADDRESS
  OBBD 0C25               262          DC    AL2(R06C)          'NXDRV' SUBROUTINE RETURN ADDRESS
                          263 *
  OBBF C0 87 13D4         264 R06A     B     RECAL              RECALIBRATE
  OBC3 C0 87 16A0         265          B     RDSNS              DETERMINE DATA MODULE SIZE
                          266 *
  OBC7 C0 87 13F8         267          B     SEEK               SEEK (3340 PHYSICAL ADDRESS)
  OBCB 00                 268          DC    IL1'0'               HEAD 0
  OBCC 015D               269          DC    IL2'349'             CYLINDER 349                          KMG
                          270 *                                                                          KMG
  OBCE B8 08 00           271 R06B     TBN   DIND(,XR2),NOWR    BYPASS DRIVE IF                       KMG
  OBD1 C0 10 12D3         272          BT    NXDRV                WRITE INHIBITED
                          273 *
  OBD5 C0 87 14EA         274          B     RDHAE              READ HOME ADDR AND RO COUNT EVEN      KMG
                          275 *
  OBD9 C0 87 1866         276          B     ORIENT             TRACK ORIENTATION DELAY
                          277 *
  OBDD C0 87 157E         278 R06B1    B     RDCKD              READ COUNT-KEY-DATA
  OBE1 01                 279          DC    IL1'1'               RECORD 1
                          280 *
  OBE2 C0 87 1866         281          B     ORIENT             TRACK ORIENTATION DELAY
                          282 *
  OBE6 C0 87 1743         283          B     WRCKD              WRITE COUNT-KEY-DATA
  OBEA 02                 284          DC    IL1'2'               RECORD 2
  OBEB 00                 285          DC    IL1'0'               NN = 00
                          286 *
  OBEC C0 87 1866         287          B     ORIENT             TRACK ORIENTATION DELAY
                          288 *
  OBF0 C0 87 157E         289          B     RDCKD              READ COUNT-KEY-DATA
  OBF4 02                 290          DC    IL1'2'               RECORD 2
                          291 *
  OBF5 8D 02 14 2543      292          CLC   DL(3,XR2),P256     GO TO ERROR END IF
  OBFA C0 01 1B30         293          BNE   ERR18                RESIDUAL KL/DL INCORRECT
                          294 *
  OBFE 35 01 2623         295          L     IDDDP,XR1          POINT TO RESIDUAL DDDF
                          296 *
  0C02 4D 03 03 2551      297 R06B2    CLC   3(4,XR1),WCPTN     GO TO ERROR END IF
  0C07 C0 01 1B40         298          BNE   ERR19                RESIDUAL DDDF IS INCORRECT
                          299 *
  0C0B 0F 01 263A 2533    300          SLC   RDDCF+8(2),P4      LOOP UNTIL ALL OF
  0C11 C0 01 0C02         301          BNZ   R06B2                RESIDUAL DDDF HAS BEEN CHECKED
                          302 *
  0C15 38 01 2623         303          TBN   IDDDR,1            WRITE AND CHECK
  0C19 3A 01 2623         304          SBN   IDDDR,1              RECORD 2 AGAIN
  0C1D C0 90 0BCE         305          BF    R06B                   USING ODD STORAGE ADDRESS
                          306 *
  0C21 C0 87 12D3         307          B     NXDRV              REPEAT FOR EACH DRIVE BEING TESTED
                          308 *
  0C25 0F 00 2613 252F    309 R06C     SLC   LPCNT(1),P1        LOOP THIS TEST 10 TIMES
  0C2B C0 01 132B         310          BNZ   LOOP
                          311 *
  0C2F C0 87 0216         312          B     LINK               GO TO NEXT ROUTINE
                          313 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                          315 ********************************************************************************
                          316 *                                                                              *
                          317 *              ROUTINE 07 - WRITE HOME ADDRESS TEST                            *
                          318 *                                                                              *
                          319 ********************************************************************************
                          320 *
  0C33 07                 321 RTN07    DC    XL1'07'            ROUTINE NUMBER
  0C34 00                 322          DC    XL1'00'            ROUTINE FLAGS
  0C36 0C69               323          DC    AL2(RTN08)         ADDRESS OF NEXT ROUTINE
                          324 *
  0C37 C0 87 11F3         325          B     BEGIN              PERFORM ROUTINE INITIALIZATION
  0C38 0C3F               326          DC    AL2(R07A)          'LOOP' SUBROUTINE RETURN ADDRESS
  0C3D 0C65               327          DC    AL2(R07B)          'NXDRV' SUBROUTINE RETURN ADDRESS
                          328 *
  0C3F B8 08 00           329 R07A     TBN   DIND(,XR2),NOWR    BYPASS DRIVE IF                       KMG
  0C42 C0 10 12D3         330          BT    NXDRV                WRITE INHIBITED                       KMG
                          331 *                                                                          KMG
  0C46 C0 87 13D4         332          B     RECAL              RECALIBRATE
  0C4A C0 87 16A0         333          B     RDSNS              DETERMINE DATA MODULE SIZE
                          334 *
  0C4E C0 87 13F8         335          B     SEEK               SEEK (3340 PHYSICAL ADDRESS)
  0C52 00                 336          DC    IL1'0'               HEAD 0
  0C53 015D               337          DC    IL2'349'             CYLINDER 349
                          338 *
  0C55 C0 87 14EA         339          B     RDHAE              READ HOME ADDR AND RO COUNT EVEN
                          340 *
  0C59 C0 87 16F7         341          B     WRHAO              WRITE HA AND RO ODD
  0C5D C0 87 14FD         342          B     RDHAO              READ HA AND RO COUNT ODD
                          343 *
  0C61 C0 87 12D3         344          B     NXDRV              REPEAT FOR EACH DRIVE BEING TESTED
                          345 *
  0C65 C0 87 0216         346 R07B     B     LINK               GO TO NEXT ROUTINE
                          347 *
```

C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                               349 ***********************************************************************
                               350 *                                                                     *
                               351 *                  ROUTINE 08 - HEAD WRITE/READ TEST                  *
                               352 *                                                                     *
                               353 ***********************************************************************
                               354 *
    0C69 08              0C69  355 RTN08    DC    XL1'08'              ROUTINE NUMBER
    0C6A 00              0C6A  356          DC    XL1'00'              ROUTINE FLAGS
    0C6B 0CE9            0C6C  357          DC    AL2(RTN09)           ADDRESS OF NEXT ROUTINE
                               358 *
    0C6D 3C 00 0C8C            359 R08      MVI   R08B1,0              INITIALIZE HEAD ADDR TO ZERO
                               360 *
    0C71 C0 87 11F3            361          B     BEGIN                PERFORM ROUTINE INITIALIZATION
    0C75 0C81            0C76  362          DC    AL2(R08B)            'LOOP' SUBROUTINE RETURN ADDRESS
    0C77 0CD7            0C78  363          DC    AL2(R08C)            'NXDRV' SUBROUTINE RETURN ADDRESS
                               364 *
    0C79 C0 87 13D4            365 R08A     B     RECAL                RECALIBRATE
    0C7D C0 87 16A0            366          B     RDSNS                DETERMINE DATA MODULE SIZE       KMG
                               367 *                                                                 KMG
    0C81 B8 08 00              368 R08B     TBN   DIND(,XR2),NOWR      BYPASS DRIVE IF                  KMG
    0C84 C0 10 12D3            369          BT    NXDRV                  WRITE INHIBITED
                               370 *
    0C88 C0 87 13F8            371          B     SEEK                 SEEK (3340 PHYSICAL ADDRESS)     KMG
    0C8C                 0C8C  372 R08B1    DS    IL1                    HEAD 0 - 11
    0C8D 015D            0C8E  373          DC    IL2'349'               CYLINDER 349
                               374 *
    0C8F C0 87 14EA            375          B     RDHAE                READ HOME ADDR AND R0 COUNT EVEN
                               376 *
    0C93 C0 87 1718            377          B     WRR00                WRITE RECORD ZERO CNT-KEY-DATA ODD
                               378 *
    0C97 C0 87 157E            379 R08B2    B     RDCKD                READ COUNT-KEY-DATA
    0C9B 01              0C9B  380          DC    IL1'1'                 RECORD 1
                               381 *
    0C9C C0 87 1743            382          B     WRCKD                WRITE COUNT-KEY-DATA
    0CA0 02              0CA0  383          DC    IL1'2'                 RECORD 2
    0CA1 14              0CA1  384          DC    IL1'20'                NN = 20
                               385 *
    0CA2 C0 87 157E            386          B     RDCKD                READ COUNT-KEY-DATA
    0CA6 15              0CA6  387          DC    IL1'21'                RECORD 21
                               388 *
    0CA7 8D 02 14 2543         389          CLC   DL(3,XR2),P256       GO TO ERROR END IF
    0CAC C0 01 1B30            390          BNE   ERR18                  RESIDUAL KL/DL INCORRECT
                               391 *
    0CB0 35 01 2623            392          L     IDDDR,XR1            POINT TO RESIDUAL DDDF
                               393 *
    0CB4 4D 03 03 2551         394 R08B3    CLC   3(4,XR1),WCPTN       GO TO ERROR END IF
    0CB9 C0 01 1B40            395          BNE   ERR19                  RESIDUAL DDDF IS INCORRECT
                               396 *
    0CBD 0F 01 263A 2533       397          SLC   RDDCF+8(2),P4        LOOP UNTIL ALL OF
    0CC3 C0 01 0CB4            398          BNZ   R08B3                  RESIDUAL DDDF HAS BEEN CHECKED
                               399 *
    0CC7 38 01 2623            400          TBN   IDDDR,1              WRITE AND CHECK
    0CCB 3A 01 2623            401          SBN   IDDDR,1                RECORD 21 AGAIN
    0CCF C0 90 0C97            402          BF    R08B2                    USING ODD STORAGE ADDRESS
                               403 *
    0CD3 C0 87 12D3            404          B     NXDRV                REPEAT FOR EACH DRIVE BEING TESTED
                               405 *
    0CD7 0E 00 0C8C 252F       406 R08C     ALC   R08B1(1),P1          INCREMENT HEAD ADDRESS
                               407 *
    0CDD 3D 08 0C8C            408          CLI   R08B1,11             LOOP UNTIL ALL
    0CE1 C0 04 1328            409          BNH   LOOP                   HEADS HAVE BEEN TESTED
                               410 *
    0CE5 C0 87 0216            411          B     LINK                 GO TO NEXT ROUTINE
                               412 *
```


C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                               414 ***********************************************************************
                               415 *                                                                     *
                               416 *                  ROUTINE 09 - WRITE KEY-DATA TEST                   *
                               417 *                                                                     *
                               418 ***********************************************************************
                               419 *
    0CE9 09              0CE9  420 RTN09    DC    XL1'09'              ROUTINE NUMBER
    0CEA 00              0CEA  421          DC    XL1'00'              ROUTINE FLAGS
    0CEB 0D94            0CEC  422          DC    AL2(RTN0A)           ADDRESS OF NEXT ROUTINE
                               423 *
    0CED C0 87 11F3            424 R09      B     BEGIN                PERFORM ROUTINE INITIALIZATION
    0CF1 0D04            0CF2  425          DC    AL2(R09B)            'LOOP' SUBROUTINE RETURN ADDRESS
    0CF3 0D90            0CF4  426          DC    AL2(R09C)            'NXDRV' SUBROUTINE RETURN ADDRESS
                               427 *
    0CF5 C0 87 13D4            428 R09A     B     RECAL                RECALIBRATE
    0CF9 C0 87 16A0            429          B     RDSNS                DETERMINE DATA MODULE SIZE
                               430 *
    0CFD C0 87 13F8            431          B     SEEK                 SEEK (3340 PHYSICAL ADDRESS)
    0D01 00              0D01  432          DC    IL1'0'                 HEAD 0
    0D02 015D            0D03  433          DC    IL2'349'               CYLINDER 349
                               434 *                                                             KMG
    0D04 B8 08 00              435 R09B     TBN   DIND(,XR2),NOWR      BYPASS DRIVE IF              KMG
    0D07 C0 10 12D3            436          BT    NXDRV                  WRITE INHIBITED            KMG
                               437 *
    0D0B C0 87 14EA            438          B     RDHAE                READ HOME ADDR AND R0 COUNT EVEN KMG
                               439 *
    0D0F C0 87 1718            440          B     WRR00                WRITE RECORD ZERO CNT-KEY-DATA ODD
                               441 *
    0D13 0C 01 2613 2623       442          MVC   LPCNT(2),IDDDR       SAVE INITIAL DDDR VALUE
                               443 *
    0D19 C0 87 157E            444          B     RDCKD                READ COUNT-KEY-DATA
    0D1D 01              0D1D  445          DC    IL1'1'                 RECORD 1
                               446 *
    0D1E 8C 02 14 2537         447          MVC   DL(3,XR2),P5         SET DATA LENGTH = 5
                               448 *
    0D23 C0 87 1743            449          B     WRCKD                WRITE COUNT-KEY-DATA
    0D27 02              0D27  450          DC    IL1'2'                 RECORD 2
    0D28 14              0D28  451          DC    IL1'20'                NN = 20
                               452 *
    0D29 C0 87 17E2            453          B     WRKD                 WRITE KEY-DATA
    0D2D 02              0D2D  454          DC    IL1'2'                 RECORD 2
    0D2E 04              0D2E  455          DC    IL1'4'                 NN = 4
                               456 *
    0D2F 0C 01 2623 2627       457          MVC   IDDDR(2),RDDDR       ADVANCE INITIAL DDDR VALUE
                               458 *
    0D35 C0 87 17E2            459          B     WRKD                 WRITE KEY-DATA
    0D39 06              0D39  460          DC    IL1'6'                 RECORD 6
    0D3A 05              0D3A  461          DC    IL1'5'                 NN = 5
                               462 *
    0D3B 0C 01 2623 2613       463          MVC   IDDDR(2),LPCNT       RESTORE INITIAL DDDR VALUE
                               464 *
    0D41 3C 00 26D0            465          MVI   DDDF+50,0                 CLEAR
    0D45 0C 2C 26CF 26D0       466          MVC   DDDF+49(45),DDDF+50         READ AREA
                               467 *
    0D4B C0 87 15D7            468          B     RDKD                 READ KEY-DATA
    0D4F 02              0D4F  469          DC    IL1'2'                 RECORD 2
    0D50 05              0D50  470          DC    IL1'5'                 NN = 5
                               471 *
    0D51 0C 01 2623 2627       472          MVC   IDDDR(2),RDDDR       ADVANCE INITIAL DDDR VALUE
                               473 *
    0D57 C0 87 15D7            474          B     RDKD                 READ KEY-DATA
    0D5B 07              0D5B  475          DC    IL1'7'                 RECORD 7
    0D5C 04              0D5C  476          DC    IL1'4'                 NN = 4
                               477 *
    0D5D 0C 01 2623 2613       478          MVC   IDDDR(2),LPCNT       RESTORE INITIAL DDDR VALUE
    0D63 35 01 2623            479          L     IDDDR,XR1            POINT TO RESIDUAL DDDF
                               480 *
    0D67 0C 01 2613 2543       481          MVC   LPCNT(2),P256        SETUP LOOP COUNTER
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          482 *
 0D6D 4D 03 03 2551       483 R09B2    CLC   3(4,XR1),WCPTN     GO TO ERROR END IF
 0D72 C0 01 1B40          484          BNE   ERR19                 RESIDUAL DDDF IS INCORRECT
                          485 *
 0D76 0F 01 2613 2533     486          SLC   LPCNT(2),P4          LOOP UNTIL ALL OF
 0D7C C0 01 0D6D          487          BNZ   R09B2                 RESIDUAL DDDF HAS BEEN CHECKED
                          488 *
 0D80 38 01 2623          489          TBN   IDDDR,1              WRITE AND CHECK
 0D84 3A 01 2623          490          SBN   IDDDR,1               AGAIN USING ODD
 0D88 C0 90 0D04          491          BF    R09B                    STORAGE ADDRESS
                          492 *
 0D8C C0 87 12D3          493          B     NXDRV                REPEAT FOR EACH DRIVE BEING TESTED
                          494 *
 0D90 C0 87 0216          495 R09C     B     LINK                 GO TO NEXT ROUTINE
                          496 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          498 ********************************************************************************
                          499 *                                                                              *
                          500 *                ROUTINE 0A - SCAN FF DETECT TEST                              *
                          501 *                                                                              *
                          502 ********************************************************************************
                          503 *
 0D94 0A                  0D94 504 RTN0A    DC    XL1'0A'            ROUTINE NUMBER
 0D95 00                  0D95 505          DC    XL1'00'            ROUTINE FLAGS
 0D96 0E57                0D97 506          DC    AL2(RTN0B)         ADDRESS OF NEXT ROUTINE
                          507 *
 0D98 0C 03 2555 2551          508 R0A      MVC   PATRN+3(4),WCPTN   INITIALIZE
 0D9E 3C FE 2553               509          MVI   PATRN+1,X'FE'       TEST PATTERN
                          510 *
 0DA2 C0 87 11F3          511          B     BEGIN              PERFORM ROUTINE INITIALIZATION
 0DA6 0DB9           0DA7 512          DC    AL2(R0AB)          'LOOP' SUBROUTINE RETURN ADDRESS
 0DA8 0E41           0DA9 513          DC    AL2(R0AC)          'NXDRV' SUBROUTINE RETURN ADDRESS
                          514 *
 0DAA C0 87 13D4          515 R0AA     B     RECAL              RECALIBRATE
 0DAE C0 87 16A0          516          B     RDSNS              DETERMINE DATA MODULE SIZE
                          517 *
 0DB2 C0 87 13F8          518          B     SEEK               SEEK (3340 PHYSICAL ADDRESS)
 0DB6 00             0DB6 519          DC    IL1'0'               HEAD 0
 0DB7 015D           0DB8 520          DC    IL2'349'             CE CYLINDER
                          521 *
 0DB9 C0 87 14EA          522 R0AB     B     RDHAE              READ HOME ADDR AND R0 COUNT EVEN
                          523 *
 0DBD C0 87 1866          524          B     ORIENT             TRACK ORIENTATION DELAY
                          525 *
 0DC1 3C FF 279D          526          MVI   DDDF+255,X'FF'          SETUP SCAN
 0DC5 0C FE 279C 279D     527          MVC   DDDF+254(255),DDDF+255    ARGUMENT IN
 0DCB 0C 02 26A0 2554     528          MVC   DDDF+2(3),PATRN+2           DDDF AREA
                          529 *
 0DD1 C0 87 17F6          530          B     SCANE              SCAN  EQUAL
 0DD5 01             0DD5 531          DC    IL1'1'               RECORD 1
 0DD6 00             0DD6 532          DC    IL1'0'               NN = 00
                          533 *
 0DD7 C1 C3 180D          534          TIO   ERR15,X'C3'        ERROR IF SCAN HIT
                          535 *
 0DDB C0 87 1866          536          B     ORIENT             TRACK ORIENTATION DELAY
                          537 *
 0DDF C0 87 180A          538          B     SCANH              SCAN HIGH OR EQUAL
 0DE3 01             0DE3 539          DC    IL1'1'               RECORD 1
 0DE4 00             0DE4 540          DC    IL1'0'               NN = 00
                          541 *
 0DE5 C1 C3 180D          542          TIO   ERR15,X'C3'        ERROR IF SCAN HIT
                          543 *
 0DE9 C0 87 1866          544          B     ORIENT             TRACK ORIENTATION DELAY
                          545 *
 0DED C0 87 183E          546          B     SCNRE              SCAN READ OR EQUAL
 0DF1 01             0DF1 547          DC    IL1'1'               RECORD 1
 0DF2 00             0DF2 548          DC    IL1'0'               NN = 00
                          549 *
 0DF3 C1 C3 180D          550          TIO   ERR15,X'C3'        ERROR IF SCAN HIT
                          551 *
 0DF7 C0 87 186E          552          B     ORIENT             TRACK ORIENTATION DELAY
                          553 *
 0DFB C0 87 1852          554          B     SCNRH              SCAN READ OR HIGH OR EQUAL
 0DFF 01             0DFF 555          DC    IL1'1'               RECORD 1
 0E00 00             0E00 556          DC    IL1'0'               NN = 00
                          557 *
 0E01 C1 C3 180D          558          TIO   ERR15,X'C3'        ERROR IF SCAN HIT
                          559 *
 0E05 C0 87 1866          560          B     ORIENT             TRACK ORIENTATION DELAY
                          561 *
 0E09 3C 77 2C9F          562          MVI   DDDF+1,X'77'       CHANGE DDDF TO CAUSE SCAN HIT
                          563 *
 0E0D C0 87 180A          564          B     SCANH              SCAN HIGH OR EQUAL
 0E11 01             0E11 565          DC    IL1'1'               RECORD 1
```

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ERR LOC OBJECT CODE     ADDR STMT SOURCE STATEMENT

   0E12 00              0E12  566          DC    IL1'0'                NN = 00
                              567 *
0E13 C1 C3 0E1B               568          TIO   ROAB1,X'C3'           ERROR IF
0E17 C0 87 1B04               569          B     ERR14                   NO SCAN HIT
                              570 *
0E1B 38 40 263D               571 ROAB1    TBN   SNS,BIT1              ERROR IF NO
0E1F C0 90 1AFB               572          BF    ERR13                   SCAN EQUAL CONDITION
                              573 *
0E23 C0 87 1866               574          B     ORIENT                TRACK ORIENTATION DELAY
                              575 *
0E27 C0 87 1852               576          B     SCNRH                 SCAN READ OR HIGH OR EQUAL
0E2B 01                0E2B   577          DC    IL1'1'                  RECORD 1
0E2C 00                0E2C   578          DC    IL1'0'                  NN = 00
                              579 *
0E2D C1 C3 0E35               580          TIO   ROAB2,X'C3'           ERROR IF
0E31 C0 87 1B04               581          B     ERR14                   NO SCAN HIT
                              582 *
0E35 38 40 263D               583 ROAB2    TBN   SNS,BIT1              ERROR IF NO
0E39 C0 90 1AFB               584          BF    ERR13                   SCAN EQUAL CONDITION
                              585 *
0E3D C0 87 12D3               586          B     NXDRV                 REPEAT FOR EACH DRIVE BEING TESTED
                              587 *
0E41 0E 00 2553 2553          588 ROAC     ALC   PATRN+1(1),PATRN+1    SHIFT TEST PATTERN
0E47 3A 01 2553               589          SBN   PATRN+1,BIT7              BYTE LEFT ONE BIT POSITION
                              590 *
0E4B 3D FF 2553               591          CLI   PATRN+1,X'FF'           LOOP UNTIL ALL
0E4F C0 01 132B               592          BNE   LOOP                      BIT POSITIONS HAVE BEEN TESTED
                              593 *
0E53 C0 87 0216               594          B     LINK                  GO TO NEXT ROUTINE
                              595 *
```



```
ERR LOC OBJECT CODE     ADDR STMT SOURCE STATEMENT
                              597 ********************************************************************************
                              598 *                                                                              *
                              599 *                ROUTINE 0B - SCAN EQUAL TEST                                  *
                              600 *                                                                              *
                              601 ********************************************************************************
                              602 *
0E57 0B                0E57   603 RTN0B    DC    XL1'0B'               ROUTINE NUMBER
0E58 00                0E58   604          DC    XL1'00'               ROUTINE FLAGS
0E59 0F1E              0E5A   605          DC    AL2(RTN0C)            ADDRESS OF NEXT ROUTINE
                              606 *
0E5B 3C 0A 2613               607 R0B      MVI   LPCNT,10              LOOP THIS TEST 10 TIMES
                              608 *
0E5F C0 87 11F3               609          B     BEGIN                 PERFORM ROUTINE INITIALIZATION
0E63 0E76              0E64   610          DC    AL2(R0BB)             'LOOP' SUBROUTINE RETURN ADDRESS
0E65 0F10              0E66   611          DC    AL2(R0BC)             'NXDRV' SUBROUTINE RETURN ADDRESS
                              612 *
0E67 C0 87 13D4               613 R0BA     B     RECAL                 RECALIBRATE
0E6B C0 87 16A0               614          B     RDSNS                 DETERMINE DATA MODULE SIZE
                              615 *
0E6F C0 87 13F8               616          B     SEEK                  SEEK (3340 PHYSICAL ADDRESS)
0E73 00                0E73   617          DC    IL1'0'                  HEAD 0
0E74 015D              0E75   618          DC    IL2'349'                CE CYLINDER
                              619 *
0E76 C0 87 14EA               620 R0BB     B     RDHAE                 READ HOME ADDR AND RO COUNT EVEN
                              621 *
0E7A C0 87 1866               622          B     ORIENT                TRACK ORIENTATION DELAY
                              623 *
0E7E 3C FF 279E               624          MVI   DDDF+256,X'FF'              SETUP SCAN
0E82 0C FF 279D 279E          625          MVC   DDDF+255(256),DDDF+256        ARGUMENT IN
0E88 0C 03 26A4 2551          626          MVC   DDDF+6(4),WCPTN                 DDDF AREA
0E8E 0C 01 26A1 2551          627          MVC   DDDF+3(2),WCPTN
0E94 0C 01 269F 2528          628          MVC   DDDF+1(2),NULLS
                              629 *
0E9A 38 01 2623               630          TBN   IDDDR,BIT7              SKIP IF DDDF IS
0E9E F2 90 06                 631          JF    R0BB1                     ON EVEN ADDRESS BOUNDARY
                              632 *
0EA1 0C 05 26A5 26A4          633          MVC   DDDF+7(6),DDDF+6        SHIFT SCAN ARGUMENT FOR ODD BOUNDARY
                              634 *
0EA7 C0 87 17F6               635 R0BB1    B     SCANE                 SCAN EQUAL
0EAB 01                0EAB   636          DC    IL1'1'                  RECORD 1
0EAC 00                0EAC   637          DC    IL1'0'                  NN = 00
                              638 *
0EAD C1 C3 0EB5               639          TIO   R0BB2,X'C3'           ERROR IF
0EB1 C0 87 1B04               640          B     ERR14                   NO SCAN HIT
                              641 *
0EB5 38 40 263D               642 R0BB2    TBN   SNS,BIT1              ERROR IF NO
0EB9 C0 90 1AFB               643          BF    ERR13                   SCAN EQUAL CONDITION
                              644 *
0EBD 38 01 2623               645          TBN   IDDDR,BIT7            SKIP IF DDDF IS
0EC1 F2 10 0E                 646          JT    R0BB3                     ON ODD ADDRESS BOUNDARY
                              647 *
0EC4 0D 03 26A8 254D          648          CLC   DDDF+10(4),FFPTN      ERROR IF RESIDUAL
0ECA C0 01 1B40               649          BNE   ERR19                   DDDF IS INCORRECT
                              650 *
0ECE C0 87 0EDC               651          B     R0BB4                   REPEAT TEST FOR SCAN OR EQUAL
                              652 *
0ED2 0D 03 26A9 254D          653 R0BB3    CLC   DDDF+11(4),FFPTN      ERROR IF RESIDUAL
0ED8 C0 01 1B40               654          BNE   ERR19                   DDDF IS INCORRECT
                              655 *
0EDC C0 87 1866               656 R0BB4    B     ORIENT                TRACK ORIENTATION DELAY
                              657 *
0EE0 C0 87 183E               658          B     SCNRE                 SCAN READ OR EQUAL
0EE4 01                0EE4   659          DC    IL1'1'                  RECORD 1
0EE5 00                0EE5   660          DC    IL1'0'                  NN = 00
                              661 *
0EE6 C1 C3 0EEE               662          TIO   R0BB5,X'C3'           ERROR IF
0EEA C0 87 1B04               663          B     ERR14                   NO SCAN HIT
                              664 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         665 ROBB5   TBN   SNS,BIT1          ERROR IF NO
 OEEE 38 40 263D                     BF    ERR13               SCAN EQUAL CONDITION
 OEF2 CO 90 1AF8             666
                             667 *
 OEF6 GD 03 26A8 2551        668     CLC   DDDF+10(4),WCPTN    ERROR IF RESIDUAL
 OEFC CO 01 1B40             669     BNE   ERR19               DDDF IS INCORRECT
                             670 *
 OF00 38 01 2623             671     TBN   IDDDR,BIT7          REPEAT
 OF04 3A 01 2623             672     SBN   IDDDR,BIT7            TEST USING ODD
 OF08 CO 90 0E76             673     BF    ROBB                    MAIN STORAGE BOUNDARY
                             674 *
 OFOC CO 87 12D3             675     B     NXDRV               REPEAT FOR EACH DRIVE BEING TESTED
                             676 *
 OF10 OF 00 2613 252F        677 ROBC  SLC   LPCNT(1),P1        LOOP THIS
 OF16 CO 01 1328             678     BNZ   LOOP                  TEST 10 TIMES
                             679 *
 OF1A CO 87 0216             680     B     LINK                GO TO NEXT ROUTINE
                             681 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         683 ************************************************************************
                         684 *                                                                      *
                         685 *              ROUTINE OC - SCAN HIGH OR EQUAL TEST                    *
                         686 *                                                                      *
                         687 ************************************************************************
                         688 *
 OF1E OC                 OF1E 689 RTNOC  DC    XL1'OC'           ROUTINE NUMBER
 OF1F 00                 OF1F 690        DC    XL1'00'           ROUTINE FLAGS
 OF20 OFBD               OF21 691        DC    AL2(RTNOD)        ADDRESS OF NEXT ROUTINE
                             692 *
 OF22 OC 03 2555 2551        693 ROC     MVC   PATRN+3(4),WCPTN  INITIALIZE
 OF28 3C FE 2554             694         MVI   PATRN+2,X'FE'       TEST PATTERN
                             695 *
 OF2C CO 87 11F3             696         B     BEGIN             PERFORM ROUTINE INITIALIZATION
 OF30 OF43               OF31 697        DC    AL2(ROCB)         'LOOP' SUBROUTINE RETURN ADDRESS
 OF32 OFA7               OF33 698        DC    AL2(ROCC)         'NXDRV' SUBROUTINE RETURN ADDRESS
                             699 *
 OF34 CO 87 13D4             700 ROCA    B     RECAL             RECALIBRATE
 OF38 CO 87 16A0             701         B     RDSNS             DETERMINE DATA MODULE SIZE
                             702 *
 OF3C CO 87 13F8             703         B     SEEK              SEEK (3340 PHYSICAL ADDRESS)
 OF40 00                 OF40 704        DC    IL1'0'              HEAD 0
 OF41 015D               OF42 705        DC    IL2'349'            CE CYLINDER
                             706 *
 OF43 CO 87 14EA             707 ROCB    B     RDHAE             READ HOME ADDR AND RO COUNT EVEN
                             708 *
 OF47 CO 87 1866             709         B     ORIENT            TRACK ORIENTATION DELAY
                             710 *
 OF4B 3C FF 279D             711         MVI   DDDF+255,X'FF'      SETUP SCAN
 OF4F OC FE 279C 279D        712         MVC   DDDF+254(255),DDDF+255   ARGUMENT IN
 OF55 OC 03 26A1 2555        713         MVC   DDDF+3(4),PATRN+3          DDDF AREA
 OF5B 3C FF 26A2             714         MVI   DDDF+4,X'FF'
                             715 *
 OF5F CO 87 180A             716         B     SCANH             SCAN HIGH OR EQUAL
 OF63 01                 OF63 717        DC    IL1'1'              RECORD 1
 OF64 00                 OF64 718        DC    IL1'0'              NN = 00
                             719 *
 OF65 C1 C3 OF6D             720         TIO   ROCB1,X'C3'       ERROR IF
 OF69 CO 87 1804             721         B     ERR14               NO SCAN HIT
                             722 *
 OF6D 38 40 263D             723 ROCB1   TBN   SNS,BIT1          ERROR IF
 OF71 CO 10 1B50             724         BT    ERR1A               SCAN EQUAL CONDITION
                             725 *
 OF75 OD 03 26A7 254D        726         CLC   DDDF+9(4),FFPTN     ERROR IF RESIDUAL
 OF7B CO 01 1B40             727         BNE   ERR19               DDDF IS INCORRECT
                             728 *
 OF7F CO 87 1866             729         B     ORIENT            TRACK ORIENTATION DELAY
                             730 *
 OF83 CO 87 1852             731         B     SCNRH             SCAN READ OR HIGH OR EQUAL
 OF87 01                 OF87 732        DC    IL1'1'              RECORD 1
 OF88 00                 OF88 733        DC    IL1'0'              NN = 00
                             734 *
 OF89 C1 C3 OF91             735         TIO   ROCB2,X'C3'       ERROR IF
 OF8D CO 87 1804             736         B     ERR14               NO SCAN HIT
                             737 *
 OF91 38 40 263D             738 ROCB2   TBN   SNS,BIT1          ERROR IF
 OF95 CO 10 1B50             739         BT    ERR1A               SCAN EQUAL CONDITION
                             740 *
 OF99 OD 03 26A7 2551        741         CLC   DDDF+9(4),WCPTN     ERROR IF RESIDUAL
 OF9F CO 01 1B40             742         BNE   ERR19               DDDF IS INCORRECT
                             743 *
 OFA3 CO 87 12D3             744         B     NXDRV             REPEAT FOR EACH DRIVE BEING TESTED
                             745 *
 OFA7 0E 00 2554 2554        746 ROCC    ALC   PATRN+2(1),PATRN+2  SHIFT TEST PATTERN
 OFAD 3A 01 2554             747         SBN   PATRN+2,BIT7          BYTE LEFT ONE BIT POSITION
                             748 *
 OFB1 3D FF 2554             749         CLI   PATRN+2,X'FF'       LOOP UNTIL ALL
 OFB5 CO 01 1328             750         BNE   LOOP                  BIT POSITIONS HAVE BEEN TESTED
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              751 *
   0FB9 C0 87 0216            752          B     LINK          GO TO NEXT ROUTINE
                              753 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              755 ********************************************************************************
                              756 *                                                                              *
                              757 *              ROUTINE 0D - WRITE REPEAT / READ VERIFY TEST                    *
                              758 *                                                                              *
                              759 ********************************************************************************
                              760 *
   0FBD 0D                0FBD 761 RTN0D    DC    XL1'0D'       ROUTINE NUMBER
   0FBE 00                0FBE 762          DC    XL1'00'       ROUTINE FLAGS
   0FBF 1006              0FC0 763          DC    AL2(RTN0E)    ADDRESS OF NEXT ROUTINE
                              764 *
   0FC1 C0 87 11F3              765 R0D     B     BEGIN         PERFORM ROUTINE INITIALIZATION
   0FC5 0FD8              0FC6 766          DC    AL2(R0DB)     'LOOP' SUBROUTINE RETURN ADDRESS
   0FC7 1002              0FC8 767          DC    AL2(R0DC)     'NXDRV' SUBROUTINE RETURN ADDRESS
                              768 *
   0FC9 C0 87 13D4              769 R0DA    B     RECAL         RECALIBRATE
   0FCD C0 87 16A0              770         B     RDSNS         DETERMINE DATA MODULE SIZE
                              771 *
   0FD1 C0 87 13F8              772         B     SEEK          SEEK (3340 PHYSICAL ADDRESS)
   0FD5 00                0FD5 773          DC    IL1'0'          HEAD 0
   0FD6 015D              0FD7 774          DC    IL2'349'        CYLINDER 349                              KMG
                              775 *                                                                          KMG
   0FD8 B8 08 00                776 R0DB    TBN   DIND(,XR2),NOWR BYPASS DRIVE IF                          KMG
   0FDB C0 10 12D3              777         BT    NXDRV           WRITE INHIBITED
                              778 *
   0FDF C0 87 14EA              779         B     RDHAE         READ HOME ADDR AND R0 COUNT EVEN KMG
                              780 *
   0FE3 C0 87 1718              781         B     WRR00         WRITE RECORD ZERO CNT-KEY-DATA ODD
                              782 *
   0FE7 C0 87 157E              783         B     RDCKD         READ COUNT-KEY-DATA
   0FEB 01                0FEB 784          DC    IL1'1'          RECORD 1
                              785 *
   0FEC C0 87 1743              786         B     WRCKD         WRITE COUNT-KEY-DATA
   0FF0 02                0FF0 787          DC    IL1'2'          RECORD 2
   0FF1 13                0FF1 788          DC    IL1'19'         NN = 19
                              789 *
   0FF2 C0 87 179B              790         B     WRREP         WRITE REPEAT KEY-DATA
   0FF6 02                0FF6 791          DC    IL1'2'          RECORD 2
   0FF7 13                0FF7 792          DC    IL1'19'         NN = 19
                              793 *
   0FF8 C0 87 163A              794         B     RDVKD         READ VERIFY KEY-DATA
   0FFC 02                0FFC 795          DC    IL1'2'          RECORD 2
   0FFD 13                0FFD 796          DC    IL1'19'         NN = 19
                              797 *
   0FFE C0 87 12D3              798         B     NXDRV         REPEAT FOR EACH DRIVE BEING TESTED
                              799 *
   1002 C0 87 0216              800 R0DC    B     LINK          GO TO NEXT ROUTINE
                              801 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              803 ********************************************************************************
                              804 *                                                                              *
                              805 *              ROUTINE 0E - CYLINDER SEEK TEST                                 *
                              806 *                                                                              *
                              807 ********************************************************************************
                              808 *
  1006 0E                1006 809 RTNOE    DC    XL1'0E'           ROUTINE NUMBER
  1007 00                1007 810          DC    XL1'00'           ROUTINE FLAGS
  1008 1077              1009 811          DC    AL2(RTNOF)        ADDRESS OF NEXT ROUTINE
                              812 *
  100A 0C 01 102E 252B        813 R0E       MVC   ROEA1(2),NULLS    CYL ADDR = 000 FOR FIRST SEEK
                              814 *
  1010 C2 01 0A01             815           LA    PID,XR1           INITIALIZE PSUEDO
  1014 34 01 2613             816           ST    LPCNT,XR1           RANDOM NUMBER GENERATOR
                              817 *
  1018 C0 87 11F3             818           B     BEGIN             PERFORM ROUTINE INITIALIZATION
  101C 1033              101D 819           DC    AL2(ROEB)         'LOOP' SUBROUTINE RETURN ADDRESS
  101E 105F              101F 820           DC    AL2(ROEC)         'NXDRV' SUBROUTINE RETURN ADDRESS
                              821 *
  1020 C0 87 13D4             822 ROEA      B     RECAL             RECALIBRATE
  1024 C0 87 16A0             823           B     RDSNS             DETERMINE DATA MODULE SIZE
                              824 *
  1028 C0 87 13F8             825           B     SEEK              SEEK (3340 PHYSICAL ADDRESS)
  102C 00                102C 826           DC    IL1'0'              HEAD 0
  102D                   102E 827 ROEA1     DS    IL2                 CYLINDER 0 - 349
                              828 *
  102F C0 87 14EA             829           B     RDHAE             READ HOME ADDR AND R0 COUNT EVEN
                              830 *
  1033 35 01 2613             831 ROEB      L     LPCNT,XR1         GENERATE
  1037 0C 01 1056 102E        832           MVC   ROEB2(2),ROEA1      SIMULATED
  103D 1E 01 1056 00          833 ROEB1     ALC   ROEB2(2),0(,XR1)      RANDOM
  1042 3B FE 1055             834           SBF   ROEB2-1,X'FE'           CYLINDER
  1046 0D 01 1056 2545        835           CLC   ROEB2(2),P349             ADDRESS
  104C C0 84 103D             836           BH    ROEB1
                              837 *
  1050 C0 87 13F8             838           B     SEEK              SEEK (3340 PHYSICAL ADDRESS)
  1054 00                1054 839           DC    IL1'0'              HEAD 0
  1055                   1056 840 ROEB2     DS    IL2                 CYLINDER 0 - 349
                              841 *
  1057 C0 87 14EA             842           B     RDHAE             READ HOME ADDR AND R0 COUNT EVEN
                              843 *
  1058 C0 87 12D3             844           B     NXDRV             REPEAT FOR EACH DRIVE BEING TESTED
                              845 *
  105F 0C 01 102E 1056        846 ROEC      MVC   ROEA1(2),ROEB2    SAVE CYLINDER ADDR FOR ERR RECOVERY
                              847 *
  1065 0E 01 2613 252F        848           ALC   LPCNT(2),P1       LOOP UNTIL
  106B 3D 0C 2612             849           CLI   LPCNT-1,X'0C'       512 CYLINDER
  106F C0 01 1328             850           BNE   LOOP                  SEEKS HAVE BEEN PERFORMED
                              851 *
  1073 C0 87 0216             852           B     LINK              GO TO NEXT ROUTINE
                              853 *
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              855 ********************************************************************************
                              856 *                                                                              *
                              857 *              ROUTINE OF - READ IPL TEST                                      *
                              858 *                                                                              *
                              859 ********************************************************************************
                              860 *
  1077 OF                1077 861 RTNOF     DC    XL1'OF'           ROUTINE NUMBER
  1078 00                1078 862           DC    XL1'00'           ROUTINE FLAGS
  1079 1117              107A 863           DC    AL2(RTN10)        ADDRESS OF NEXT ROUTINE
                              864 *
  107B 39 10 020B             865           TBF   SBYTE3,SSW1B                                          KMG
  107F 39 40 020A             866           TBF   SBYTE2,SSW11      BYPASS THIS ROUTINE IF
  1083 C0 90 1112             867           BF    NORMN               DRIVE 1 IS NOT BEING TESTED
                              868 *
  1087 3B 20 0A19             869           SBF   COM,MPLFLG        RESET MICRO-PROGRAM LOADED INDICATOR
                              870 *
  108B C0 87 1F42             871           B     REGRST            RESET ATTACHMENT REGISTERS
                              872 *
  108F C0 87 1DC9             873           B     SAVRST            GO TO STORE A RESTART ADDR
  1093 31 C4 255F             874           LIO   DDDR,X'C4'        LOAD DDDR
  1097 C0 87 1E22             875           B     RSTOR             GO TO RESTORE LOCATION 0
                              876 *
  109B 38 80 25FA             877           TBN   IND,HUNG          ERROR END IF
  109F F2 10 52               878           JT    ERR30               LIO HANGS IN REJECTION LOOP
                              879 *
  10A2 C0 87 1DC9             880           B     SAVRST            GO TO STORE A RESTART ADDR
  10A6 F3 C4 01               881           SIO   X'01',X'C4'       READ IPL
  10A9 C0 87 1E22             882           B     RSTOR             GO TO RESTORE LOCATION 0
                              883 *
  10AD 38 80 25FA             884           TBN   IND,HUNG          ERROR END IF
  10B1 F2 10 40               885           JT    ERR30               SIO HANGS IN REJECTION LOOP
                              886 *
  10B4 0C 02 2641 2562        887           MVC   WORKN(3),TIM3S    INITIALIZE TIMER
                              888 *
  10BA 0E 02 2641 252F        889 ROFA      ALC   WORKN(3),P1        INCREMENT ATT BUSY TIMER
  10C0 C0 A0 10F4             890           BOL   ERR30             ERROR END IF ATTACHMENT
  10C4 C1 C2 10BA             891           TIO   ROFA,X'C2'          BUSY FAILS TO GO OFF
                              892 *
  10C8 30 C4 2627             893           SNS   RDDDR,X'C4'       SENSE RESIDUAL DDDR
                              894 *
  10CC 35 01 255F             895           L     DDDR,XR1          CALCULATE                           KMG
  10D0 36 01 2547             896           A     P1200,XR1           FIRST EXPECTED                    KMG
  10D4 34 01 263F             897           ST    WORKN-2,XR1           DDDR RESIDUAL                   KMG
                              898 *
  10D8 36 01 253F             899           A     P80,XR1           CALCULATE SECOND                    KMG
  10DC 34 01 2641             900           ST    WORKN,XR1           EXPECTED DDDR RESIDUAL            KMG
                              901 *                                                                     KMG
  10E0 0D 01 2627 263F        902           CLC   RDDDR(2),WORKN-2  GO TO RE-LOAD MICROCODE IF          KMG
  10E6 C0 81 1108             903           BE    RELOAD              FIRST RESIDUAL DDDR IS CORRECT  KMG
                              904 *                                                                     KMG
  10EA 0D 01 2627 2641        905           CLC   RDDDR(2),WORKN    GO TO RE-LOAD MICROCODE IF          KMG
  10F0 C0 81 1108             906           BE    RELOAD              SECOND RESID DDDR IS CORRECT    KMG
                              907 *
  10F4 C0 87 1F42             908 ERR30     B     REGRST            RESET ATTACHMENT REGISTERS
                              909 *
  10F8 C0 87 021A             910           B     PRINT             PRINT
  10FC C6                10FC 911           DC    XL1'C6'             ERROR 2030 MESSAGE
  10FD 18                10FD 912           DC    AL1(EM30N-EM30+1)
  10FE 2521              10FF 913           DC    AL2(EM30N)
  1100 C101              1101 914           DC    AL2(HLT01)
                              915 *
  1102 C0 87 0222             916           B     HALT              ERROR
  1106 C101              1107 917           DC    AL2(HLT01)          HALT 01
                              918 *
  1108 0D 00 0232 0A00        919 RELOAD    CLC   UTAB(1),PID-1     RE-LOAD MICROCODE IF
  110E C0 81 1E86             920           BE    MPL                 RUNNING FROM 3340
                              921 *
  1112 C0 87 022A             922 NORMN     B     LOAD              TERMINATE SECTION
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1116 00               1116  923          DC    XL1'00'
                               924 *
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                               926 ********************************************************************************
                               927 *                                                                              *
                               928 *                ROUTINE 10 - CE CYLINDER RESTORE                              *
                               929 *                                                                              *
                               930 ********************************************************************************
                               931 *
   1117 10                1117 932 RTN10    DC    XL1'10'          ROUTINE NUMBER
   1118 00                1118 933          DC    XL1'00'          ROUTINE FLAGS
   1119 FFFF              111A 934          DC    XL2'FFFF'        LAST ROUTINE
                               935 *
   111B 3C 00 1151            936 R10       MVI   R10B1,0          INITIALIZE HEAD ADDRESS
                               937 *
   111F C0 87 11F3            938           B     BEGIN            PERFORM ROUTINE INITIALIZATION
   1123 1127              1124 939           DC    AL2(R10A)        'LOOP' SUBROUTINE RETURN ADDRESS
   1125 11E0              1126 940           DC    AL2(R10F)        'NXDRV' SUBROUTINE RETURN ADDRESS
                               941 *
   1127 3D FF 2619            942 R10A      CLI   ADRTBL+2,X'FF'   ALLOW ONLY ONE
   112B F2 81 17              943           JE    R10B               DRIVE TO BE SELECTED
                               944 *
   112E F3 C4 7E              945           SIO   X'7E',X'C4'      RESET AND DISABLE 3340 INTERRUPTS
                               946 *
   1131 C0 87 021A            947           B     PRINT                PRINT MESSAGE
   1135 46                1135 948           DC    XL1'46'                SELECT DRIVE
   1136 4E                1136 949           DC    AL1(MSG0AN-MSG0A+1)      TO BE INITIALIZED
   1137 210E              1138 950           DC    AL2(MSG0AN)
   1139 C1E4              113A 951           DC    AL2(HLTE4)
                               952 *
   113B C0 87 0222            953           B     HALT             UNCONDITIONAL HALT E4
   113F C1E4              1140 954           DC    AL2(HLTE4)
                               955 *
   1141 C0 87 111B            956           B     R10              RESTART ROUTINE
                               957 *
   1145 C0 87 13D4            958 R10B      B     RECAL            RECALIBRATE
   1149 C0 87 16A0            959           B     RDSNS            DETERMINE DATA MODULE SIZE
                               960 *
   114D C0 87 13F8            961           B     SEEK             SEEK (3340 PHYSICAL ADDRESS)
   1151                   1151 962 R10B1     DS    IL1                HEAD 0 - 11
   1152 015D              1153 963           DC    IL2'349'           CYLINDER 349
                               964 *
   1154 B8 01 00              965           TBN   DIND(,XR2),SW    GO TO READ HA ODD
   1157 F2 10 17              966           JT    R10D               IF READ HA EVEN FAILS
                               967 *
   115A BA 01 00              968 R10C      SBN   DIND(,XR2),SW    SET ODD/EVEN CONTROL INDICATOR
   115D BA 20 00              969           SBN   DIND(,XR2),HAEDEF  SET HA EVEN DEFECT INDICATOR
                               970 *
   1160 C0 87 14EA            971           B     RDHAE            READ HOME ADDR AND R0 COUNT EVEN
                               972 *
   1164 B8 01 00              973           SBF   DIND(,XR2),SW    RESET ODD/EVEN CONTROL INDICATOR
   1167 B8 20 00              974           SBF   DIND(,XR2),HAEDEF  RESET HA EVEN DEFECT INDICATOR
                               975 *
   116A B8 10 00              976           TBN   DIND(,XR2),HAODEF  GO TO WRITE ODD
   116D C0 10 16F7            977           BT    WRHAO              HOME ADDRESS IF DEFECTIVE
                               978 *
   1171 B8 01 00              979 R10D      SBF   DIND(,XR2),SW    RESET ODD/EVEN CONTROL INDICATOR
   1174 BA 10 00              980           SBN   DIND(,XR2),HAODEF  SET HA ODD DEFECT INDICATOR
                               981 *
   1177 C0 87 14FD            982           B     RDHAO            READ HOME ADDR AND R0 COUNT ODD
                               983 *
   117B BA 01 00              984           SBN   DIND(,XR2),SW    SET ODD/EVEN CONTROL INDICATOR
   117E B8 10 00              985           SBF   DIND(,XR2),HAODEF  RESET HA ODD DEFECT INDICATOR
                               986 *
   1181 B8 20 00              987           TBN   DIND(,XR2),HAEDEF  SKIP IF EVEN HOME
   1184 F2 90 08              988           JF    R10E               ADDRESS HAS BEEN VERIFIED
                               989 *
   1187 C0 87 16E4            990           B     WRHAE            WRITE EVEN HOME ADDRESS
   118B C0 87 115A            991           B     R10C             GO TO VERIFY EVEN HOME ADDRESS
                               992 *
   118F B8 01 00              993 R10E      SBF   DIND(,XR2),SW    RESET ODD/EVEN CONTROL INDICATOR
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          994 *
 1192 8C 02 14 253B       995          MVC   DL(3,XR2),P8        SETUP R0
 1197 0C 07 26A5 252B     996          MVC   DDDF+7(8),NULLS       KL, DL, AND DATA
                          997 *
 119D C0 87 1743          998          B     WRCKD               WRITE COUNT-KEY-DATA
 11A1 00             11A1 999          DC    IL1'0'                RECORD ZERO (EVEN)
 11A2 00             11A2 1000         DC    IL1'0'                NN = 00
                         1001 *
 11A3 C0 87 157E         1002          B     RDCKD               READ COUNT-KEY-DATA
 11A7 00             11A7 1003         DC    IL1'0'                RECORD ZERO (EVEN)
                         1004 *
 11A8 C0 87 1718         1005          B     WRR00               WRITE CNT-KEY-DATA RECORD ZERO ODD
                         1006 *
 11AC C0 87 153C         1007          B     RDR00               READ KEY-DATA RECORD ZERO ODD
                         1008 *
 11B0 35 01 2623         1009          L     IDDDR,XR1           POINT TO DDDF AREA
 11B4 0C 01 2641 2543    1010          MVC   WORKN(2),P256       SETUP BYTE COUNTER
                         1011 *
 11BA 4C 03 03 2551      1012 R10E1    MVC   3(4,XR1),WCPTN      MOVE WORST
 11BF D2 01 04           1013          LA    4(,XR1),XR1           CASE PATTERN
 11C2 0F 01 2641 2533    1014          SLC   WORKN(2),P4             TO DDDF AREA
 11C8 C0 01 11BA         1015          BNZ   R10E1
                         1016 *
 11CC 8C 02 14 2543      1017          MVC   DL(3,XR2),P256      SET DATA LENGTH TO 256
                         1018 *
 11D1 C0 87 1743         1019          B     WRCKD               WRITE COUNT-KEY-DATA
 11D5 01             11D5 1020         DC    IL1'1'                RECORD 1
 11D6 00             11D6 1021         DC    IL1'0'                NN = 00
                         1022 *
 11D7 C0 87 157E         1023          B     RDCKD               READ COUNT-KEY-DATA
 11D8 01             11DB 1024         DC    IL1'1'                RECORD 1
                         1025 *
 11DC C0 87 12D3         1026          B     NXDRV               END OF INITIALIZATION FOR ONE TRACK
                         1027 *
 11E0 0E 00 1151 252F    1028 R10F     ALC   R10B1(1),P1         INCREMENT HEAD ADDRESS
                         1029 *
 11E6 3D 0C 1151         1030          CLI   R10B1,12            LOOP UNTIL ALL
 11EA C0 82 1328         1031          BL    LOOP                  TRACKS HAVE BEEN INITIALIZED
                         1032 *
 11EE C0 87 022A         1033          B     LOAD                TERMINATE SECTION
 11F2 00             11F2 1034         DC    XL1'00'
                         1035 *
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1037 ********************************************************************
                         1038 *                                                                  *
                         1039 *          INITIALIZATION AND LOOP CONTROL SUBROUTINES              *
                         1040 *                                                                  *
                         1041 ********************************************************************
                         1042 *
                         1043 *          ROUTINE INITIALIZATION
                         1044 *
 11F3 34 08 2641         1045 BEGIN    ST    WORKN,ARR           POINT TO SUBROUTINE
 11F7 35 01 2641         1046          L     WORKN,XR1             CALL PARAMETERS
                         1047 *
 11FB 1C 01 1371 01      1048          MVC   LOOPX+3(2),1(,XR1)  SETUP 'LOOP' SUBROUTINE RETURN
 1200 1C 01 132A 03      1049          MVC   NXDRVX+3(2),3(,XR1) SETUP 'NXDRV' SUBROUTINE RETURN
                         1050 *
 1205 D2 01 04           1051          LA    4(,XR1),XR1         SETUP 'BEGIN'
 1208 34 01 12D2         1052          ST    BGNX+3,XR1            SUBROUTINE RETURN
                         1053 *
 120C F3 C4 7E           1054 BGN01    SIO   X'7E',X'C4'         RESET AND DISABLE 3340 INTRPS
                         1055 *
 120F 38 01 0A19         1056          TBN   COM,AMOPSW          BRANCH IF AMOP
 1213 C0 10 1E30         1057          BT    AMOPLK                WAS ABNORMALLY TERMINATED
                         1058 *
 1217 38 20 0A19         1059          TBN   COM,MPLFLG          LOAD MICROCODE
 121B C0 90 1E86         1060          BF    MPL                   IF REQUIRED
                         1061 *
 121F 31 C5 2591         1062          LIO   CEMODE,X'C5'        SET CE MODE
 1223 31 C5 2574         1063          LIO   SVPREQ,X'C5'          INDICATORS
                         1064 *
 1227 3C 00 25FA         1065          MVI   IND,0               RESET PROGRAM INDICATORS
 122B 3C F0 2614         1066          MVI   ERRCNT,C'0'         INITIALIZE ERROR RETRY COUNT
                         1067 *
 122F 0C 01 2621 255D    1068          MVC   IDDCR(2),DDCR       INITIALIZE DDCR
 1235 0C 01 2623 255F    1069          MVC   IDDDR(2),DDDR         AND DDDR VALUES
                         1070 *
 123B 0C 03 2600 020D    1071 BGN02    MVC   SSWSV(4),SBYTE5     SAVE SECTION SENSE SWITCHES
                         1072 *
 1241 C2 01 2617         1073          LA    ADRTBL,XR1          POINT TO DRV WORK AREA ADDR TBL
                         1074 *                                                          KMG
 1245 39 10 0208         1075          TBF   SBYTE3,SSW1B
 1249 39 40 020A         1076          TBF   SBYTE2,SSW11        BRANCH IF DRIVE 1
 124D F2 90 17           1077          JF    BGN03                 TESTING IS INHIBITED
                         1078 *
 1250 C2 02 2642         1079          LA    DRVWK1,XR2          STORE DRIVE 1
 1254 74 02 01           1080          ST    1(,XR1),XR2           WORK AREA ADDRESS IN TABLE
 1257 D2 01 02           1081          LA    2(,XR1),XR1             AND ADVANCE TABLE POINTER
                         1082 *
 125A BC 00 00           1083          MVI   DIND(,XR2),0        RESET DRIVE DEPENDENT IND
                         1084 *
 125D 38 40 020C         1085          TBN   SBYTE4,SSW21        SKIP IF WRITE
 1261 F2 90 03           1086          JF    BGN03                 ALLOWED ON DRIVE 1
                         1087 *
 1264 BA 08 00           1088          SBN   DIND(,XR2),NOWR     INHIBIT WRITE TESTING
                         1089 *                                                          KMG
 1267 39 20 020B         1090 BGN03    TBF   SBYTE3,SSW1A
 126B 39 20 020A         1091          TBF   SBYTE2,SSW12        BRANCH IF DRIVE 2
 126F F2 90 17           1092          JF    BGN06                 TESTING IS INHIBITED
                         1093 *
 1272 C2 02 2658         1094          LA    DRVWK2,XR2          STORE DRIVE 2
 1276 74 02 01           1095          ST    1(,XR1),XR2           WORK AREA ADDRESS IN TABLE
 1279 D2 01 02           1096          LA    2(,XR1),XR1             AND ADVANCE TABLE POINTER
                         1097 *
 127C BC 00 00           1098          MVI   DIND(,XR2),0        RESET DRIVE DEPENDENT IND
                         1099 *
 127F 38 20 020C         1100          TBN   SBYTE4,SSW22        SKIP IF WRITE
 1283 F2 90 03           1101          JF    BGN06                 ALLOWED ON DRIVE 2
                         1102 *
 1286 BA 08 00           1103          SBN   DIND(,XR2),NOWR     INHIBIT WRITE TESTING
                         1104 *
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1289 7C FF 00                 1105 BGN06    MVI   0(,XR1),X'FF'
                                 1106 *
   128C C2 01 2617               1107          LA    ADRTBL,XR1
   1290 34 01 2616               1108          ST    ADRPTR,XR1
   1294 75 02 01                 1109          L     1(,XR1),XR2
                                 1110 *
   1297 7D FF 00                 1111          CLI   0(,XR1),X'FF'
   129A F2 01 14                 1112          JNE   BGN07
                                 1113 *
   129D C0 87 021A               1114          B     PRINT
   12A1 46                  12A1 1115          DC    XL1'46'
   12A2 2A                  12A2 1116          DC    AL1(MSG04N-MSG04+1)
   12A3 1FFA                12A4 1117          DC    AL2(MSG04N)
   12A5 C1E2                12A6 1118          DC    AL2(HLTE2)
                                 1119 *
   12A7 C0 87 0222               1120          B     HALT
   12AB C1E2                12AC 1121          DC    AL2(HLTE2)
                                 1122 *
   12AD C0 87 123B               1123          B     BGN02
                                 1124 *
   12B1 BA 40 00                 1125 BGN07    SBN   DIND(,XR2),LPSW
                                 1126 *
   12B4 0C 01 263D 2528          1127          MVC   SNS(2),NULLS
                                 1128 *
   12BA 31 C5 2564               1129          LIO   SVPSEQ+1,X'C5'
   12BE 31 C5 2578               1130          LIO   K+1,X'C5'
   12C2 31 C5 257A               1131          LIO   RUNMP,X'C5'
                                 1132 *
   12C6 0D FF 12C6 12C6          1133          CLC   *(256),*
                                 1134 *
   12CC F3 C4 80                 1135          SIO   X'80',X'C4'
                                 1136 *
   12CF C0 87 0000               1137 BGNX     B     *-*
                                 1138 *
                                 1139 *----------------------------------------------------
                                 1140 *              REPEAT TEST ON NEXT DRIVE
                                 1141 *
   12D3 F3 C4 7E                 1142 NXDRV    SIO   X'7E',X'C4'
                                 1143 *
   12D6 3D F0 2614               1144          CLI   ERRCNT,C'0'
   12DA F2 81 12                 1145          JE    NXD01
                                 1146 *
   12DD 0C 00 200B 2614          1147          MVC   MSG05+16(1),ERRCNT
                                 1148 *
   12E3 C0 87 021A               1149          B     PRINT
   12E7 86                  12E7 1150          DC    XL1'86'
   12E8 19                  12E8 1151          DC    AL1(MSG05N-MSG05+1)
   12E9 2013                12EA 1152          DC    AL2(MSG05N)
                                 1153 *
   12EB 3C F0 2614               1154          MVI   ERRCNT,C'0'
                                 1155 *
   12EF 35 01 2616               1156 NXD01    L     ADRPTR,XR1
                                 1157 *
   12F3 7D FF 02                 1158          CLI   2(,XR1),X'FF'
   12F6 F2 81 0E                 1159          JE    NXD02
                                 1160 *
   12F9 75 02 03                 1161          L     3(,XR1),XR2
                                 1162 *
   12FC D2 01 02                 1163          LA    2(,XR1),XR1
   12FF 34 01 2616               1164          ST    ADRPTR,XR1
                                 1165 *
   1303 C0 87 132B               1166          B     LOOP
                                 1167 *
   1307 C2 01 2617               1168 NXD02    LA    ADRTBL,XR1
   130B 34 01 2616               1169          ST    ADRPTR,XR1
   130F 75 02 01                 1170          L     1(,XR1),XR2
                                 1171 *
   1312 C0 87 0212               1172          B     TEST
```

```
MOVE TERMINATOR TO ADDR TABLE

POINT TO START OF ADDRESS TABLE
INITIALIZE ADDRESS TABLE PTR
FIRST DRIVE WK AREA ADDR TO XR2

GO TO START TEST IF
  VALID SENSE SW SELECTION

PRINT MESSAGE
  INVALID SETTING
    OF SENSE SWITCHES
      11-12 OR 1A-1B                KMG

UNCONDITIONAL HALT E2


GO TO CHECK SENSE SWS AGAIN

SET DRIVE LOOP INDICATOR

CLEAR SENSE AREA

FORCE
  ADAPTER CHECK
    TO TEST INTERRUPT ENABLE

800 USEC DELAY

ENABLE 3340 INTERRUPTS

RETURN TO CALLING ROUTINE

RESET AND DISABLE 3340 INTRPS

BRANCH IF NO ERROR
  RETRIES WERE REQUIRED

MOVE RETRY COUNT TO PRINT MSG

PRINT
  'RECOVERED
     AFTER X RETRIES'

RESET ERROR RETRY COUNTER

GET ADDRESS TABLE POINTER

BRANCH IF ALL DRIVES
  HAVE BEEN TESTED

POINT TO NEXT DRV WORK AREA

ADVANCE ADDRESS
  TABLE POINTER

GO TO TEST NEXT DRIVE

RE-INITIALIZE
  ADDRESS TABLE POINTER AND
    POINT TO FIRST DRIVE AREA

CHECK FOR USER INTERVENTION
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                                 1173 *
   1316 38 40 25FA               1174          TBN   IND,HLTSW          CONTINUE TESTING IF NO
   131A F2 90 0A                 1175          JF    NXDRVX               PERMANENT ERROR OCCURED
                                 1176 *
   131D C0 87 0222               1177          B     HALT                 ERROR HALT
   1321 C101                1322 1178          DC    AL2(HLTO1)
                                 1179 *
   1323 3B 40 25FA               1180          SBF   IND,HLTSW            RESET PERMANENT ERR INDICATOR
                                 1181 *
   1327 C0 87 0000               1182 NXDRVX   B     *-*                  RETURN TO CALLING ROUTINE
                                 1183 *
                                 1184 *----------------------------------------------------
                                 1185 *              SETUP TEST LOOP ADDRESS
                                 1186 *
   132B 0C 01 2621 255D          1187 LOOP     MVC   IDDCR(2),DDCR        RE-INITIALIZE
   1331 0C 01 2623 255F          1188          MVC   IDDDR(2),DDDR          DDCR AND DDDR VALUES
                                 1189 *
   1337 0D 03 2600 020D          1190          CLC   SSWSV(4),SBYTE5        BRANCH IF ANY
   133D C0 01 120C               1191          BNE   BGN01                    SECTION SNS SW CHANGES
                                 1192 *
   1341 3B 07 25FA               1193          SBF   IND,OPEND+SKEND+SNSAVL RESET INTERRUPT AND
   1345 3B 30 25FA               1194          SBF   IND,INTERR+DRVERR        ERROR INDICATORS
                                 1195 *
   1349 0C 01 263D 2528          1196          MVC   SNS(2),NULLS           CLEAR SENSE AREA
                                 1197 *
   134F 31 C5 2564               1198          LIO   SVPSEQ+1,X'C5'         FORCE
   1353 31 C5 2578               1199          LIO   K+1,X'C5'                ADAPTER CHECK
   1357 31 C5 257A               1200          LIO   RUNMP,X'C5'                TO TEST INTERRUPT ENABLE
                                 1201 *
   135B 0D FF 135B 135B          1202          CLC   *(256),*               800 USEC DELAY
                                 1203 *
   1361 F3 C4 80                 1204          SIO   X'80',X'C4'            ENABLE 3340 INTERRUPTS
                                 1205 *
   1364 B8 40 00                 1206          TBN   DIND(,XR2),LPSW        TEST DRIVE LOOP INDICATOR
   1367 BA 40 00                 1207          SBN   DIND(,XR2),LPSW        RESET INDICATOR
   136A C0 90 12CF               1208          BF    BGNX                   BRANCH IF IND WAS OFF
                                 1209 *
   136E C0 87 0000               1210 LOOPX    B     *-*                    RETURN TO CALLING ROUTINE
                                 1211 *
                                 1212 *----------------------------------------------------
                                 1213 *              ERROR RETRY PROCEDURE
                                 1214 *
   1372 F3 C4 7E                 1215 RETRY    SIO   X'7E',X'C4'            RESET AND DISABLE 3340 INTRPS
                                 1216 *
   1375 30 00 25FC               1217          SNS   SWS,0          * AMOP *  SENSE DATA SWS
   1379 3D 83 25FB               1218          CLI   LINKID,X'83'   * LINK *    AND GO TO AMOP IF
   137D C0 81 1E30               1219          BE    AMOPLK         * '83' *      SWS 1 & 2 CONTAIN '83'
                                 1220 *
   1381 3D F0 2614               1221          CLI   ERRCNT,C'0'            PRINT ERROR
   1385 C0 81 1C4F               1222          BE    ERRPRT                   MESSAGE IF FIRST ERROR
                                 1223 *
   1389 BB C0 00                 1224          SBF   DIND(,XR2),LPSW+CEDM   RESET DRIVE INDICATORS
                                 1225 *
   138C 39 05 263D               1226          TBF   SNS,BIT5+BIT7          FORCE SYSTEN RESET IF
   1390 C0 90 1ECB               1227          BF    SYSRST                   ON ATTENTION OR ADAPTER CK
                                 1228 *
   1394 38 01 263D               1229          TBN   SNS,BIT7               TERMINATE SECTION IF
   1398 F2 10 22                 1230          JT    ABEND                    MICRO-PROCESSOR WON'T START
                                 1231 *
   1398 06 00 2614 252C          1232          AZ    ERRCNT(1),D1(1)        INCREMENT ERROR RETRY COUNT
                                 1233 *
   13A1 3D F3 2614               1234          CLI   ERRCNT,C'3'            GO TO RETRY COMMAND SEQUENCE
   13A5 C0 04 132B               1235          BNH   LOOP                     IF COUNT NOT YET EXHAUSTED
                                 1236 *
   13A9 C0 87 021A               1237          B     PRINT                    PRINT
   13AD 86                  13AD 1238          DC    XL1'86'                    PERMANENT
   13AE 1C                  13AE 1239          DC    AL1(MSG07N-MSG07+1)          ERROR MESSAGE
   13AF 2061                13B0 1240          DC    AL2(MSG07N)
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              1241 *
 13B1 3C F0 2614              1242          MVI   ERRCNT,C'0'          RESET ERROR RETRY COUNTER
 13B5 3A 40 25FA              1243          SBN   IND,HLTSW            SET PERMANENT ERROR INDICATOR
 13B9 C0 87 12D3              1244          B     NXDRV                GO TO TRY NEXT DRIVE
                              1245 *
 13BD C0 87 021A              1246 ABEND    B     PRINT                PRINT
 13C1 86                 13C1 1247          DC    XL1'86'                TERMINATION MESSAGE
 13C2 32                 13C2 1248          DC    AL1(MSG06N-MSG06+1)
 13C3 2045               13C4 1249          DC    AL2(MSG06N)
                              1250 *
 13C5 3B 20 0A19              1251          SBF   COM,MPLFLG           RESET MICRO-PROGRAM LOADED IND
                              1252 *
 13C9 C0 87 0222              1253          B     HALT                 ERROR HALT 01
 13CD C101               13CE 1254          DC    AL2(HLT01)
                              1255 *
 13CF C0 87 022A              1256          B     LOAD                 TERMINATE SECTION
 13D3 40                 13D3 1257          DC    XL1'40'
                              1258 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              1260 ********************************************************************************
                              1261 *                                                                              *
                              1262 *              3340 COMMAND EXECUTION SUBROUTINES                              *
                              1263 *                                                                              *
                              1264 ********************************************************************************
                              1265 *
                              1266 *              RECALIBRATE COMMAND
                              1267 *
 13D4 34 08 14E9              1268 RECAL    ST    SEEKX+3,ARR            SAVE RETURN ADDRESS
                              1269 *
 13D8 0C 04 2605 214F         1270          MVC   CMD(5),MRECAL          SETUP 'CMD' FIELD FOR PRINTOUT
                              1271 *
 13DE BC 00 06                1272          MVI   Q(,XR2),X'00'          SETUP Q AND R
 13E1 BC 01 07                1273          MVI   R(,XR2),X'01'            BYTES FOR SIO COMMAND
                              1274 *
 13E4 8C 09 15 252B           1275          MVC   NN(10,XR2),NULLS       CLEAR DDCF AREA
                              1276 *
 13E9 0C 06 260C 214A         1277          MVC   CYL(7),REZERO          SETUP CYLINDER AND
 13EF 0C 04 2611 2149         1278          MVC   HD(5),REZERO-1           HEAD VALUES FOR PRINTOUTS
                              1279 *
 13F5 F2 87 D2                1280          J     SEEKA                  GO TO EXECUTE COMMAND
                              1281 *
                              1282 *-------------------------------------------------------------------------------
                              1283 *              SEEK COMMAND
                              1284 *
 13F8 34 08 2641              1285 SEEK     ST    WORKN,ARR              SETUP POINTER TO
 13FC 35 01 2641              1286          L     WORKN,XR1                SUBRTN CALL PARAMETERS
                              1287 *
 1400 0C 04 2605 2154         1288          MVC   CMD(5),MSEEK           SETUP 'CMD' FIELD FOR PRINTOUT
                              1289 *
 1406 1C 02 2640 02           1290          MVC   WORK+2,2(3,XR1)        MOVE PARAMETERS TO WORK AREA
                              1291 *
 140B 0C 06 260C 214A         1292          MVC   CYL(7),REZERO          SETUP CYLINDER AND
 1411 0C 04 2611 2149         1293          MVC   HD(5),REZERO-1           HEAD VALUES FOR PRINTOUTS
                              1294 *
 1417 0E 01 2640 2549         1295 SK00     ALC   WORK+2(2),N1           CONVERT CYLINDER
 141D F2 82 0A                1296          JM    SK00A                    ADDRESS TO DECIMAL
 1420 06 20 260C 252C         1297          AZ    CYL(3),D1(1)               AND SAVE FOR PRINTOUTS
 1426 C0 87 1417              1298          B     SK00
                              1299 *
 142A 0E 00 263E 2549         1300 SK00A    ALC   WORK(1),N1             CONVERT HEAD
 1430 F2 82 0A                1301          JM    SK00B                    ADDRESS TO DECIMAL
 1433 06 10 2611 252C         1302          AZ    HD(2),D1(1)                AND SAVE FOR PRINTOUTS
 1439 C0 87 142A              1303          B     SK00A
                              1304 *
 143D 1C 02 2641 02           1305 SK00B    MVC   WORK+3,2(3,XR1)        MOVE PARAMETERS TO WORK AREA
                              1306 *
 1442 3C 08 263E              1307          MVI   WORK,11                SETUP MULTIPLIER FOR 12 HEADS
                              1308 *
 1446 B8 80 00                1309          TBN   DIND(,XR2),CEDM        BRANCH IF NOT
 1449 F2 90 08                1310          JF    SK01                     CE DATA MODULE
                              1311 *
 144C 3C 01 263E              1312          MVI   WORK,1                 SETUP MULTIPLIER FOR 2 HEADS
                              1313 *
 1450 7D 01 00                1314          CLI   0(,XR1),1              BYPASS TEST IF HEAD
 1453 C0 84 12D3              1315          BH    NXDRV                    ADDRESS IS GREATER THAN 1
                              1316 *
 1457 BC 00 06                1317 SK01     MVI   Q(,XR2),X'00'          SETUP Q AND R
 145A BC 00 07                1318          MVI   R(,XR2),X'00'            BYTES FOR SIO COMMAND
                              1319 *
 145D 8C 09 15 252B           1320          MVC   NN(10,XR2),NULLS       CLEAR DDCF AREA
                              1321 *
 1462 1E 01 2641 02           1322 SK02     ALC   WORK+3,2(2,XR1)        MULTIPLY PHYSICAL
 1467 0F 00 263E 252F         1323          SLC   WORK(1),P1                CYLINDER ADDRESS
 146D C0 01 1462              1324          BNZ   SK02                       BY NUMBER OF HEADS
                              1325 *
 1471 0E 01 2641 263F         1326          ALC   WORK+3(2),WORK+1       ADD HEAD ADDRESS
                              1327 *
```

C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1477 D2 01 03                1328          LA    3(,XR1),XR1
   147A 34 01 14E9              1329          ST    SEEKX+3,XR1
                                1330 *
   147E C2 01 0000              1331          LA    0,XR1
   1482 0D 01 2641 253D         1332 SK03     CLC   WORK+3(2),P20
   1488 F2 82 0D                1333          JL    SK04
   148B D2 01 01                1334          LA    1(,XR1),XR1
   148E 0F 01 2641 253D         1335          SLC   WORK+3(2),P20
   1494 C0 87 1482              1336          B     SK03
                                1337 *
   1498 B4 01 0E                1338 SK04     ST    CC(,XR2),XR1
   149B 8C 01 10 2641           1339          MVC   HH(,XR2),WORK+3(2)
                                1340 *
   14A0 34 01 263F              1341          ST    WORK+1,XR1
                                1342 *
   14A4 0E 01 263F 2549         1343 SK05     ALC   WORK+1(2),N1
   14AA F2 82 0A                1344          JM    SK06
   14AD 06 20 2608 252C         1345          AZ    CYL-4(3),D1(1)
   14B3 C0 87 14A4              1346          B     SK05
                                1347 *
   14B7 0E 01 2641 2549         1348 SK06     ALC   WORK+3(2),N1
   14BD F2 82 0A                1349          JM    SEEKA
   14C0 06 20 260E 252C         1350          AZ    HD-3(3),D1(1)
   14C6 C0 87 14B7              1351          B     SK06
                                1352 *
   14CA C0 87 187A              1353 SEEKA    B     XEQ
                                1354 *
   14CE 0D 01 2623 2627         1355          CLC   IDDDR(2),RDDDR
   14D4 C0 01 1B16              1356          BNE   ERR16
                                1357 *
   14D8 0D 09 2631 263B         1358          CLC   IDDCFN(10),RDDCFN
   14DE C0 01 1B30              1359          BNE   ERR18
                                1360 *
   14E2 AC 03 0B 10             1361          MVC   PA(4,XR2),HH(,XR2)
                                1362 *
   14E6 C0 87 0000              1363 SEEKX    B     *-*
                                1364 *
                                1365 *----------------------------------------------------------------
                                1366 *              READ HOME ADDRESS AND RECORD ZERO COUNT EVEN
                                1367 *
   14EA 34 08 153B              1368 RDHAE    ST    RDHAOX+3,ARR
                                1369 *
   14EE 0C 04 2605 2159         1370          MVC   CMD(5),MRDHAE
                                1371 *
   14F4 BC 01 06                1372          MVI   Q(,XR2),X'01'
   14F7 BC 01 07                1373          MVI   R(,XR2),X'01'
                                1374 *
   14FA F2 87 10                1375          J     RDHAOA
                                1376 *
                                1377 *----------------------------------------------------------------
                                1378 *              READ HOME ADDRESS AND RECORD ZERO COUNT ODD
                                1379 *
   14FD 34 08 153B              1380 RDHAO    ST    RDHAOX+3,ARR
                                1381 *
   1501 0C 04 2605 215E         1382          MVC   CMD(5),MRDHAO
                                1383 *
   1507 BC 01 06                1384          MVI   Q(,XR2),X'01'
   150A BC 09 07                1385          MVI   R(,XR2),X'09'
                                1386 *
   150D 8C 09 15 2526           1387 RDHAOA   MVC   NN(10,XR2),NULLS
                                1388 *
   1512 C0 87 187A              1389          B     XEQ
                                1390 *
   1516 2D 03 2636 0B           1391          CLC   RDDCF+4(4),PA(,XR2)
   151B C0 01 1B30              1392          BNE   ERR1A
                                1393 *
   151F 35 01 2623              1394          L     IDDDR,XR1
   1523 9C 08 14 08             1395          MVC   DL(9,XR2),8(,XR1)
```

SETUP
RETURN ADDRESS

DIVIDE BY 20
TO GET CYLINDER
SEEK ARGUMENT IN
INDEX REGISTER 1 AND
HEAD SEEK ARGUMENT
IN WORK AREA

STORE SEEK
ARGUMENT IN DDCF

MOVE CYL ADDRESS TO WORK AREA

CONVERT CYLINDER
ADDRESS TO DECIMAL
AND SAVE FOR PRINTOUTS

CONVERT HEAD
ADDRESS TO DECIMAL
AND SAVE FOR PRINTOUTS

GO TO EXECUTE COMMAND

GO TO ERROR END IF
RESIDUAL DDDR IS INCORRECT

GO TO ERROR END IF
RESIDUAL DDCF IS INCORRECT

SAVE CURRENT PHYSICAL ADDRESS

RETURN TO CALLING ROUTINE

SAVE RETURN ADDRESS

SETUP 'CMD' FIELD FOR PRINTOUT

SETUP Q AND R
BYTES FOR SIO COMMAND

GO TO EXECUTE COMMAND

SAVE RETURN ADDRESS

SETUP 'CMD' FIELD FOR PRINTOUT

SETUP Q AND R
BYTES FOR SIO COMMAND

CLEAR DDCF AREA

GO TO EXECUTE COMMAND

GO TO ERROR EXIT IF
HA READ IS INCORRECT

SAVE RESIDUAL DDDF
FOR USE IN NEXT DDCF

C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                                1396 *
   1527 D2 01 09                1397          LA    9(,XR1),XR1
   152A 34 01 2641              1398          ST    WORKN,XR1
                                1399 *
   152E 0D 01 2641 2627         1400          CLC   WORKN(2),RDDDR
   1534 C0 01 1B16              1401          BNE   ERR16
                                1402 *
   1538 C0 87 0000              1403 RDHAOX   B     *-*
                                1404 *
                                1405 *----------------------------------------------------------------
                                1406 *              READ RECORD ZERO KEY-DATA ODD
                                1407 *
   153C 34 08 157D              1408 RDR00    ST    RDR00X+3,ARR
                                1409 *
   1540 0C 04 2605 2163         1410          MVC   CMD(5),MRDR00
                                1411 *
   1546 BC 01 06                1412          MVI   Q(,XR2),X'01'
   1549 BC 08 07                1413          MVI   R(,XR2),X'08'
                                1414 *
   154C BC 00 11                1415          MVI   RR(,XR2),0
   154F BC 00 15                1416          MVI   NN(,XR2),0
                                1417 *
   1552 C0 87 187A              1418          B     XEQ
                                1419 *
   1556 8D 08 14 263A           1420 RDR0OA   CLC   DL(9,XR2),RDDCF+8
   155B C0 01 1B30              1421          BNE   ERR18
                                1422 *
   155F BC 00 11                1423          MVI   RR(,XR2),0
                                1424 *
   1562 35 01 2623              1425          L     IDDDR,XR1
   1566 B6 01 12                1426          A     KL(,XR2),XR1
   1569 B6 01 14                1427          A     DL(,XR2),XR1
   156C 34 01 2641              1428          ST    WORKN,XR1
                                1429 *
   1570 0D 01 2641 2627         1430          CLC   WORKN(2),RDDDR
   1576 C0 01 1B16              1431          BNE   ERR16
                                1432 *
   157A C0 87 0000              1433 RDR0OX   B     *-*
                                1434 *
                                1435 *----------------------------------------------------------------
                                1436 *              READ COUNT-KEY-DATA
                                1437 *
   157E 34 08 157D              1438 RDCKD    ST    RDR00X+3,ARR
                                1439 *
   1582 0C 04 2605 2168         1440          MVC   CMD(5),MRDCKD
                                1441 *
   1588 BC 01 06                1442          MVI   Q(,XR2),X'01'
   158B BC 02 07                1443          MVI   R(,XR2),X'02'
                                1444 *
   158E 8C 03 14 252B           1445          MVC   DL(4,XR2),NULLS
                                1446 *
   1593 35 01 157D              1447          L     RDR00X+3,XR1
   1597 9C 00 11 00             1448          MVC   RR(1,XR2),0(,XR1)
                                1449 *
   159B C0 87 187A              1450          B     XEQ
                                1451 *
   159F 8C 02 14 263A           1452          MVC   DL(3,XR2),RDDCF+8
                                1453 *
   15A4 0E 01 157D 252F         1454          ALC   RDR00X+3(2),P1
                                1455 *
   15AA C0 87 1556              1456          B     RDR0OA
                                1457 *
                                1458 *----------------------------------------------------------------
                                1459 *              READ COUNT-KEY-DATA DIAGNOSTIC
                                1460 *
   15AE 34 08 157D              1461 RDDGN    ST    RDR00X+3,ARR
                                1462 *
   15B2 0C 04 2605 216D         1463          MVC   CMD(5),MRDDGN
```

CALCULATE EXPECTED
RESIDUAL DDDR

GO TO ERROR END IF
RESIDUAL DDDR IS INCORRECT

RETURN TO CALLING ROUTINE

SAVE RETURN ADDRESS

SETUP 'CMD' FIELD FOR PRINTOUT

SETUP Q AND R
BYTES FOR SIO COMMAND

CLEAR DDCF RR FIELD
CLEAR DDCF NN FIELD

GO TO EXECUTE COMMAND

GO TO ERROR END IF
RESIDUAL DDCF IS INCORRECT

CLEAR RR FIELD

CALCULATE
EXPECTED
RESIDUAL DDDR

GO TO ERROR END IF
RESIDUAL DDDR IS INCORRECT

RETURN TO CALLING ROUTINE

SAVE RETURN ADDRESS

SETUP 'CMD' FIELD FOR PRINTOUT

SETUP Q AND R
BYTES FOR SIO COMMAND

CLEAR KL, DL, AND NN FIELDS

MOVE RECORD
NUMBER TO DDCF

GO TO EXECUTE COMMAND

SAVE KEY AND DATA LENGTHS READ

SETUP RETURN ADDRESS

GO TO CHECK RESIDUAL VALUES

SAVE RETURN ADDRESS

SETUP 'CMD' FIELD FOR PRINTOUT

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1464 *
                         1465         MVI   Q(,XR2),X'01'        SETUP Q AND R
                         1466         MVI   R(,XR2),X'04'          BYTES FOR SIO COMMAND
                         1467 *
   15B8 BC 01 06         1468         MVI   NN(,XR2),0           CLEAR NN FIELD
   15BB BC 04 07         1469 *
                         1470         L     RDR00X+3,XR1         MOVE RECORD
   15BE BC 00 15         1471         MVC   RR(1,XR2),0(,XR1)      NUMBER TO DDCF
                         1472 *
   15C1 35 01 157D       1473         B     XEQ                  GO TO EXECUTE COMMAND
   15C5 9C 00 11 00      1474 *
                         1475         ALC   RDR00X+3(2),P1       SETUP RETURN ADDRESS
   15C9 C0 87 187A       1476 *
                         1477         B     RDR00A               GO TO CHECK RESIDUAL VALUES
   15CD 0E 01 157D 252F  1478 *
                         1479 *----------------------------------------------------------------
   15D3 C0 87 1556       1480 *                READ KEY-DATA
                         1481 *
                         1482 RDKD    ST    RDKDX+3,ARR          SAVE RETURN ADDRESS
                         1483 *
   15D7 34 08 1639       1484         MVC   CMD(5),MRDKD         SETUP 'CMD' FIELD FOR PRINTOUT
   15DB 0C 04 2605 2172  1485 *
                         1486         MVI   Q(,XR2),X'01'        SETUP Q AND R
   15E1 BC 01 06         1487         MVI   R(,XR2),X'00'          BYTES FOR SIO COMMAND
   15E4 BC 00 07         1488 *
                         1489 RDKDA   L     RDKDX+3,XR1
   15E7 35 01 1639       1490         MVC   RR(1,XR2),0(,XR1)    MOVE RECORD
   15EB 9C 00 11 00      1491         MVC   NN(1,XR2),1(,XR1)      NUMBER AND NN
   15EF 9C 00 15 01      1492 *                                      VALUE TO DDCF
                         1493         B     XEQ                  GO TO EXECUTE COMMAND
   15F3 C0 87 187A       1494 *
                         1495         ALC   RR(1,XR2),NN(,XR2)   CALCULATE EXPECTED RESIDUAL RR
   15F7 AE 00 11 15      1496 *
                         1497         CLI   RDDCF+9,X'FF'        GO TO
   15FB 3D FF 2638       1498         BNE   ERR18                  ERROR END
   15FF C0 01 1B30       1499         CLC   DL(9,XR2),RDDCF+8        IF RESIDUAL
   1603 8D 08 14 263A    1500         BNE   ERR18                      DDCF IS INCORRECT
   1608 C0 01 1B30       1501 *
                         1502         MVI   RR(,XR2),0           CLEAR RR FIELD
   160C BC 00 11         1503 *
                         1504         L     IDDDR,XR1            CALCULATE
   160F 35 01 2623       1505 RDKDB   A     KL(,XR2),XR1           EXPECTED
   1613 B6 01 12         1506         A     DL(,XR2),XR1             RESIDUAL
   1616 B6 01 14         1507         ALC   NN(1,XR2),N1               DDDR VALUE
   1619 8E 00 15 2549    1508         BNM   RDKDB
   161E C0 02 1613       1509 *
                         1510         ST    WORKN,XR1            GO TO ERROR
   1622 34 01 2641       1511         CLC   WORKN(2),RDDDR         END IF RESIDUAL
   1626 0D 01 2641 2627  1512         BNE   ERR16                    DDDR IS INCORRECT
   162C C0 01 1B16       1513 *
                         1514         ALC   RDKDX+3(2),P2        SETUP RETURN ADDRESS
   1630 0E 01 1639 2531  1515 *
                         1516 RDKDX   B     *-*                  RETURN TO CALLING ROUTINE
   1636 C0 87 0000       1517 *
                         1518 *----------------------------------------------------------------
                         1519 *                READ VERIFY KEY-DATA
                         1520 *
                         1521 RDVKD   ST    RDVKDX+3,ARR         SAVE RETURN ADDRESS
                         1522 *
   163A 34 08 1687       1523         MVC   CMD(5),MRDVKD        SETUP 'CMD' FIELD FOR PRINTOUT
   163E 0C 04 2605 2177  1524 *
                         1525         MVI   Q(,XR2),X'01'        SETUP Q AND R
   1644 BC 01 06         1526         MVI   R(,XR2),X'03'          BYTES FOR SIO COMMAND
   1647 BC 03 07         1527 *
                         1528         MVC   DL(3,XR2),NULLS      CLEAR KL AND DL FIELDS
   164A 8C 02 14 2528    1529 *
                         1530         L     RDVKDX+3,XR1         MOVE RECORD
   164F 35 01 1687       1531         MVC   RR(1,XR2),0(,XR1)      NUMBER AND NN
   1653 9C 00 11 00
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1657 9C 00 15 01      1532         MVC   NN(1,XR2),1(,XR1)       VALUE TO DDCF
                         1533 *
   165B C0 87 187A       1534         B     XEQ                  GO TO EXECUTE COMMAND
                         1535 *
   165F AE 00 11 15      1536         ALC   RR(1,XR2),NN(,XR2)   CALCULATE EXPECTED RESIDUAL RR
                         1537 *
   1663 3D FF 2638       1538         CLI   RDDCF+9,X'FF'        GO TO
   1667 C0 01 1B30       1539         BNE   ERR18                  ERROR END
   166B 8D 05 11 2637    1540         CLC   RR(6,XR2),RDDCF+5        IF RESIDUAL
   1670 C0 01 1B30       1541         BNE   ERR18                      DDCF IS INCORRECT
                         1542 *
   1674 0D 01 2623 2627  1543         CLC   IDDDR(2),RDDDR       GO TO ERROR END IF
   167A C0 01 1B16       1544         BNE   ERR16                  RESIDUAL DDDR IS INCORRECT
                         1545 *
   167E 0E 01 1687 2531  1546         ALC   RDVKDX+3(2),P2       SETUP RETURN ADDRESS
                         1547 *
   1684 C0 87 0000       1548 RDVKDX  B     *-*                  RETURN TO CALLING ROUTINE
                         1549 *
                         1550 *----------------------------------------------------------------
                         1551 *                READ AND RESET BUFFERED LOG
                         1552 *
   1688 34 08 16E3       1553 RDLOG   ST    RDSNSX+3,ARR         SAVE RETURN ADDRESS
                         1554 *
   168C 0C 04 2605 217C  1555         MVC   CMD(5),MRDLOG        SETUP 'CMD' FIELD FOR PRINTOUT
                         1556 *
   1692 BC 01 06         1557         MVI   Q(,XR2),X'01'        SETUP Q AND R
   1695 BC 05 07         1558         MVI   R(,XR2),X'05'          BYTES FOR SIO COMMAND
                         1559 *
   1698 C0 87 187A       1560         B     XEQ                  GO TO EXECUTE COMMAND
                         1561 *
   169C C0 87 16C1       1562         B     RDSNSA               GO TO CHECK RESIDUAL VALUES
                         1563 *
                         1564 *----------------------------------------------------------------
                         1565 *                READ DIAGNOSTIC SENSE DATA
                         1566 *
   16A0 34 08 16E3       1567 RDSNS   ST    RDSNSX+3,ARR         SAVE RETURN ADDRESS
                         1568 *
   16A4 0C 04 2605 2181  1569         MVC   CMD(5),MRDSNS        SETUP 'CMD' FIELD FOR PRINTOUT
                         1570 *
   16AA BC 01 06         1571         MVI   Q(,XR2),X'01'        SETUP Q AND R
   16AD BC 07 07         1572         MVI   R(,XR2),X'07'          BYTES FOR SIO COMMAND
                         1573 *
   16B0 C0 87 187A       1574         B     XEQ                  GO TO EXECUTE COMMAND
                         1575 *
   16B4 35 01 2623       1576         L     IDDDR,XR1            SET INDICATOR
   16B8 79 02 02         1577         TBF   2(,XR1),BIT6           IF SENSE DATA
   16BB F2 90 03         1578         JF    RDSNSA                   INDICATES THAT A CE
   16BE BA 80 00         1579         SBN   DIND(,XR2),CEDM            DATA MODULE IS MOUNTED
                         1580 *
   16C1 35 01 2623       1581 RDSNSA  L     IDDDR,XR1            CALCULATE
   16C5 D2 01 18         1582         LA    24(,XR1),XR1           EXPECTED
   16C8 34 01 2641       1583         ST    WORKN,XR1                RESIDUAL DDDR
                         1584 *
   16CC 0D 01 2641 2627  1585         CLC   WORKN(2),RDDDR       GO TO ERROR END IF
   16D2 C0 01 1B16       1586         BNE   ERR16                  RESIDUAL DDDR IS INCORRECT
                         1587 *
   16D6 0D 09 2631 2638  1588         CLC   IDDCFN(10),RDDCFN    GO TO ERROR END IF
   16DC C0 01 1B30       1589         BNE   ERR18                  RESIDUAL DDCF IS INCORRECT
                         1590 *
   16E0 C0 87 0000       1591 RDSNSX  B     *-*                  RETURN TO CALLING ROUTINE
                         1592 *
                         1593 *----------------------------------------------------------------
                         1594 *                WRITE HOME ADDRESS AND RECORD ZERO COUNT EVEN
                         1595 *
   16E4 34 08 1742       1596 WRHAE   ST    WRR00X+?,ARR         SAVE RETURN ADDRESS
                         1597 *
   16E8 0C 04 2605 2188  1598         MVC   CMD(5),MWRHAE        SETUP 'CMD' FIELD FOR PRINTOUT
                         1599 *
```

C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC  OBJECT CODE       ADDR STMT SOURCE STATEMENT
    16EE BC 02 06               1600          MVI   Q(,XR2),X'02'        SETUP Q AND R
    16F1 BC 01 07               1601          MVI   R(,XR2),X'01'          BYTES FOR SIO COMMAND
                                1602 *
    16F4 F2 87 10               1603          J     WRHAOA               GO TO EXECUTE COMMAND
                                1604 *
                                1605 *-----------------------------------------------------------------
                                1606 *                WRITE HOME ADDRESS AND RECORD ZERO COUNT ODD
                                1607 *
    16F7 34 08 1742             1608 WRHAO    ST    WRROOX+3,ARR         SAVE RETURN ADDRESS
                                1609 *
    16FB 0C 04 2605 2190        1610          MVC   CMD(5),MWRHAO        SETUP 'CMD' FIELD FOR PRINTOUT
                                1611 *
    1701 BC 02 06               1612          MVI   Q(,XR2),X'02'        SETUP Q AND R
    1704 BC 09 07               1613          MVI   R(,XR2),X'09'          BYTES FOR SIO COMMAND
                                1614 *
    1707 8C 08 15 252B          1615 WRHAOA   MVC   NN(9,XR2),NULLS      CLEAR DDCF AREA
    170C AC 03 10 08            1616          MVC   HH(4,XR2),PA(,XR2)   MOVE PHYSICAL ADDRESS TO DDCF
    1710 8C 02 14 253B          1617          MVC   DL(3,XR2),P8         MOVE R0 KL & DL TO DDCF
                                1618 *
    1715 F2 87 10               1619          J     WRROOA               GO TO EXECUTE COMMAND
                                1620 *
                                1621 *-----------------------------------------------------------------
                                1622 *                WRITE RECORD ZERO KEY-DATA ODD
                                1623 *
    1718 34 08 1742             1624 WRROO    ST    WRROOX+3,ARR         SAVE RETURN ADDRESS
                                1625 *
    171C 0C 04 2605 2195        1626          MVC   CMD(5),MWRROO        SETUP 'CMD' FIELD FOR PRINTOUT
                                1627 *
    1722 BC 02 06               1628          MVI   Q(,XR2),X'02'        SETUP Q AND R
    1725 BC 06 07               1629          MVI   R(,XR2),X'06'          BYTES FOR SIO COMMAND
                                1630 *
    1728 C0 87 187A             1631 WRROOA   B     XEQ                  GO TO EXECUTE COMMAND
                                1632 *
    172C 8D 08 14 263A          1633          CLC   DL(9,XR2),RDDCF+8    GO TO ERROR END IF
    1731 C0 01 1830             1634          BNE   ERR18                  RESIDUAL DDCF IS INCORRECT
                                1635 *
    1735 0D 01 2623 2627        1636          CLC   IDDDR(2),RDDDR       GO TO ERROR END IF
    173B C0 01 1816             1637          BNE   ERR16                  RESIDUAL DDDR IS INCORRECT
                                1638 *
    173F C0 87 0000             1639 WRROOX   B     *-*                  RETURN TO CALLING ROUTINE
                                1640 *
                                1641 *-----------------------------------------------------------------
                                1642 *                WRITE COUNT-KEY-DATA
                                1643 *
    1743 34 08 1786             1644 WRCKD    ST    WRCKDX+3,ARR         SAVE RETURN ADDRESS
                                1645 *
    1747 0C 04 2605 219A        1646          MVC   CMD(5),MWRCKD        SETUP 'CMD' FIELD FOR PRINTOUT
                                1647 *
    174D BC 02 C6               1648          MVI   Q(,XR2),X'02'        SETUP Q AND R
    1750 BC 02 07               1649          MVI   R(,XR2),X'02'          BYTES FOR SIO COMMAND
                                1650 *
    1753 35 01 1786             1651 WRCKDA   L     WRCKDX+3,XR1         MOVE RECORD
    1757 9C 00 11 00            1652          MVC   RR(1,XR2),0(,XR1)      NUMBER AND NN
    175B 9C 00 15 01            1653          MVC   NN(1,XR2),1(,XR1)        VALUE TO DDCF
                                1654 *
    175F C0 87 187A             1655          B     XEQ                  GO TO EXECUTE COMMAND
                                1656 *
    1763 AE 00 11 15            1657          ALC   RR(1,XR2),NN(,XR2)   CALCULATE EXPECTED
    1767 BC FF 15               1658          MVI   NN(,XR2),X'FF'         RESIDUAL RR AND NN VALUES
                                1659 *
    176A 8D 08 14 263A          1660          CLC   DL(9,XR2),RDDCF+8    GO TO ERROR END IF
    176F C0 01 1830             1661          BNE   ERR18                  RESIDUAL DDCF IS INCORRECT
                                1662 *
    1773 0D 01 2623 2627        1663          CLC   IDDDR(2),RDDDR       GO TO ERROR END IF
    1779 C0 01 1816             1664          BNE   ERR16                  RESIDUAL DDDR IS INCORRECT
                                1665 *
    177D 0E 01 1786 2531        1666          ALC   WRCKDX+3(2),P2       SETUP RETURN ADDRESS
                                1667 *
```


C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC  OBJECT CODE       ADDR STMT SOURCE STATEMENT
    1783 C0 87 0000             1668 WRCKDX   B     *-*                  RETURN TO CALLING ROUTINE
                                1669 *
                                1670 *-----------------------------------------------------------------
                                1671 *                WRITE COUNT COMPRESSED DATA
                                1672 *
    1787 34 08 1786             1673 WRCCD    ST    WRCKDX+3,ARR         SAVE RETURN ADDRESS
                                1674 *
    178B 0C 04 2605 219F        1675          MVC   CMD(5),MWRCCD        SETUP 'CMD' FIELD FOR PRINTOUT
                                1676 *
    1791 BC 02 06               1677          MVI   Q(,XR2),X'02'        SETUP Q AND R
    1794 BC 08 07               1678          MVI   R(,XR2),X'08'          BYTES FOR SIO COMMAND
                                1679 *
    1797 C0 87 1753             1680          B     WRCKDA               GO TO EXECUTE COMMAND
                                1681 *
                                1682 *-----------------------------------------------------------------
                                1683 *                WRITE REPEAT KEY-DATA
                                1684 *
    179B 34 08 17E1             1685 WRREP    ST    WRREPX+3,ARR         SAVE RETURN ADDRESS
                                1686 *
    179F 0C 04 2605 21A4        1687          MVC   CMD(5),MWRREP        SETUP 'CMD' FIELD FOR PRINTOUT
                                1688 *
    17A5 BC 02 06               1689          MVI   Q(,XR2),X'02'        SETUP Q AND R
    17A8 BC 03 07               1690          MVI   R(,XR2),X'03'          BYTES FOR SIO COMMAND
                                1691 *
    17AB 35 01 17E1             1692          L     WRREPX+3,XR1         MOVE RECORD
    17AF 9C 00 11 00            1693          MVC   RR(1,XR2),0(,XR1)      NUMBER AND NN
    17B3 9C 00 15 01            1694          MVC   NN(1,XR2),1(,XR1)        VALUE TO DDCF
                                1695 *
    17B7 C0 87 187A             1696          B     XEQ                  GO TO EXECUTE COMMAND
                                1697 *
    17BB AE 00 11 15            1698          ALC   RR(1,XR2),NN(,XR2)   CALCULATE EXPECTED
    17BF BC FF 15               1699          MVI   NN(,XR2),X'FF'         RESIDUAL RR AND NN VALUES
                                1700 *
    17C2 8D 08 14 263A          1701          CLC   DL(9,XR2),RDDCF+8    GO TO ERROR END IF
    17C7 C0 01 1830             1702          BNE   ERR18                  RESIDUAL DDCF IS INCORRECT
                                1703 *
    17CB BC 00 11               1704          MVI   RR(,XR2),0           CLEAR RR FIELD
                                1705 *
    17CE 0D 01 2623 2627        1706          CLC   IDDDR(2),RDDDR       GO TO ERROR END IF
    17D4 C0 01 1816             1707          BNE   ERR16                  RESIDUAL DDDR IS INCORRECT
                                1708 *
    17D8 0E 01 17E1 2531        1709          ALC   WRREPX+3(2),P2       SETUP RETURN ADDRESS
                                1710 *
    17DE C0 87 0000             1711 WRREPX   B     *-*                  RETURN TO CALLING ROUTINE
                                1712 *
                                1713 *-----------------------------------------------------------------
                                1714 *                WRITE KEY-DATA
                                1715 *
    17E2 34 08 1639             1716 WRKD     ST    RDKDX+3,ARR          SAVE RETURN ADDRESS
                                1717 *
    17E6 0C 04 2605 21A9        1718          MVC   CMD(5),MWRKD         SETUP 'CMD' FIELD FOR PRINTOUT
                                1719 *
    17EC BC 02 06               1720          MVI   Q(,XR2),X'02'        SETUP Q AND R
    17EF BC 00 07               1721          MVI   R(,XR2),X'00'          BYTES FOR SIO COMMAND
                                1722 *
    17F2 C0 87 15E7             1723          B     RDKDA                GO TO EXECUTE COMMAND
                                1724 *
                                1725 *-----------------------------------------------------------------
                                1726 *                SCAN EQUAL
                                1727 *
    17F6 34 08 1830             1728 SCANE    ST    SCANHX+3,ARR         SAVE RETURN ADDRESS
                                1729 *
    17FA 0C 04 2605 21AE        1730          MVC   CMD(5),MSCANE        SETUP 'CMD' FIELD FOR PRINTOUT
                                1731 *
    1800 BC 03 06               1732          MVI   Q(,XR2),X'03'        SETUP Q AND R
    1803 BC 00 07               1733          MVI   R(,XR2),X'00'          BYTES FOR SIO COMMAND
                                1734 *
    1806 C0 87 181A             1735          B     SCANHA               GO TO EXECUTE COMMAND
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1736 *
                         1737 *-------------------------------------------------------
                         1738 *              SCAN HIGH OR EQUAL
                         1739 *
180A 34 08 183D          1740 SCANH    ST    SCANHX+3,ARR          SAVE RETURN ADDRESS
                         1741 *
180E 0C 04 2605 2183     1742          MVC   CMD(5),MSCANH         SETUP 'CMD' FIELD FOR PRINTOUT
                         1743 *
1814 BC 03 06            1744          MVI   Q(,XR2),X'03'         SETUP Q AND R
1817 BC 02 07            1745          MVI   R(,XR2),X'02'           BYTES FOR SIO COMMAND
                         1746 *
181A 35 01 183D          1747 SCANHA   L     SCANHX+3,XR1          MOVE RECORD
181E 9C 00 11 00         1748          MVC   RR(1,XR2),0(,XR1)       NUMBER AND NN
1822 9C 00 15 01         1749          MVC   NN(1,XR2),1(,XR1)         VALUE TO DDCF
                         1750 *
1826 C0 87 187A          1751          B     XEQ                   GO TO EXECUTE COMMAND
                         1752 *
182A 0D 01 2623 2627     1753          CLC   IDDDR(2),RDDDR        GO TO ERROR END IF
1830 C0 01 1816          1754          BNE   ERR16                   RESIDUAL DDDR IS INCORRECT
                         1755 *
1834 0E 01 183D 2531     1756          ALC   SCANHX+3(2),P2        SETUP RETURN ADDRESS
                         1757 *
183A C0 87 0000          1758 SCANHX   B     *-*                   RETURN TO CALLING ROUTINE
                         1759 *
                         1760 *-------------------------------------------------------
                         1761 *              SCAN READ OR EQUAL
                         1762 *
183E 34 08 183D          1763 SCNRE    ST    SCANHX+3,ARR          SAVE RETURN ADDRESS
                         1764 *
1842 0C 04 2605 2188     1765          MVC   CMD(5),MSCNRE         SETUP 'CMD' FIELD FOR PRINTOUT
                         1766 *
1848 BC 03 06            1767          MVI   Q(,XR2),X'03'         SETUP Q AND R
184B BC 0C 07            1768          MVI   R(,XR2),X'0C'           BYTES FOR SIO COMMAND
                         1769 *
184E C0 87 181A          1770          B     SCANHA                GO TO EXECUTE COMMAND
                         1771 *
                         1772 *-------------------------------------------------------
                         1773 *              SCAN READ OR HIGH OR EQUAL
                         1774 *
1852 34 08 183D          1775 SCNRH    ST    SCANHX+3,ARR          SAVE RETURN ADDRESS
                         1776 *
1856 0C 04 2605 218D     1777          MVC   CMD(5),MSCNRH         SETUP 'CMD' FIELD FOR PRINTOUT
                         1778 *
185C BC 03 06            1779          MVI   Q(,XR2),X'03'         SETUP Q AND R
185F BC 0D 07            1780          MVI   R(,XR2),X'0D'           BYTES FOR SIO COMMAND
                         1781 *
1862 C0 87 181A          1782          B     SCANHA                GO TO EXECUTE COMMAND
                         1783 *
                         1784 *-------------------------------------------------------
                         1785 *              TRACK ORIENTATION DELAY SUBROUTINE
                         1786 *
1866 34 08 1879          1787 ORIENT   ST    ORINTX+3,ARR          SAVE RETURN ADDRESS
                         1788 *
186A C2 01 FD00          1789          LA    X'FD00',XR1           DELAY
186E 36 01 252F          1790          A     P1,XR1                  APPROXIMATELY
1872 C0 01 186E          1791          BNZ   *-4                       11 MILLISECONDS
                         1792 *
1876 C0 87 0000          1793 ORINTX   B     *-*                   RETURN TO CALLING ROUTINE
                         1794 *
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1796 ************************************************************************
                         1797 *                                                                      *
                         1798 *              COMMON 3340 COMMAND EXECUTION SUBROUTINE                *
                         1799 *                                                                      *
                         1800 ************************************************************************
                         1801 *
187A 34 08 19C9          1802 XEQ      ST    XEQX+3,ARR            SAVE RETURN ADDRESS
                         1803 *
187E 2C 01 193A 07       1804          MVC   SIO+2,R(2,XR2)        MOVE Q AND R BYTES TO SIO
1883 2E 00 1939 02       1805          ALC   SIO+1,DRVADR(1,XR2)   ADD DRIVE ADDRESS TO Q BYTE
                         1806 *
1888 2C 00 1931 02       1807          MVC   TIORDY+1(1),DRVADR(,XR2) SETUP Q BYTE IN TIO
188D 2C 00 194F 02       1808          MVC   TIOBSY+1(1),DRVADR(,XR2)   'NOT RDY / UNIT CHECK' AND
1892 3A 01 194F          1809          SBN   TIOBSY+1,X'01'               'SEEK BUSY' INSTRUCTIONS
                         1810 *
1896 2C 09 2631 15       1811          MVC   IDDCFN,NN(10,XR2)     SAVE INITIAL DDCF
                         1812 *
189B 35 01 2621          1813          L     IDDCR,XR1             MOVE DDCF
189F 6C 09 09 15         1814          MVC   9(10,XR1),NN(,XR2)      TO EXECUTION AREA
                         1815 *
18A3 0C 4F 25F8 25F9     1816          MVC   MSGN(80),MSGN+1       CLEAR PRINT MESSAGE AREA
                         1817 *
18A9 0C 01 2625 252B     1818          MVC   RDDCR(2),NULLS        CLEAR RESIDUAL
18AF 0C 01 2627 252B     1819          MVC   RDDDR(2),NULLS          DDCR AND DDDR AREAS
                         1820 *
18B5 0C 07 2675 252B     1821          MVC   DGSNS+7(8),NULLS      CLEAR READ SENSE AREA
                         1822 *
18BB 30 00 25FC          1823          SNS   SNS,0          * AMOP * SENSE DATA SNS
18BF 3D 81 25FB          1824          CLI   LINKID,X'81'   * LINK *   AND GO TO AMOP IF
18C3 C0 81 1E30          1825          BE    AMOPLK         * '81' *     SNS 1 & 2 CONTAIN '81'
                         1826 *
18C7 C1 C4 1D56          1827          TIO   DASDI,X'C4'           GO TO INTERRUPT SUBR IF PENDING
                         1828 *
18CB 38 20 25FA          1829          TBN   IND,INTERR            GO TO ERROR PROCESSING
18CF C0 10 1863          1830          BT    ERRXX                   IF UNEXPECTED 3340 INTERRUPT
                         1831 *
18D3 C1 C2 19D9          1832 TIO      TIO   ERR01,X'C2'           ERR IF ATTACHMENT BUSY
                         1833 *
18D7 C0 87 1DC9          1834          B     SAVRST                GO TO SAVE RESTART ADDR
18DB 31 C6 2621          1835 LIO      LIO   IDDCR,X'C6'           LOAD DDCF ADDRESS IN DDCR
18DF C0 87 1E22          1836          B     RSTOR                 GO TO RESTORE LOCATION 0
                         1837 *
18E3 38 80 25FA          1838          TBN   IND,HUNG              ERROR END IF
18E7 F2 10 E0            1839          JT    ERR00                   LIO HANGS IN REJECTION LOOP
                         1840 *
18EA C0 87 1DC9          1841          B     SAVRST                GO TO SAVE RESTART ADDR
18EE 31 C4 2623          1842          LIO   IDDDR,X'C4'           LOAD DDDF ADDRESS IN DDDR
18F2 C0 87 1E22          1843          B     RSTOR                 GO TO RESTORE LOCATION 0
                         1844 *
18F6 38 80 25FA          1845          TBN   IND,HUNG              ERROR END IF
18FA F2 10 CD            1846          JT    ERR00                   LIO HANGS IN REJECTION LOOP
                         1847 *
18FD 30 C6 2625          1848          SNS   RDDCR,X'C6'           SENSE DDCR
1901 30 C4 2627          1849          SNS   RDDDR,X'C4'           SENSE DDDR
                         1850 *
1905 0D 01 2621 2625     1851          CLC   IDDCR(2),RDDCR        ERROR END IF
1908 F2 01 D4            1852          JNE   ERR02                   DDCR INCORRECT
                         1853 *
190E 0D 01 2623 2627     1854          CLC   IDDDR(2),RDDDR        ERROR END IF
1914 C0 01 19E8          1855          BNE   ERR03                   DDDR INCORRECT
                         1856 *
1918 B8 04 06            1857          TBN   Q(,XR2),BIT5          BRANCH IF
1918 F2 10 12            1858          JT    TIORDY                  READ IPL COMMAND
                         1859 *
191E 3A 04 25FA          1860          SBN   IND,OPEND             SET OP END EXPECTED INDICATOR
                         1861 *
1922 BD 00 06            1862          CLI   Q(,XR2),0             BRANCH IF NOT
1925 F2 01 08            1863          JNE   TIORDY                  RECAL OR SEEK COMMAND
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1864 *
 1928 38 04 25FA         1865          SBF   IND,OPEND          RESET OP END EXPECTED INDICATOR
 192C 3A 02 25FA         1866          SBN   IND,SKEND          SET SEEK COMPLETE EXP INDICATOR
                         1867 *
 1930 C1 00 1A18         1868 TIORDY   TIO   ERR05,*-*          ERROR END IF DRIVE NOT READY
                         1869 *
 1934 C0 87 1DC9         1870          B     SAVRST             GO TO SAVE RESTART ADDR
 1938 F3 00 00           1871 SIO      SIO   *-*,*-*            ISSUE 3340 START I/O COMMAND
 193B C0 87 1E22         1872          B     RSTOR              GO TO RESTORE LOCATION 0
                         1873 *
 193F 38 80 25FA         1874          TBN   IND,HUNG           ERROR END IF SIO
 1943 F2 10 C3           1875          JT    ERR04                HUNG IN REJECTION LOOP
                         1876 *
 1946 C1 C2 194E         1877          TIO   TIOBSY,X'C2'       ERROR END IF
 194A C0 87 1A22         1878          B     ERR06                ATTACHMENT DID NOT GO BUSY
                         1879 *
 194E C1 00 195C         1880 TIOBSY   TIO   XEQ01,*-*          BRANCH IF SEEK BUSY
                         1881 *
 1952 38 02 25FA         1882          TBN   IND,SKEND          ERROR END IF
 1956 F2 10 D2           1883          JT    ERR07                SEEK IN PROGRESS
                         1884 *
 1959 F2 87 11           1885          J     XEQ02
                         1886 *
 195C 38 02 25FA         1887 XEQ01    TBN   IND,SKEND          SKIP IF
 1960 F2 10 0A           1888          JT    XEQ02                SEEK IN PROGRESS
                         1889 *
 1963 0C 00 196A 194F    1890          MVC   *+7(1),TIOBSY+1    ERROR END IF
 1969 C1 00 1A34         1891          TIO   ERR08,*-*            STILL SEEK BUSY
                         1892 *
 196D 0C 02 2641 2562    1893 XEQ02    MVC   WORKN(3),TIM3S     INITIALIZE TIMER
                         1894 *
 1973 0E 02 2641 252F    1895 XEQ04    ALC   WORKN(3),P1        INCREMENT TIMER
 1979 C0 A0 1A54         1896          BOL   ERR09              ERROR END IF ATTACHMENT
 197D C1 C2 1973         1897          TIO   XEQ04,X'C2'          BUSY FAILS TO GO OFF
                         1898 *
 1981 30 C6 2625         1899          SNS   RDDCR,X'C6'        SENSE DDCR
 1985 30 C4 2627         1900          SNS   RDDDR,X'C4'        SENSE DDDR
                         1901 *
 1989 0E 02 2641 252F    1902 XEQ03    ALC   WORKN(3),P1        ERROR END IF EXPECTED
 198F C0 A0 1AD5         1903          BOL   ERR10                INTERRUPTS FAIL TO OCCUR
                         1904 *
 1993 C1 C4 1D56         1905          TIO   DASDI,X'C4'        GO TO INTERRUPT SUBR IF PENDING
                         1906 *
 1997 39 06 25FA         1907          TBF   IND,OPEND+SKEND    BRANCH IF
 199B C0 90 1989         1908          BF    XEQ03                INTERRUPT STILL EXPECTED
                         1909 *
 199F 38 20 25FA         1910          TBN   IND,INTERR         BRANCH IF ERROR
 19A3 C0 10 1B63         1911          BT    ERRXX                DETECTED IN INTERRUPT RTN
                         1912 *
 19A7 35 01 2621         1913          L     IDDCR,XR1          SAVE
 19AB 1C 09 2638 09      1914          MVC   RDDCFN,9(10,XR1)     RESIDUAL DDCF
                         1915 *
 19B0 0D 01 2621 2625    1916          CLC   IDDCR(2),RDDCR     GO TO ERROR END IF
 19B6 C0 01 1B20         1917          BNE   ERR17                RESIDUAL DDCR IS INCORRECT
                         1918 *
 19BA 30 00 25FC         1919          SNS   SWS,0         * AMOP * SENSE DATA SWS
 19BE 3D 82 25FB         1920          CLI   LINKID,X'82'  * LINK *   AND GO TO AMOP IF
 19C2 C0 81 1E30         1921          BE    AMOPLK        * '82' *     SWS 1 & 2 CONTAIN '82'
                         1922 *
 19C6 C0 87 0000         1923 XEQX     B     *-*                RETURN TO CALLING ROUTINE
                         1924 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1926 ************************************************************************
                         1927 *                                                                      *
                         1928 *                    ERROR ENDING CONDITIONS                           *
                         1929 *                                                                      *
                         1930 ************************************************************************
                         1931 *
                         1932 *              LIO HUNG IN REJECTION LOOP
                         1933 *
 19CA 0C 1E 25CD 223A    1934 ERR00    MVC   MSGA+31(31),EM04N        SETUP ERROR MESSAGE
 19D0 0C 07 25B6 21CB    1935          MVC   MSGA+8(8),EM00N
 19D6 F2 87 89           1936          J     ERR09B
                         1937 *
                         1938 *----------------------------------------------------------------------
                         1939 *              ATTACHMENT BUSY PRIOR TO COMMAND EXECUTION
                         1940 *
 19D9 0C 26 25D5 21F2    1941 ERR01    MVC   MSGA+39(39),EM01N        SETUP ERROR MESSAGE
 19DF F2 87 80           1942          J     ERR09B
                         1943 *
                         1944 *----------------------------------------------------------------------
                         1945 *              DDCR FAILED TO LOAD CORRECTLY
                         1946 *
 19E2 0C 1F 25CE 2212    1947 ERR02    MVC   MSGA+32(32),EM02N        SETUP ERROR MESSAGE
 19E8 F2 87 0C           1948          J     ERR03A
                         1949 *
                         1950 *----------------------------------------------------------------------
                         1951 *              DDDR FAILED TO LOAD CORRECTLY
                         1952 *
 19EB 0C 1F 25CE 2212    1953 ERR03    MVC   MSGA+32(32),EM02N        SETUP ERROR MESSAGE
 19F1 0C 08 25B7 221B    1954          MVC   MSGA+9(9),EM03N
                         1955 *
 19F7 F3 C4 02           1956 ERR03A   SIO   X'02',X'C4'          DISABLE 3340 INTERRUPTS
 19FA 30 C5 263D         1957          SNS   SNS,X'C5'            SENSE ATTACHMENT STATUS
                         1958 *
 19FE 38 01 263D         1959          TBN   SNS,BIT7             BRANCH IF
 1A02 F2 10 77           1960          JT    ERR0C                  ADAPTER CHECK
                         1961 *
 1A05 C0 87 1372         1962          B     RETRY                GO TO ATTEMPT ERROR RECOVERY
                         1963 *
                         1964 *----------------------------------------------------------------------
                         1965 *              SIO HUNG IN REJECTION LOOP
                         1966 *
 1A09 0C 4F 25F8 25F9    1967 ERR04    MVC   MSGN(80),MSGN+1        CLEAR MESSAGE AREA
 1A0F 0C 1E 25CD 223A    1968          MVC   MSGA+31(31),EM04N      SETUP ERROR MESSAGE
 1A15 F2 87 42           1969          J     ERR09A
                         1970 *
                         1971 *----------------------------------------------------------------------
                         1972 *              UNIT CHECK OR NOT READY PRIOR TO SIO
                         1973 *
 1A18 0C 2D 25DC 2268    1974 ERR05    MVC   MSGA+46(46),EM05N        SETUP ERROR MESSAGE
 1A1E C0 87 1B63         1975          B     ERRXX
                         1976 *
                         1977 *----------------------------------------------------------------------
                         1978 *              ATTACHMENT DID NOT GO BUSY AFTER SIO
                         1979 *
 1A22 0C 29 25D8 2252    1980 ERR06    MVC   MSGA+42(42),EM06N        SETUP ERROR MESSAGE
 1A28 F2 87 0F           1981          J     ERR08A
                         1982 *
                         1983 *----------------------------------------------------------------------
                         1984 *              SEEK COMMAND DID NOT SET SEEK BUSY
                         1985 *
 1A2B 0C 28 25D7 2288    1986 ERR07    MVC   MSGA+41(41),EM07N        SETUP ERROR MESSAGE
 1A31 F2 87 06           1987          J     ERR08A
                         1988 *
                         1989 *----------------------------------------------------------------------
                         1990 *              SEEK BUSY WITH NO SEEK IN PROGRESS
                         1991 *
 1A34 0C 2C 25DB 22E8    1992 ERR08    MVC   MSGA+45(45),EM08N        SETUP ERROR MESSAGE
                         1993 *
```

C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1994 ERR08A   MVC   WORKN(2),NULLS          INITIALIZE TIMER COUNT
1A3A 0C 01 2641 252B     1995 *
                         1996 ERR08B   TBF   IND,OPFND+SKEND        LOOP UNTIL
1A40 39 06 25FA          1997          JT    ERR08C                    COUNTER OVERFLOWS
1A44 F2 10 0A            1998          ALC   WORKN(2),P1               OR ALL EXPECTED
1A47 0E 01 2641 252F     1999          BNCL  ERR08B                      INTERRUPTS HAVE OCCURRED
1A4D C0 20 1A40          2000 *
                         2001 ERR08C   J     ERR09A
1A51 F2 87 06            2002 *
                         2003 *---------------------------------------------------------------
                         2004 *             ATTACHMENT BUSY FAILED TO GO OFF
                         2005 *
1A54 0C 28 25D7 2311     2006 ERR09    MVC   MSGA+41(41),EM09N        SETUP ERROR MESSAGE
                         2007 *
1A5A 30 C6 2625          2008 ERR09A   SNS   RDDCR,X'C6'              SENSE DDCR
1A5E 30 C4 2627          2009          SNS   RDDDR,X'C4'              SENSE DDDR
                         2010 *
1A62 30 C5 263D          2011 ERR09B   SNS   SNS,X'C5'                SENSE ADAPTER STATUS
                         2012 *
1A66 38 01 263D          2013          TBN   SNS,BIT7                 BRANCH IF
1A6A C0 10 1A7C          2014          BT    ERR0C                     ADAPTER CHECK
                         2015 *
1A6E C0 87 1372          2016          B     RETRY                     GO TO ATTEMPT RECOVERY
                         2017 *
                         2018 *---------------------------------------------------------------
                         2019 *             DRIVE X UNIT CHECK OR NO-OP STATUS
                         2020 *
1A72 0C 1E 25CD 2330     2021 ERR0A    MVC   MSGA+31(31),EM0AN        SETUP ERROR MESSAGE
1A78 C0 87 1372          2022          B     RETRY                     GO TO ATTEMPT RECOVERY
                         2023 *
                         2024 *---------------------------------------------------------------
                         2025 *             ADAPTER CHECK
                         2026 *
1A7C 0C 4F 25F8 25F9     2027 ERR0C    MVC   MSGN(80),MSGN+1           CLEAR MESSAGE AREA
1A82 0C 11 25C0 2342     2028          MVC   MSGA+18(18),EM0CN          SETUP ERROR MESSAGE
                         2029 *
1A88 0C 01 2641 263D     2030          MVC   WORKN(2),SNS              SAVE SENSE BYTES AND
1A8E F2 87 20            2031          J     ERR0FA                      GO TO BUILD FMT 3 SENSE DATA
                         2032 *
                         2033 *---------------------------------------------------------------
                         2034 *             UNEXPECTED INTERRUPT
                         2035 *
1A91 0C 18 25C7 235B     2036 ERR0D    MVC   MSGA+25(25),EM0DN          SETUP ERROR MESSAGE
1A97 C0 87 1372          2037          B     RETRY                     GO TO ATTEMPT RECOVERY
                         2038 *
                         2039 *---------------------------------------------------------------
                         2040 *             ADAPTER SENSE BYTES DO NOT INDICATE CAUSE OF INTERRUPT
                         2041 *
1A9B 0C 2A 25D9 2386     2042 ERR0E    MVC   MSGA+43(43),EM0EN          SETUP ERROR MESSAGE
1AA1 C0 87 1372          2043          B     RETRY                     GO TO ATTEMPT RECOVERY
                         2044 *
                         2045 *---------------------------------------------------------------
                         2046 *             ADAPTER CHECK ON READ DIAGNOSTIC SENSE COMMAND
                         2047 *
1AA5 0C 4F 25F8 25F9     2048 ERR0F    MVC   MSGN(80),MSGN+1           CLEAR MESSAGE AREA
1AAB 0C 3F 25EE 23C6     2049          MVC   MSGA+64(64),EM0FN         SETUP ERROR MESSAGE
                         2050 *
1AB1 3C 00 2685          2051 ERR0FA   MVI   DGSNS+23,0                CLEAR READ
1AB5 0C 16 2684 2685     2052          MVC   DGSNS+22(23),DGSNS+23       DIAG SENSE DATA AREA
                         2053 *
1AB8 0C 01 266F 2641     2054          MVC   DGSNS+1(2),WORKN          BUILD
1ABC 31 C7 2593          2055          LIO   SNS23,X'C7'                 FORMAT 3
1AC2 30 C7 2671          2056          SNS   DGSNS+3,X'C7'                 DIAGNOSTIC
1AC9 3C 30 2675          2057          MVI   DGSNS+7,X'30'                   SENSE DATA
                         2058 *
1ACD 3A 01 25FA          2059          SBN   IND,SNSAVL                SET SENSE DATA AVAILABLE IND
                         2060 *
1AD1 C0 87 1372          2061          B     RETRY                     GO TO ATTEMPT RECOVERY
```


C122 3340 FUNCTION TESTS - MOD 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2062 *
                         2063 *---------------------------------------------------------------
                         2064 *             EXPECTED OP END INTERRUPT DID NOT OCCUR
                         2065 *
1AD5 C1 C4 1AF2          2066 ERR10    TIO   ERR12,X'C4'               BRANCH IF INTERRUPT PENDING
                         2067 *
1AD9 38 04 25FA          2068          TBN   IND,OPEND                 BRANCH IF NO OP END
1ADD F2 90 09            2069          JF    ERR11                       INTERRUPT OUTSTANDING
                         2070 *
1AE0 0C 17 25C6 23DE     2071          MVC   MSGA+24(24),EM10N         SETUP ERROR MESSAGE
                         2072 *
1AE6 F2 87 7A            2073          J     ERRXX
                         2074 *
                         2075 *---------------------------------------------------------------
                         2076 *             EXPECTED SEEK COMPLETE INTERRUPT DID NOT OCCUR
                         2077 *
1AE9 0C 1E 25CD 23FD     2078 ERR11    MVC   MSGA+31(31),EM11N         SETUP ERROR MESSAGE
1AEF F2 87 71            2079          J     ERRXX
                         2080 *
                         2081 *---------------------------------------------------------------
                         2082 *             INTERRUPT PENDING, BUT INTERRUPT DID NOT OCCUR
                         2083 *
1AF2 0C 2B 25DA 2429     2084 ERR12    MVC   MSGA+44(44),EM12N         SETUP ERROR MESSAGE
1AF8 F2 87 68            2085          J     ERRXX
                         2086 *
                         2087 *---------------------------------------------------------------
                         2088 *             EXPECTED SCAN EQUAL DID NOT OCCUR
                         2089 *
1AFB 0C 25 25D4 244F     2090 ERR13    MVC   MSGA+38(38),EM13N         SETUP ERROR MESSAGE
1B01 F2 87 5F            2091          J     ERRXX
                         2092 *
                         2093 *---------------------------------------------------------------
                         2094 *             EXPECTED SCAN HIT DID NOT OCCUR
                         2095 *
1B04 0C 29 25D8 2479     2096 ERR14    MVC   MSGA+42(42),EM14N         SETUP ERROR MESSAGE
1B0A F2 87 56            2097          J     ERRXX
                         2098 *
                         2099 *---------------------------------------------------------------
                         2100 *             UNEXPECTED SCAN HIT CONDITION
                         2101 *
1B0D 0C 27 25D6 24A1     2102 ERR15    MVC   MSGA+40(40),EM15N         SETUP ERROR MESSAGE
1B13 F2 87 4D            2103          J     ERRXX
                         2104 *
                         2105 *---------------------------------------------------------------
                         2106 *             INCORRECT RESIDUAL DDDR
                         2107 *
1B16 0C 18 25CA 24BD     2108 ERR16    MVC   MSGA+28(28),EM16N         SETUP ERROR MESSAGE
1B1C C0 87 1372          2109          B     RETRY                     GO TO ATTEMPT RECOVERY
                         2110 *
                         2111 *---------------------------------------------------------------
                         2112 *             INCORRECT RESIDUAL DDCR
                         2113 *
1B20 0C 1B 25CA 24BD     2114 ERR17    MVC   MSGA+28(28),EM16N         SETUP ERROR MESSAGE
1B26 0C 08 25B7 24C6     2115          MVC   MSGA+9(9),EM17N           GO TO ATTEMPT RECOVERY
1B2C C0 87 1372          2116          B     RETRY
                         2117 *
                         2118 *---------------------------------------------------------------
                         2119 *             INCORRECT RESIDUAL DDCF
                         2120 *
1B30 0C 1B 25CA 24BD     2121 ERR18    MVC   MSGA+28(28),EM16N         SETUP ERROR MESSAGE
1B36 0C 08 25B7 24CF     2122          MVC   MSGA+9(9),EM18N           GO TO ATTEMPT RECOVERY
1B3C C0 87 1372          2123          B     RETRY
                         2124 *
                         2125 *---------------------------------------------------------------
                         2126 *             INCORRECT RESIDUAL DDDF
                         2127 *
1B40 0C 1B 25CA 24BD     2128 ERR19    MVC   MSGA+28(28),EM16N         SETUP ERROR MESSAGE
1B46 0C 08 25B7 24D8     2129          MVC   MSGA+9(9),EM19N
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2130          B      RETRY                    GO TO ATTEMPT RECOVERY
                         2131 *
                         2132 *-------------------------------------------------------
                         2133 *               UNEXPECTED SCAN EQUAL CONDITION
                         2134 *
                         2135 ERR1A    MVC    MSGA+26(26),EM1AN        SETUP ERROR MESSAGE
                         2136          J      ERRXX
                         2137 *
                         2138 *-------------------------------------------------------
                         2139 *               WRITE INHIBITED
                         2140 *
                         2141 ERR20    MVC    MSGA+20(20),EM20N        SETUP ERROR MESSAGE
                         2142          B      RETRY                    GO TO ATTEMPT RECOVERY
                         2143 *
                         2144 *-------------------------------------------------------
                         2145 *               COMPLETE ERROR PROCESSING
                         2146 *
                         2147 ERRXX    SIO    X'02',X'C4'              DISABLE 3340 INTERRUPTS
                         2148 *
                         2149          TBN    IND,INTERR               BRANCH IF INTERRUPT
                         2150          JT     ERRXXA                     DETECTED ERROR CONDITION
                         2151 *
                         2152          CLC    SNS(2),NULLS             BRANCH IF SENSE BYTES
                         2153          JNE    ERRXXA                     HAVE ALREADY BEEN RETRIEVED
                         2154 *
                         2155          SNS    SNS,X'C5'                SENSE ADAPTER STATUS
                         2156 *
                         2157 ERRXXA   TBN    SNS,BIT7                 BRANCH IF
                         2158          BT     ERROC                      ADAPTER CHECK
                         2159 *
                         2160          MVC    *+7(1),TIORDY+1          GO TO READ DIAGNOSTIC
                         2161          TIO    ERRXX8,*-*                 SENSE DATA IF DRV NOT READY
                         2162 *
                         2163          MVC    *+6,UCKMSK(1,XR2)        BYPASS READ
                         2164          TBF    SNS-1,*-*                  DIAGNOSTIC SENSE
                         2165          JT     ERRXXD                       IF NO UNIT CHECK
                         2166 *
                         2167 ERRXX8   MVC    SIOSNS+1,DRVADR(1,XR2)   BUILD READ
                         2168          SBN    SIOSNS+1,BIT7              DIAGNOSTIC SENSE COMMAND
                         2169 *
                         2170          TIO    ERR09,X'C2'              BRANCH IF ATTACHMENT BUSY
                         2171 *
                         2172          B      SAVRST                   GO TO STORE RESTART ADDR
                         2173          LIO    DGSNSa,X'C4'             LOAD DDDR TO SENSE AREA ADDR
                         2174          B      RSTOR                    GO TO RESTORE LOCATION 0
                         2175 *
                         2176          SNS    WORKN,X'C4'              BYPASS READ
                         2177          CLC    WORKN(2),DGSNSa            DIAGNOSTIC SENSE
                         2178          BNE    ERR03                        IF INCORRECT DDDR LOAD
                         2179 *
                         2180          TBN    IND,HUNG                 BYPASS READ DIAGNOSTIC
                         2181          BT     ERR00                      SENSE IF LIO IS REJECTED
                         2182 *
                         2183          B      SAVRST                   GO TO STORE RESTART ADDR
                         2184 SIOSNS   SIO    X'07',*-*                READ DIAGNOSTIC SENSE DATA
                         2185          B      RSTOR                    GO TO RESTORE LOCATION 0
                         2186 *
                         2187          TBN    IND,HUNG                 BRANCH IF SIO
                         2188          BT     ERR01                      WAS REJECTED
                         2189 *
                         2190          MVC    WORKN(3),TIM3S           INITIALIZE TIMER
                         2191 *
                         2192 ERRXXF   ALC    WORKN(3),P1              INCREMENT TIMER
                         2193          BOL    ERRXXG                   ERROR END IF ATTACHMENT
                         2194          TIO    ERRXXF,X'C2'               BUSY FAILED TO GO OFF
                         2195 *
                         2196 ERRXXC   SNS    WORKN,X'C5'              BRANCH IF READ
                         2197          TBN    WORKN,BIT7                 DIAGNOSTIC SENSE

 1B4C C0 87 1372

 1850 0C 19 25C8 24F2
 1B56 F2 87 0A

 1B59 0C 13 25C2 2506
 1B5F C0 87 1372

 1B63 F3 C4 02

 1B66 38 20 25FA
 1B6A F2 10 0D

 1B6D 0D 01 263D 252B
 1B73 F2 01 04

 1B76 30 C5 263D

 1B7A 38 01 263D
 1B7E C0 10 1A7C

 1B82 0C 00 1B89 1931
 1B88 C1 00 1B98

 1B8C 2C 00 1B92 04
 1B91 39 00 263C
 1B95 F2 10 66

 1B98 2C 00 1BCC 02
 1B9D 3A 01 1BCC

 1BA1 C1 C2 1A54

 1BA5 C0 87 1DC9
 1BA9 31 C4 255B
 1BAD C0 87 1E22

 1BB1 30 C4 2641
 1BB5 0D 01 2641 255B
 1BBB C0 01 19EB

 1BBF 38 80 25FA
 1BC3 C0 10 19CA

 1BC7 C0 87 1DC9
 1BCB F3 00 07
 1BCE C0 87 1E22

 1BD2 38 80 25FA
 1BD6 C0 10 19D9

 1BDA 0C 02 2641 2562

 1BE0 0E 02 2641 252F
 1BE6 C0 A0 1C3F
 1BEA C1 C2 1BE0

 1BEE 30 C5 2641
 1BF2 38 01 2641
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

 1BF6 C0 10 1AA5         2198          BT     ERROF                      ENDED IN ADAPTER CHECK
                         2199 *
 1BFA 3A 01 25FA         2200          SBN    IND,SNSAVL               SET SENSE DATA AVAILABLE IND
                         2201 *
 1BFE 38 20 25FA         2202 ERRXXD   TBN    IND,INTERR               GO TO ATTEMPT RECOVERY IF
 1C02 C0 90 1372         2203          BF     RETRY                      NOT INTERRUPT DETECTED ERROR
                         2204 *
 1C06 0C 4F 25F8 25F9    2205          MVC    MSGN(80),MSGN+1          CLEAR MESSAGE PRINT AREA
                         2206 *
 1C0C 38 10 25FA         2207          TBN    IND,DRVERR               BRANCH IF
 1C10 C0 90 1C2F         2208          BF     ERRXXE                     NOT UNIT CHECK
                         2209 *
 1C14 BD 02 06           2210          CLI    Q(,XR2),X'02'            GO TO
 1C17 C0 01 1A72         2211          BNE    ERROA                      UNIT CHECK
 1C1B 3D 80 266E         2212          CLI    DGSNS,X'80'                  ERROR PROCESSING
 1C1F C0 01 1A72         2213          BNE    ERROA                          UNLESS WRITE COMMAND
 1C23 3D 02 266F         2214          CLI    DGSNS+1,X'02'                    REJECT WITH WR INHIBIT
 1C27 C0 01 1A72         2215          BNE    ERROA
                         2216 *
 1C2B C0 87 1B59         2217          B      ERR20                    WRITE INHIBITED ERROR
                         2218 *
 1C2F 39 14 263D         2219 ERRXXE   TBF    SNS,BIT3+BIT5            BRANCH IF
 1C33 39 0F 263C         2220          TBF    SNS-1,X'0F'                NO INTERRUPT
 1C37 C0 10 1A9B         2221          BT     ERROE                        BITS IN ADAPTER STATUS
                         2222 *
 1C3B C0 87 1A91         2223          B      ERROD                    UNEXPECTED INTERRUPT ERROR
                         2224 *
 1C3F 3C C5 2641         2225 ERRXXG   SNS    WORKN,X'C5'              BRANCH IF READ
 1C43 38 01 2641         2226          TBN    WORKN,BIT7                 DIAGNOSTIC SENSE
 1C47 C0 10 1AA5         2227          BT     ERROF                        ENDED IN ADAPTOR CHECK
                         2228 *
 1C4B C0 87 1A54         2229          B      ERR09                    ATTACHMENT BUSY FAILED TO GO OF
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2231 ********************************************************************
                         2232 *
                         2233 *              ERROR MESSAGE PRINT SUBROUTINE                      *
                         2234 *                                                                  *
                         2235 ********************************************************************
                         2236 *
 1C4F 34 08 1D55         2237 ERRPRT   ST    ERRPX+3,ARR             SAVE RETURN ADDRESS
                         2238 *
 1C53 0C 05 25AE 21C3    2239         MVC   MSGA(6),EMXXN           COMPLETE FIRST PRINT LINE
                         2240 *
 1C59 35 01 2621         2241         L     IDDCR,XR1               RETRIEVE
 1C5D 1C 09 263B 09      2242         MVC   RDDCFN,9(10,XR1)          RESIDUAL DDCF
                         2243 *
 1C62 C0 87 021A         2244         B     PRINT                   PRINT
 1C66 C2            1C66 2245         DC    XL1'C2'                   FIRST LINE
 1C67 50            1C67 2246         DC    IL1'80'                     OF ERROR MESSAGE
 1C68 25F8          1C69 2247         DC    AL2(MSGN)
 1C6A C101          1C6B 2248         DC    AL2(HLT01)
                         2249 *
 1C6C C0 87 021A         2250 ERRP01   B     PRINT                   PRINT
 1C70 81            1C70 2251         DC    XL1'81'                   SECOND LINE
 1C71 45            1C71 2252         DC    AL1(MSG08N-MSG08+1)         OF ERROR MESSAGE
 1C72 20A6          1C73 2253         DC    AL2(MSG08N)
                         2254 *
 1C74 0C 4F 25F8 25F9    2255         MVC   MSGN(80),MSGN+1         CLEAR MESSAGE AREA
                         2256 *
 1C7A 2C 00 25AA 01      2257         MVC   MSG+1,DRV(1,XR2)        MOVE DRV NUMBER TO ERROR MSG
 1C7F 0C 04 25B1 2605    2258         MVC   MSG+8(5),CMD            MOVE COMMAND NAME TO ERR MSG
 1C85 0C 06 25B9 260C    2259         MVC   MSG+16(7),CYL           MOVE CYLINDER ADDR TO ERROR MSG
 1C8B 0C 04 25BF 2611    2260         MVC   MSG+22(5),HD            MOVE HEAD ADDRESS TO ERROR MSG
                         2261 *
 1C91 C0 87 021E         2262         B     UNPACK                  UNPACK
 1C95 03            1C95 2263         DC    IL1'3'                    SIO COMMAND
 1C96 193A          1C97 2264         DC    AL2(SIO+2)                  TO MESSAGE AREA
 1C98 25C6          1C99 2265         DC    AL2(MSG+29)
                         2266 *
 1C9A C0 87 021E         2267         B     UNPACK                  UNPACK
 1C9E 02            1C9E 2268         DC    IL1'2'                    ADAPTER SENSE BYTES
 1C9F 263D          1CA0 2269         DC    AL2(SNS)                    TO MESSAGE AREA
 1CA1 25CB          1CA2 2270         DC    AL2(MSG+34)
                         2271 *
 1CA3 3C C9 25CE         2272         MVI   MSG+37,C'I'             'INITIAL' INDICATOR TO MSG AREA
                         2273 *
 1CA7 C0 87 021E         2274         B     UNPACK                  UNPACK
 1CAB 02            1CAB 2275         DC    IL1'2'                    INITIAL DDCR
 1CAC 2621          1CAD 2276         DC    AL2(IDDCR)                  TO MESSAGE AREA
 1CAE 25D3          1CAF 2277         DC    AL2(MSG+42)
                         2278 *
 1CB0 C0 87 021E         2279         B     UNPACK                  UNPACK
 1CB4 02            1CB4 2280         DC    IL1'2'                    INITIAL DDDR
 1CB5 2623          1CB6 2281         DC    AL2(IDDDR)                  TO MESSAGE AREA
 1CB7 25D8          1CB8 2282         DC    AL2(MSG+47)
                         2283 *
 1CB9 C0 87 021E         2284         B     UNPACK                  UNPACK
 1CBD 0A            1CBD 2285         DC    IL1'10'                   INITIAL DDCF
 1CBE 2631          1CBF 2286         DC    AL2(IDDCFN)                 TO MESSAGE AREA
 1CC0 25ED          1CC1 2287         DC    AL2(MSG+68)
                         2288 *
 1CC2 C0 87 021A         2289         B     PRINT                   PRINT
 1CC6 81            1CC6 2290         DC    XL1'81'                   THIRD LINE OF
 1CC7 50            1CC7 2291         DC    IL1'80'                     ERROR MESSAGE
 1CC8 25F8          1CC9 2292         DC    AL2(MSGN)
                         2293 *
 1CCA 0C 4F 25F8 25F9    2294         MVC   MSGN(80),MSGN+1         CLEAR MESSAGE AREA
                         2295 *
 1CD0 3C D9 25CE         2296         MVI   MSG+37,C'R'             'RESIDUAL' IND TO MESSAGE AREA
                         2297 *
 1CD4 C0 87 021E         2298         B     UNPACK                  UNPACK
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

 1CD8 02            1CD8 2299         DC    IL1'2'                    RESIDUAL DDCR
 1CD9 2625          1CDA 2300         DC    AL2(RDDCR)                  TO MESSAGE AREA
 1CDB 25D3          1CDC 2301         DC    AL2(MSG+42)
                         2302 *
 1CDD C0 87 021E         2303         B     UNPACK                  UNPACK
 1CE1 02            1CE1 2304         DC    IL1'2'                    RESIDUAL DDDR
 1CE2 2627          1CE3 2305         DC    AL2(RDDDR)                  TO MESSAGE AREA
 1CE4 25D8          1CE5 2306         DC    AL2(MSG+47)
                         2307 *
 1CE6 C0 87 021E         2308         B     UNPACK                  UNPACK
 1CEA 0A            1CEA 2309         DC    IL1'10'                   RESIDUAL DDCF
 1CEB 263B          1CEC 2310         DC    AL2(RDDCFN)                 TO MESSAGE AREA
 1CED 25ED          1CEE 2311         DC    AL2(MSG+68)
                         2312 *
 1CEF C0 87 021A         2313         B     PRINT                   PRINT
 1CF3 81            1CF3 2314         DC    XL1'81'                   FOURTH LINE OF
 1CF4 50            1CF4 2315         DC    IL1'80'                     ERROR MESSAGE
 1CF5 25F8          1CF6 2316         DC    AL2(MSGN)
                         2317 *
 1CF7 38 01 25FA         2318         TBN   IND,SNSAVL              BRANCH IF NO READ DIAGNOSTIC
 1CFB F2 90 54           2319         JF    ERRPX                     SENSE DATA IS AVAILABLE
                         2320 *
 1CFE 0C 4F 25F8 25F9    2321         MVC   MSGN(80),MSGN+1         CLEAR MESSAGE AREA
                         2322 *
 1D04 C0 87 021A         2323         B     PRINT                   PRINT
 1D08 81            1D08 2324         DC    XL1'81'                   SENSE DATA
 1D09 1             1D09 2325         DC    AL1(MSG09N-MSG09+1)         HEADING LINE
 1D0A 20C0          1D0B 2326         DC    AL2(MSG09N)
                         2327 *
 1D0C C0 87 021A         2328         B     PRINT                   PRINT
 1D10 81            1D10 2329         DC    XL1'81'                   SENSE DATA
 1D11 35            1D11 2330         DC    AL1(MSG0BN-MSG0B+1)         HEADING LINE
 1D12 2143          1D13 2331         DC    AL2(MSG0BN)
                         2332 *
 1D14 C0 87 021E         2333         B     UNPACK                  UNPACK 4 BYTES OF
 1D18 04            1D18 2334         DC    IL1'4'                    READ DIAGNOSTIC SENSE
 1D19 2671          1D1A 2335         DC    AL2(DGSNS+3)                DATA TO MESSAGE AREA
 1D1B 2580          1D1C 2336         DC    AL2(MSG+7)
                         2337 *
 1D1D C0 87 021E         2338         B     UNPACK                  UNPACK 4 BYTES OF
 1D21 04            1D21 2339         DC    IL1'4'                    READ DIAGNOSTIC SENSE
 1D22 2675          1D23 2340         DC    AL2(DGSNS+7)                DATA TO MESSAGE AREA
 1D24 2589          1D25 2341         DC    AL2(MSG+16)
                         2342 *
 1D26 C0 87 021E         2343         B     UNPACK                  UNPACK 4 BYTES OF
 1D2A 04            1D2A 2344         DC    IL1'4'                    READ DIAGNOSTIC SENSE
 1D2B 2679          1D2C 2345         DC    AL2(DGSNS+11)               DATA TO MESSAGE AREA
 1D2D 25C2          1D2E 2346         DC    AL2(MSG+25)
                         2347 *
 1D2F C0 87 021E         2348         B     UNPACK                  UNPACK 4 BYTES OF
 1D33 04            1D33 2349         DC    IL1'4'                    READ DIAGNOSTIC SENSE
 1D34 267D          1D35 2350         DC    AL2(DGSNS+15)               DATA TO MESSAGE AREA
 1D36 25CB          1D37 2351         DC    AL2(MSG+34)
                         2352 *
 1D38 C0 87 021E         2353         B     UNPACK                  UNPACK 4 BYTES OF
 1D3C 04            1D3C 2354         DC    IL1'4'                    READ DIAGNOSTIC SENSE
 1D3D 2681          1D3E 2355         DC    AL2(DGSNS+19)               DATA TO MESSAGE AREA
 1D3F 25D4          1D40 2356         DC    AL2(MSG+43)
                         2357 *
 1D41 C0 87 021E         2358         B     UNPACK                  UNPACK 4 BYTES OF
 1D45 04            1D45 2359         DC    IL1'4'                    READ DIAGNOSTIC SENSE
 1D46 2685          1D47 2360         DC    AL2(DGSNS+23)               DATA TO MESSAGE AREA
 1D48 25DD          1D49 2361         DC    AL2(MSG+52)
                         2362 *
 1D4A C0 87 021A         2363         B     PRINT                   PRINT
 1D4E 82            1D4E 2364         DC    XL1'82'                   LAST LINE OF
 1D4F 50            1D4F 2365         DC    IL1'80'                     ERROR MESSAGE
 1D50 25F8          1D51 2366         DC    AL2(MSGN)
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2367 *
  1D52 C0 87 0000        2368 ERRPX    B      *-*          RETURN TO CALLING ROUTINE
                         2369 *
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2371 ********************************************************************************
                         2372 *                                                                              *
                         2373 *              3340 DEVICE END INTERRUPT SUBROUTINE                            *
                         2374 *                                                                              *
                         2375 ********************************************************************************
                         2376 *
  1D56 34 08 1DC8        2377 DASDI    ST     DASDIX+3,ARR          SAVE RETURN ADDRESS
  1D5A 34 02 1DC4        2378          ST     DASDX2+3,XR2          SAVE INDEX REGISTER 2
                         2379 *
  1D5E 30 C5 263D        2380          SNS    SNS,X'C5'             SENSE ADAPTER STATUS
                         2381 *
  1D62 38 01 263D        2382          TBN    SNS,BIT7              BRANCH IF
  1D66 F2 10 4A          2383          JT     DASD04                  ADAPTER CHECK
                         2384 *
  1D69 35 02 2616        2385          L      ADRPTR,XR2            SETUP POINTER TO
  1D6D B5 02 01          2386          L      1(,XR2),XR2             DRIVE DEPENDENT WORK AREA
                         2387 *
  1D70 38 10 263D        2388          TBN    SNS,BIT3              BRANCH IF
  1D74 38 04 25FA        2389          TBN    IND,OPEND               EXPECTED OP END
  1D78 F2 10 1C          2390          JT     DASD01                    INTERRUPT OCCURRED
                         2391 *
  1D78 2C 00 1D81 03     2392          MVC    *+6,SKMSK(1,XR2)      GET SK INTRP MASK FROM DRV AREA
  1D80 38 00 263C        2393          TBN    SNS-1,*-*             BRANCH IF
  1D84 38 02 25FA        2394          TBN    IND,SKEND               INTERRUPT IS
  1D88 F2 90 28          2395          JF     DASD04                    NOT EXPECTED
                         2396 *
  1D8B 2C 00 1DC0 05     2397          MVC    DASD06+2,SKRST(1,XR2) PREPARE TO RESET SEEK INTERRUPT
  1D90 3B 02 25FA        2398          SBF    IND,SKEND             RESET SEEK INTRP EXPECTED IND
  1D94 F2 87 08          2399          J      DASD02                GO TO TEST FOR UNIT CHECK
                         2400 *
  1D97 3C 04 1DC0        2401 DASD01   MVI    DASD06+2,X'04'        PREPARE TO RESET OP END INTRP
  1D9B 3B 04 25FA        2402          SBF    IND,OPEND             RESET OP END EXPECTED INDICATOR
                         2403 *
  1D9F 2C 00 1DA5 04     2404 DASD02   MVC    *+6,UCKMSK(1,XR2)     GET UNIT CK MASK FROM DRV AREA
  1DA4 39 00 263C        2405          TBF    SNS-1,*-*             BRANCH IF
  1DA8 39 08 263D        2406          TBF    SNS,BIT4                UNIT CHECK OR
  1DAC F2 10 0F          2407          JT     DASD06                    NO-OP STATUS
                         2408 *
  1DAF 3A 10 25FA        2409 DASD03   SBN    IND,DRVERR            SET DRIVE ERROR INDICATOR
                         2410 *
  1DB3 3A 20 25FA        2411 DASD04   SBN    IND,INTERR            SET ANY ERROR INDICATOR
                         2412 *
  1DB7 F3 C4 7E          2413 DASD05   SIO    X'7E',X'C4'           RESET AND DISABLE INTERRUPTS
  1DBA C0 87 1DC1        2414          B      DASDX2                GO TO RESTORE INDEX REG
                         2415 *
  1DBE F3 C4 00          2416 DASD06   SIO    *-*,X'C4'             RESET INTERRUPT
                         2417 *
  1DC1 C2 02 0000        2418 DASDX2   LA     *-*,XR2               RESTORE INDEX REGISTER 2
                         2419 *
  1DC5 C0 87 0000        2420 DASDIX   B      *-*                   RETURN TO CALLING PROGRAM
                         2421 *
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2423 ********************************************************************************
                         2424 *        SAVE RESTART SUBROUTINE                                               *
                         2425 *                                                                              *
                         2426 *        THIS SUBROUTINE PLACES A RESTART ADDRESS IN LOC 00 - 03               *
                         2427 *        IN CASE OF A REJECTION LOOP ON A 'LIO' OR 'SIO' INSTRUCTION.          *
                         2428 *        IT ALSO SAVES THE ADDRESS FOLLOWING THE 'LIO' OR 'SIO'                *
                         2429 *        AND INDEX REGISTERS 1 & 2.                                            *
                         2430 *         BRANCH TO 'SAVRST' IMMEDIATELY PRIOR TO THE 'LIO' OR 'SIO'.          *
                         2431 *         BRANCH TO 'RSTOR' AFTER THE 'LIO' OR 'SIO' TO RESTORE                *
                         2432 *         LOC 00 - 03.                                                         *
                         2433 ********************************************************************************
                         2434 *
1DC9 34 08 1E0D          2435 SAVRST   ST    SAVRSX+3,ARR          SAVE RETURN ADDRESS
1DCD 34 01 1E1D          2436          ST    RSTXR1+3,XR1          SAVE XR1 AND XR2
1DD1 34 02 1E19          2437          ST    RSTXR2+3,XR2              FOR RESTART
                         2438 *
1DD5 35 01 1E0D          2439          L     SAVRSX+3,XR1          LOAD ADDRESS OF 'LIO' OR 'SIO'
                         2440 *
1DD9 4D 00 00 1938       2441          CLC   0(1,XR1),SIO          IS INSTRUCTION A 'SIO'?
1DDE F2 01 06            2442          JNE   SAVRSA                JUMP IF NOT
                         2443 *
1DE1 D2 01 03            2444          LA    3(,XR1),XR1           ADJUST TO ADDRESS AFTER 'SIO'
1DE4 F2 87 0B            2445          J     SAVRSB                GO TO STORE ADDRESS
                         2446 *
1DE7 4D 00 00 18DB       2447 SAVRSA   CLC   0(,XR1),LIO           IS INSTRUCTION A 'LIO'
1DEC F2 01 07            2448          JNE   SAVRSC                GO IF NOT
                         2449 *
1DEF D2 01 04            2450          LA    4(,XR1),XR1           ADJUST TO ADDRESS AFTER 'LIO'
1DF2 34 01 1E21          2451 SAVRSB   ST    RSTAX+3,XR1           STORE RETURN FROM RESTART
                         2452 *
1DF6 3B 80 25FA          2453 SAVRSC   SBF   IND,HUNG              RESET HANG INDICATOR
1DFA 0C 03 2641 0003     2454          MVC   WORKN(4),3            STORE CONTENTS OF LOC 00 - 03
1E00 0C 03 0003 1E11     2455          MVC   3(4),RSTBR            STORE RESTART IN LOC 00 - 03
                         2456 *
1E06 35 01 1E1D          2457          L     RSTXR1+3,XR1          RESTORE XR1
1E0A C0 87 0000          2458 SAVRSX   B     *-*                   RETURN TO CALLING ROUTINE
                         2459
                         2459
1E0E C0 87 1E12          2460          B     RSTRT                 THIS IS MOVED TO LOC 00 - 03
                   1E11  2461 RSTBR    EQU   *-1                       FOR RESTART
                         2462
                         2462
                         2463 ********************************************************************************
                         2464 *        ENTER HERE ON A RESTART FOLLOWING A 'SIO' OR 'LIO'                    *
                         2465 *        HUNG IN A REJECTION LOOP                                              *
                         2466 ********************************************************************************
                         2467 *
1E12 3A 80 25FA          2468 RSTRT    SBN   IND,HUNG              SET HANG INDICATOR
1E16 C2 02 0000          2469 RSTXR2   LA    *-*,XR2               RESTORE XR2 AFTER RESTART
1E1A C2 01 0000          2470 RSTXR1   LA    *-*,XR1               RESTORE XR1 AFTER RESTART
1E1E C0 87 0000          2471 RSTAX    B     *-*                   RETURN AFTER RESTART
                         2472
                         2472
                         2473 ********************************************************************************
                         2474 *        ENTER HERE TO RESTORE LOC 00 - 03 IF 'SIO' OR 'LIO'                   *
                         2475 *        DID NOT HANG                                                          *
                         2476 ********************************************************************************
                         2477 *
1E22 34 08 1E2F          2478 RSTOR    ST    RSTORX+3,ARR          SAVE RETURN ADDRESS
1E26 0C 03 0003 2641     2479          MVC   3(4),WORKN            RESTORE LOC 00 - 03
1E2C C0 87 0000          2480 RSTORX   B     *-*                   RETURN TO CALLING ROUTINE
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2482 ********************************************************************************
                         2483 *                                                                              *
                         2484 *        INTERFACE TO ADAPTER MANUAL OPERATIONS PROGRAM (SECTION C19)           *
                         2485 *                                                                              *
                         2486 ********************************************************************************
                         2487 *
1E30 34 08 1E85          2488 AMOPLK   ST    AMOPX+3,ARR           SAVE RETURN ADDRESS
                         2489 *
1E34 38 01 020D          2490          TBN   SBYTE5,SSW2F          RETURN TO CALLING ROUTINE
1E38 F2 90 47            2491          JF    AMOPX                   IF SENSE SWITCH 2F IS NOT ON
                         2492 *
1E3B 34 01 1E7D          2493          ST    AMOPX1+3,XR1          SAVE INDEX REGISTER 1
1E3F 34 02 1E81          2494          ST    AMOPX2+3,XR2          SAVE INDEX REGISTER 2
                         2495 *
1E43 0C 18 0A39 0A18     2496          MVC   SVPFC(25),COM-1       SAVE SECTION PREFACE
                         2497 *
1E49 0D 01 0A1E 1E6B     2498          CLC   AMOPID(2),C19         GO TO LOAD SECTION C19
1E4F F2 01 09            2499          JNE   AMOPLD                  IF NOT ALREADY IN MAIN STG
                         2500 *
1E52 0D 01 4001 1E6B     2501          CLC   AMOP+1(2),C19         GO TO EXECUTE SECTION C19
1E58 F2 81 1B            2502          JE    AMOPGO                  IF ALREADY IN MAIN STORAGE
                         2503 *
1E5B C0 87 021A          2504 AMOPLD   B     PRINT                   PRINT MESSAGE
1E5F 2505                              DC    XL1'46'                   'LOADING SECTION C19'
1E60 2506                              DC    AL1(MSG02N-MSG02+1)
1E62 2507                              DC    AL2(MSG02N)
1E64 2508                              DC    AL2(HLT00)
                         2509 *
1E65 C0 87 022A          2510          B     LOAD                    LOAD SECTION C19
1E69 04                  2511          DC    XL1'04'
1E6A 0C19                2512 C19      DC    AL2'0C19'
                         2513 *
1E6C C0 87 021A          2514          B     PRINT                   PRINT MESSAGE
1E70 46                  2515          DC    XL1'46'                   'SECTION C19 READY'
1E71 11                  2516          DC    AL1(MSG03N-MSG03+1)
1E72 1FD0                2517          DC    AL2(MSG03N)
1E74 C100                2518          DC    AL2(HLT00)
                         2519 *
1E76 C0 87 4002          2520 AMOPGO   B     AMOP+2                  EXECUTE AMOP
                         2521 *
1E7A C2 01 0000          2522 AMOPX1   LA    *-*,XR1               RESTORE
1E7E C2 02 0000          2523 AMOPX2   LA    *-*,XR2                 INDEX REGISTERS
                         2524 *
1E82 C0 87 0000          2525 AMOPX    B     *-*                   RETURN TO CALLING ROUTINE
                         2526 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          2528 ********************************************************************************
                          2529 *                                                                              *
                          2530 *        INTERFACE TO MICROCODE LOADER PROGRAM (SECTION C17)                   *
                          2531 *                                                                              *
                          2532 ********************************************************************************
                          2533 *
1E86 34 08 1ECA           2534 MPL      ST    MPLX+3,ARR          SAVE RETURN ADDRESS
1E8A 34 01 1EC2           2535          ST    MPLX1+3,XR1         SAVE INDEX REGISTER 1
1E8E 34 02 1EC6           2536          ST    MPLX2+3,XR2         SAVE INDEX REGISTER 2
                          2537 *
1E92 0D 01 0A1C 1EBA      2538          CLC   LDRID(2),C17        GO TO LOAD LOADER
1E98 F2 01 09             2539          JNE   LDRLD                 IF NOT ALREADY IN STG
                          2540 *
1E9B 0D 01 6C01 1EBA      2541          CLC   LDR+1(2),C17        BRANCH IF SECTION C17
1EA1 F2 81 17             2542          JE    LDRGO                 IS ALREADY IN MAIN STORAGE
                          2543 *
1EA4 C0 87 021A           2544 LDRLD    B     PRINT               PRINT MESSAGE
1EA8 46                1EA8 2545          DC    XL1'46'               LOADING SECTION C17
1EA9 13                1EA9 2546          DC    AL1(MSG01N-MSG01+1)
1EAA 1FAC              1EAA 2547          DC    AL2(MSG01N)
1EAC C100              1EAD 2548          DC    AL2(HLT00)
                          2549 *
1EAE 0C 18 0A39 0A18      2550          MVC   SVPFC(25),COM-1     SAVE SECTION PREFACE
                          2551 *
1EB4 C0 87 022A           2552          B     LOAD                LOAD SECTION C17
1EB8 04                1EB8 2553          DC    XL1'04'
1EB9 0C17              1EBA 2554 C17      DC    XL2'0C17'
                          2555 *
1EBB C0 87 6C02           2556 LDRGO    B     LDR+2               GO TO SECTION C17
                          2557 *
1EBF C2 01 0000           2558 MPLX1    LA    *-*,XR1             RESTORE
1EC3 C2 02 0000           2559 MPLX2    LA    *-*,XR2               INDEX REGISTERS
                          2560 *
1EC7 C0 87 0000           2561 MPLX     B     *-*                 RETURN TO CALLING ROUTINE
                          2562 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          2564 ********************************************************************************
                          2565 *                                                                              *
                          2566 *              3340 ATTACHMENT SYSTEM RESET SUBROUTINE                         *
                          2567 *                                                                              *
                          2568 ********************************************************************************
                          2569 *
1ECB 34 08 1F41           2570 SYSRST   ST    RSTX+3,ARR          SAVE RETURN ADDRESS
1ECF 34 01 1F39           2571          ST    RSTX1+3,XR1         SAVE INDEX REGISTER 1
1ED3 34 02 1F3D           2572          ST    RSTX2+3,XR2         SAVE INDEX REGISTER 2
                          2573 *
1ED7 C0 87 1F42           2574          B     REGRST              RESET ATTACHMENT REGISTERS
                          2575 *
1EDB C2 01 2563           2576          LA    SVPSEQ,XR1          POINT TO SVP CONTROL STRING
                          2577 *
1EDF 3C 00 2577           2578          MVI   K,0                 PRESERVE MICRO-
1EE3 38 80 0A19           2579          TBN   COM,ADRSTP            PROCESSOR ADDRESS STOP
1EE7 F2 90 04             2580          JF    RSTLP                   SETUP DURING EXECUTION
1EEA 3C 04 2577           2581          MVI   K,X'04'                   OF ANOP (SECTION C19)
                          2582 *
1EEE 1C 01 2641 01        2583 RSTLP    MVC   WORKN(2),1(,XR1)    EXECUTE
1EF3 31 C5 2641           2584          LIO   WORKN,X'C5'           SIMULATED SYSTEM
1EF7 D2 01 02             2585          LA    2(,XR1),XR1             RESET SVP INTERFACE
1EFA 7D FF 00             2586          CLI   0(,XR1),X'FF'             CONTROL SEQUENCE
1EFD C0 01 1EEE           2587          BNE   RSTLP
                          2588 *
1F01 0C 01 2641 252F      2589          MVC   WORKN(2),P1         SETUP TIMER COUNT
                          2590 *
1F07 30 C5 263D           2591 SNSLP    SNS   SNS,X'C5'           LOOP UNTIL
1F0B 38 01 263D           2592          TBN   SNS,BIT7              MICRO-PROCESSOR
1F0F F2 90 0A             2593          JF    DELAY                   STARTS OR COUNTER
1F12 0E 01 2641 252F      2594          ALC   WORKN(2),P1               OVERFLOWS
1F18 C0 20 1F07           2595          BNOL  SNSLP
                          2596 *
1F1C C2 01 E5F6           2597 DELAY    LA    -6666,XR1           DELAY
1F20 36 01 252F           2598 DLYLP    A     P1,XR1                100 MSEC
1F24 C0 20 1F20           2599          BNOL  DLYLP
                          2600 *
1F28 31 C5 2591           2601          LIO   CEMODE,X'C5'        SET CE MODE
1F2C 31 C5 2574           2602          LIO   SVPREQ,X'C5'          INDICATORS
                          2603 *
1F30 0D FF 1F30 1F30      2604          CLC   *(256),*            800 USEC DELAY
                          2605 *
1F36 C2 01 0000           2606 RSTX1    LA    *-*,XR1             RESTORE
1F3A C2 02 0000           2607 RSTX2    LA    *-*,XR2               INDEX REGISTERS
                          2608 *
1F3E C0 87 0000           2609 RSTX     B     *-*                 RETURN TO CALLING ROUTINE
                          2610 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2612 ********************************************************************************
                         2613 *                                                                              *
                         2614 *              3340 ATTACHMENT REGISTER RESET SUBROUTINE                       *
                         2615 *                                                                              *
                         2616 ********************************************************************************
                         2617 *
1F42 34 08 1F99          2618 REGRST  ST    REGX+3,ARR          SAVE RETURN ADDRESS
1F46 34 01 1F95          2619         ST    REGX1+3,XR1         SAVE INDEX REGISTER 1
                         2620 *
1F4A C2 01 2594          2621         LA    EXTBL,XR1           POINT TO REGISTER ADDR TABLE
                         2622 *
1F4E 31 C5 257D          2623         LIO   K04,X'C5'           HALT MICRO-PROCESSOR
1F52 31 C5 257F          2624         LIO   K034,X'C5'          RESET MICRO-PROCESSOR CLOCK
1F56 31 C5 2581          2625         LIO   K024,X'C5'          SET SERVICE MODE
                         2626 *
1F5A 31 C5 2583          2627         LIO   C,X'C5'             X'00' --> OP REG C
                         2628 *
1F5E 3C 00 2584          2629 REGLP   MVI   CR-1,0              X'00' --> OP REG CR
1F62 31 C5 2585          2630         LIO   CR,X'C5'
                         2631 *
1F66 31 C5 2589          2632         LIO   LEXTZ,X'C5'         R4-R7 --> EXTERNAL ZONE
                         2633 *
1F6A 1C 00 2584 00       2634         MVC   CR-1,0(1,XR1)       EXT REG ADDR --> OP REG CR
1F6F 31 C5 2585          2635         LIO   CR,X'C5'
                         2636 *
1F73 1C 00 2586 01       2637         MVC   Y-1,1(1,XR1)        EXT REG DATA --> OP REG Y
1F78 31 C5 2587          2638         LIO   Y,X'C5'
                         2639 *
1F7C 31 C5 258B          2640         LIO   LEXTAR,X'C5'        R3-R7 --> EXT ADDR REG (EXTAR)
1F80 31 C5 258D          2641         LIO   LALUD,X'C5'         Y REG --> A REG --> D REG
1F84 31 C5 258F          2642         LIO   LEXT,X'C5'          D REG --> EXTERNAL REG
                         2643 *
1F88 D2 01 02            2644         LA    2(,XR1),XR1         ADVANCE TABLE POINTER
                         2645 *
1F8B 7D FF 00            2646         CLI   0(,XR1),X'FF'       LOOP UNTIL ALL
1F8E C0 01 1F5E          2647         BNE   REGLP                 REGS HAVE BEEN RESET
                         2648 *
1F92 C2 01 0000          2649 REGX1   LA    *-*,XR1             RESTORE INDEX REG 1
1F96 C0 87 0000          2650 REGX    B     *-*                 RETURN TO CALLING ROUTINE
                         2651 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2653 ********************************************************************************
                         2654 *                                                                              *
                         2655 *                              PRINT MESSAGES                                  *
                         2656 *                                                                              *
                         2657 ********************************************************************************
                         2658 *
                    1F9A 2659 MSG01   EQU   *
1F9A D3D6C1C4C9D5C740    1FAC 2660 MSG01N  DC    CL19'LOADING SECTION C17'
1FA2 E2C5C3E3C9D6D540         2660
1FAA C3F1F7                   2660
                              2661 *
                    1FAD 2662 MSG02   EQU   *
1FAD D3D6C1C4C9D5C740    1FBF 2663 MSG02N  DC    CL19'LOADING SECTION C19'
1FB5 E2C5C3E3C9D6D540         2663
1FBD C3F1F9                   2663
                              2664 *
                    1FC0 2665 MSG03   EQU   *
1FC0 E2C5C3E3C9D6D540    1FD0 2666 MSG03N  DC    CL17'SECTION C19 READY'
1FC8 C3F1F940D9C5C1C4         2666
1FD0 E8                       2666
                              2667 *
                    1FD1 2668 MSG04   EQU   *
1FD1 C9D5E5C1D3C9C440    1FFA 2669 MSG04N  DC    CL42'INVALID SETTING OF SNS SWS 11-12 OR 1A-1B.'     KMG
1FD9 E2C5E3E3C9D5C740         2669
1FE1 D6C640E2D5E240E2         2669
1FE9 E6E240F1F160F1F2         2669
1FF1 40D6D940F1C160F1         2669
1FF9 C2+B                     2669
                              2670 *
                    1FFB 2671 MSG05   EQU   *
1FFB D9C5C3D6E5C5D9C5    2013 2672 MSG05N  DC    CL25'RECOVERED AFTER X RETRIES'
2003 C440C1C6E3C5D940         2672
200B E740D9C5E3D9C9C5         2672
2013 E2                       2672
                              2673 *
                    2014 2674 MSG06   EQU   *
2014 C3C1D57DE340D9C5    2045 2675 MSG06N  DC    CL50'CAN''T RESTART MICROPROCESSOR - TESTING TERMINATED'
201C E2E3C1D9E340D4C9         2675
2024 C3D9D6D7D9D6C3C5         2675
202C E2E2D6D9406040E3         2675
2034 C5E2E3C9D5C740E3         2675
203C C5D9D4C9D5C1E3C5         2675
2044 C440                     2675
                              2676 *
                    2046 2677 MSG07   EQU   *
2046 D7C5D9D4C1D5C5D5    2061 2678 MSG07N  DC    CL28'PERMANENT ERR - RETRY FAILED'
204E E340C5D9D9406040         2678
2056 D9C5E3D9E840C6C1         2678
205E C9D3C5C4                 2678
                              2679 *
                    2062 2680 MSG08   EQU   *
                              DC    CL49'DRV CMD   CYL     HD    SIO    SNS     DDCR DDDR '
2062 C4D9E540C3D4C440    2092 2681
206A 4040C3E8D3404040         2681
2072 4040C8C440404040         2681
207A E2C9D640404040E2         2681
2082 D5E2404040404040C4       2681
208A C4C3D940C4C4C4D9         2681
2092 40                       2681
2093 C6C6C3C3C3C3C8C8    20A6 2682 MSG08N  DC    CL20'FFCCCCHHHHRRKLDLDLNN'
209B C8C8D9D9D2D3C4D3         2682
20A3 C4D3D5D5                 2682
                              2683 *
                    20A7 2684 MSG09   EQU   *
20A7 D9C5C1C440C4C9C1    20C0 2685 MSG09N  DC    CL26'READ DIAGNOSTIC SENSE DATA'
20AF C7D5D6E2E3C9C340         2685
20B7 E2C5D5E2C540C4C1         2685
20BF E3C1                     2685
                              2686 *
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         20C1 2687 MSGOA    EQU   *
  20C1 E2C5D3C5C3E340C4  20E1 2688         DC    CL33'SELECT DRIVE TO BE INITIALIZED.  '
  20C9 D9C9E5C540E3D640       2688
  20D1 C2C540C9D5C9E3C9       2688
  20D9 C1D3C9E9C5C44B40       2688
  20E1 40                     2688
  20E2 E2D5E240E2E6E240 210E  2689 MSGOAN   DC    CL45'SNS SWS 1A-1B SELECT DRIVES 1-2 RESPECTIVELY.'  KMG
  20EA F1C160F1C240E2C5       2689
  20F2 D3C5C3E340C4D9C9       2689
  20FA E5C5E240F160F240       2689
  2102 D9C5E2D7C5C3E3C9       2689
  210A E5C5D3E84B             2689
                              2690 *
                         210F 2691 MSGOB    EQU   *
  210F F0F060606060F0F3 2129  2692         DC    CL27'00----03 04----07 08----11 '
  2117 40F0F460606060F0       2692
  211F F740F0F860606060       2692
  2127 F1F140                 2692
  212A F1F260606060F1F5 2143  2693 MSGOBN   DC    CL26'12----15 16----19 20----23'
  2132 40F1F660606060F1       2693
  213A F940F2F060606060       2693
  2142 F2F3                   2693
                              2694 *
  2144 F0F0F061F0F0F0  214A   2695 REZERO   DC    CL7'000/000'              CYL AND HD FIELD INITIALIZER
                              2696 *
  2148 D9C5C3C1D3      214F   2697 MRECAL   DC    CL5'RECAL'
  2150 E2C5C5D240      2154   2698 MSEEK    DC    CL5'SEEK '
  2155 D9C4C8C1C5      2159   2699 MRDHAE   DC    CL5'RDHAE'
  215A D9C4C8C1D6      215E   2700 MRDHAO   DC    CL5'RDHAO'
  215F D9C4D9F0D0      2163   2701 MRDR00   DC    CL5'RDR00'
  2164 D9C4C3D2C4      2168   2702 MRDCKD   DC    CL5'RDCKD'
  2169 D9C4C4C7D5      216D   2703 MRDDGN   DC    CL5'RDDGN'
  216E D9C4D2C440      2172   2704 MRDKD    DC    CL5'RDKD '
  2173 D9C4E5D2C4      2177   2705 MRDVKD   DC    CL5'RDVKD'
  2178 D9C4D3D6C7      217C   2706 MRDLOG   DC    CL5'RDLOG'
  217D D9C4E2D5E2      2181   2707 MRDSNS   DC    CL5'RDSNS'
  2182 D9C4C9D7D3      2186   2708 MRDIPL   DC    CL5'RDIPL'
  2187 E6D9C8C1C5      218B   2709 MWRHAE   DC    CL5'WRHAE'
  218C E6D9C8C1D6      2190   2710 MWRHAO   DC    CL5'WRHAO'
  2191 E6D9D9F0D6      2195   2711 MWRR00   DC    CL5'WRR00'
  2196 E6D9C3D2C4      219A   2712 MWRCKD   DC    CL5'WRCKD'
  219B E6D9C3C3C4      219F   2713 MWRCCD   DC    CL5'WRCCD'
  21A0 E6D9D9C5D7      21A4   2714 MWRREP   DC    CL5'WRREP'
  21A5 E6D9D2C440      21A9   2715 MWRKD    DC    CL5'WRKD '
  21AA E2C3C1D5C5      21AE   2716 MSCANE   DC    CL5'SCANE'
  21AF E2C3C1D5C8      21B3   2717 MSCANH   DC    CL5'SCANH'
  21B4 E2C3D5D9C5      21B8   2718 MSCNRE   DC    CL5'SCNRE'
  21B9 E2C3D5D9C8      21BD   2719 MSCNRH   DC    CL5'SCNRH'
                              2720 *
                         21BE 2721 EMXX     EQU   *
  21BE C5D9D940F2F0    21C3   2722 EMXXN    DC    CL6'ERR 20'
                              2723 *
                         21C4 2724 EM00     EQU   *
  21C4 F0F0406040D3C9D6 21CB  2725 EM00N    DC    CL8'00 - LIO'
                              2726 *
                         21CC 2727 EM01     EQU   *
  21CC F0F1406040C1E3E3 21F2  2728 EM01N    DC    CL39'01 - ATTACHMENT BUSY -TIO- PRIOR TO SIO'
  21D4 C1C3C8D4C5D5E340       2728
  21DC C2E4E2E84060E3C9       2728
  21E4 D66040D7D9C9D6D9       2728
  21EC 40E3D640E2C9D6         2728
                              2729 *
                         21F3 2730 EM02     EQU   *
  21F3 F0F2406040C4C4C3 2212  2731 EM02N    DC    CL32'02 - DDCR DID NOT LOAD CORRECTLY'
  21FB D940C4C9C440D5D6       2731
  2203 E340D3D6C1C440C3       2731
  220B D6D9D9C5C3E3D3E8       2731
                              2732 *
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                         2213 2733 EM03     EQU   *
  2213 F0F3406040C4C4C4 221B  2734 EM03N    DC    CL9'03 - DDDR'
  221B D9                     2734
                              2735 *
                         221C 2736 EM04     EQU   *
  221C F0F4406040E2C9D6 223A  2737 EM04N    DC    CL31'04 - SIO HUNG IN REJECTION LOOP'
  2224 40C8E4D5C740C9D5       2737
  222C 40D9C5D1C5C3E3C9       2737
  2234 D6D540D3D6D6D7         2737
                              2738 *
                         223B 2739 EM05     EQU   *
  223B F0F5406040C4D9E5 2268  2740 EM05N    DC    CL46'05 - DRV NOT RDY OR UNIT CK -TIO- PRIOR TO SIO'
  2243 40D5D6E340D9C4E8       2740
  224B 40D6D940E4D5C9E3       2740
  2253 40C3D2406CE3C9D6       2740
  225B 6040D7D9C9D6D940       2740
  2263 E3D640E2C9D6           2740
                              2741 *
                         2269 2742 EM06     EQU   *
  2269 F0F6406040E2C9D6 2292  2743 EM06N    DC    CL42'06 - SIO DID NOT SET ATTACHMENT BUSY -TIO-'
  2271 40C4C9C440D5D6E3       2743
  2279 40E2C5E340C1E3E3       2743
  2281 C1C3C8D4C5D5E340       2743
  2289 C2E4E2E84060E3C9       2743
  2291 D660                   2743
                              2744 *
                         2293 2745 EM07     EQU   *
  2293 F0F7406040E2C5C5 22B8  2746 EM07N    DC    CL41'07 - SEEK CMD DID NOT SET SEEK BUSY -TIO-'
  229B D240C3D4C440C4C9       2746
  22A3 C440D5D6E340E2C5       2746
  22AB E340E2C5C5D240C2       2746
  22B3 E4E2E84060E3C9D6       2746
  22B8 60                     2746
                              2747 *
                         22BC 2748 EM08     EQU   *
  22BC F0F8406040E2C5C5 22E8  2749 EM08N    DC    CL45'08 - SEEK BUSY -TIO- WITH NO SEEK IN PROGRESS'
  22C4 D240C2E4E2E84060       2749
  22CC E3C9D66040E6C9E3       2749
  22D4 C840D5D640E2C5C5       2749
  22DC D240C9D540D7D9D6       2749
  22E4 C7D9C5E2E2             2749
                              2750 *
                         22E9 2751 EM09     EQU   *
  22E9 F0F9406040C1E3E3 2311  2752 EM09N    DC    CL41'09 - ATTACHMENT BUSY -TIO- DID NOT GO OFF'
  22F1 C1C3C8D4C5D5E340       2752
  22F9 C2E4E2E84060E3C9       2752
  2301 D66040C4C9C440D5       2752
  2309 D6E340C7D640D6C6       2752
  2311 C6                     2752
                              2753 *
                         2312 2754 EM0A     EQU   *
  2312 F0C1406040E4D5C9 2330  2755 EM0AN    DC    CL31'0A - UNIT CHECK OR NO-OP STATUS'
  231A E340C3C8C5C3D240       2755
  2322 D6D940D5D660D6D7       2755
  232A 40E2E3C1E3E4E2         2755
                              2756 *
                         2331 2757 EM0C     EQU   *
  2331 F0C3406040C1C4C1 2342  2758 EM0CN    DC    CL18'0C - ADAPTER CHECK'
  2339 D7E3C5D940C3C8C5       2758
  2341 C3D2                   2758
                              2759 *
                         2343 2760 EM0D     EQU   *
  2343 F0C4406040E4D5C5 235B  2761 EM0DN    DC    CL25'0D - UNEXPECTED INTERRUPT'
  234B E7D7C5C3E3C5C440       2761
  2353 C9D5E3C5D9D9E4D7       2761
  235B E3                     2761
                              2762 *
                         235C 2763 EM0E     EQU   *
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   235C F0C5406040C9D5E3 2386 2764 EM0EN    DC    CL43'0E - INTERRUPT WITH NO INTERRUPT BIT IN SNS'
   2364 C5D9D9E4D7E340E6      2764
   236C C9E3C840D5D640C9      2764
   2374 D5E3C5D9D9E4D7E3      2764
   237C 40C2C9E340C9D540      2764
   2384 E2D5E2                2764
                              2765 *
                         2387 2766 EM0F    EQU   *
   2387 F0C6406040C1C4C1 23AF 2767         DC    CL41'0F - ADAPTER CK ON RD DIAG SNS AFTER DRV '
   238F D7E3C5D940C3D240      2767
   2397 D6D540D9C440C4C9      2767
   239F C1C740E2D5E240C1      2767
   23A7 C6E3C5D940C4D9E5      2767
   23AF 40                    2767
   23B0 E4D5C9E340C3D240 23C6 2768 EM0FN    DC    CL23'UNIT CK OR NO-OP STATUS'
   23B8 D6D940D5D660D6D7      2768
   23C0 40E2E3C1E3E4E2        2768
                              2769 *
                         23C7 2770 EM10    EQU   *
   23C7 F1F0406040D5D640 23DE 2771 EM10N   DC    CL24'10 - NO OP END INTERRUPT'
   23CF D6D740C5D5C440C9      2771
   23D7 D5E3C5D9D9E4D7E3      2771
                              2772 *
                         23DF 2773 EM11    EQU   *
   23DF F1F1406040D5D640 23FD 2774 EM11N   DC    CL31'11 - NO SEEK COMPLETE INTERRUPT'
   23E7 E2C5C5D240C3D6D4      2774
   23EF D7D3C5E3C540C9D5      2774
   23F7 E3C5D9D9E4D7E3        2774
                              2775 *
                         23FE 2776 EM12    EQU   *
   23FE F1F2406040C6C1D3 2429 2777 EM12N   DC    CL44'12 - FALSE INTERRUPT PENDING -TIO- CONDITION'
   2406 E2C540C9D5E3C5D9      2777
   240E D9E4D7E340D7C5D5      2777
   2416 C4C9D5C74060E3C9      2777
   241E D66040C3D6D5C4C9      2777
   2426 E3C9D6D5              2777
                              2778 *
                         242A 2779 EM13    EQU   *
   242A F1F3406040C5E7D7 244F 2780 EM13N   DC    CL38'13 - EXPECTED SCAN EQUAL DID NOT OCCUR'
   2432 C5C3E3C5C440E2C3      2780
   243A C1D540C5D8E4C1D3      2780
   2442 40C4C9C440D5D6E3      2780
   244A 40D6C3C3E4D9          2780
                              2781 *
                         2450 2782 EM14    EQU   *
   2450 F1F4406040C5E7D7 2479 2783 EM14N   DC    CL42'14 - EXPECTED SCAN HIT -TIO- DID NOT OCCUR'
   2458 C5C3E3C5C440E2C3      2783
   2460 C1D540C8C9E34060      2783
   2468 E3C9D66040C4C9C4      2783
   2470 40D5D6E340D6C3C3      2783
   2478 E4D9                  2783
                              2784 *
                         247A 2785 EM15    EQU   *
   247A F1F5406040E4D5C5 24A1 2786 EM15N   DC    CL40'15 - UNEXPECTED SCAN HIT -TIO- CONDITION'
   2482 E7D7C5C3E3C5C440      2786
   248A E2C3C1D540C8C9E3      2786
   2492 4060E3C9D66040C3      2786
   249A D6D5C4C9E3C9D6D5      2786
                              2787 *
                         24A2 2788 EM16    EQU   *
   24A2 F1F6406040C4C4C4 24BD 2789 EM16N   DC    CL28'16 - DDDR RESIDUAL INCORRECT'
   24AA D940D9C5E2C9C4E4      2789
   24B2 C1D340C9D5C3D6D9      2789
   24BA D9C5C3E3              2789
                              2790 *
                         24BE 2791 EM17    EQU   *
   24BE F1F7406040C4C4C3 24C6 2792 EM17N   DC    CL9'17 - DDCR'
   24C6 D9                    2792
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              2793 *
                         24C7 2794 EM18    EQU   *
   24C7 F1F8406040C4C4C3 24CF 2795 EM18N   DC    CL9'18 - DDCF'
   24CF C6                    2795
                              2796 *
                         24D0 2797 EM19    EQU   *
   24D0 F1F9406040C4C4C4 24D8 2798 EM19N   DC    CL9'19 - DDDF'
   24D8 C6                    2798
                              2799 *
                         24D9 2800 EM1A    EQU   *
   24D9 F1C1406040E4D5C5 24F2 2801 EM1AN   DC    CL26'1A - UNEXPECTED SCAN EQUAL'
   24E1 E7D7C5C3E3C5C440      2801
   24E9 E2C3C1D540C5D8E4      2801
   24F1 C1D3                  2801
                              2802 *
                         24F3 2803 EM20    EQU   *
   24F3 F2F0406040E6D9C9 2506 2804 EM20N   DC    CL20'20 - WRITE INHIBITED'
   24FB E3C540C9D5C8C9C2      2804
   2503 C9E3C5C4              2804
                              2805 *
                         2507 2806 EM30    EQU   *
   2507 C5D9D940F2F0F3F0 2521 2807 EM30N   DC    CL27'ERR 2030 - READ IPL FAILURE'
   250F 406040D9C5C1C440      2807
   2517 C9D7D340C6C1C9D3      2807
   251F E4D9C5                2807
                              2808 *
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2810 ********************************************************************************
                         2811 *                                                                              *
                         2812 *                  CONSTANTS AND RESERVED STORAGE AREAS                        *
                         2813 *                                                                              *
                         2814 ********************************************************************************
                         2815 *
                         2816 *                  CONSTANTS
                         2817 *
2522 0000000000000000 252B 2818 NULLS    DC    10XL1'00'
252A 0000                2818
                         2819 *
252C F1               252C 2820 D1       DC    CL1'1'
                         2821 *
252D 000001           252F 2822 P1       DC    IL3'1'
2530 0002             2531 2823 P2       DC    IL2'2'
2532 0004             2533 2824 P4       DC    IL2'4'
2534 00000005         2537 2825 P5       DC    IL4'5'
2538 00000008         2538 2826 P8       DC    IL4'8'
253C 0014             253D 2827 P20      DC    IL2'20'
253E 0050             253F 2828 P80      DC    IL2'80'
2540 00000100         2543 2829 P256     DC    IL4'256'
2544 015D             2545 2830 P349     DC    IL2'349'
2546 04AF             2547 2831 P1200    DC    IL2'1199'
                         2832 *
2548 FFFF             2549 2833 N1       DC    IL2'-1'
                         2834 *
254A FFFFFFFF         254D 2835 FFPTN    DC    4XL1'FF'        SCAN TEST MASK
                         2836 *
254E 7777FFAA         2551 2837 WCPTN    DC    XL4'7777FFAA'   WORST CASE TEST PATTERN
                         2838 *
                      2552 2839 PATRN    EQU   *
2552                  2555 2840          DS    XL4             TEST PATTERN TEMPORARY STORAGE
                         2841 *
2556 0003E8           2558 2842          DC    IL3'1000'       INTERVAL TIMER INITIAL VALUE
2559 00               2559 2843 INTVL    DC    IL1'0'
                         2844 *
255A 266E             255B 2845 DGSNSA   DC    AL2(DGSNS)      ADDR OF RD DIAG SENSE AREA
                         2846 *
255C 268E             255D 2847 DDCR     DC    AL2(DDCF)       INITIAL DDCR INITIALIZATION VALUE
255E 269E             255F 2848 DDDR     DC    AL2(DDDF)       INITIAL DDDR INITIALIZATION VALUE
                         2849 *
2560 FE6000           2562 2850 TIM3S    DC    XL3'FE6000'     INITIAL VALUE FOR 3 SECOND TIMER
                         2851 *
                         2852 *-------------------------------------------------------------------------------
                         2853 *                  SVP INTERFACE CONTROL BYTES
                         2854 *
                      2563 2855 SVPSEQ   EQU   *               SYSTEM RESET SVP CONTROL STRING
2563 0008             2564 2856          DC    XL2'0008'         X'00' --> OP REG C
2565 000A             2566 2857          DC    XL2'000A'         X'00' --> OP REG CR
2567 BF0B             2568 2858          DC    XL2'BF0B'         INDEX VALUE (BF) --> OP REG Y
2569 020F             256A 2859          DC    XL2'020F'         OP REG Y --> A REG --> D REG
256B 880E             256C 2860          DC    XL2'880E'         D REG --> INDEX REG
256D 080E             256E 2861          DC    XL2'080E'         SERVICE ACCESS CYCLE
256F 8802             2570 2862          DC    XL2'8802'         RESET SERVICE MODE
2571 2009             2572 2863          DC    XL2'2009'         SYS RESET FLAG --> X REG
2573 0003             2574 2864 SVPREQ   DC    XL2'0003'         SET SVP REQUEST
2575 000E             2576 2865          DC    XL2'000E'         EXECUTE FIRST MICRO-INSTRUCTION
2577 00               2577 2866 K        DC    XL1'00'           RESTORE K REG
2578 02               2578 2867          DC    XL1'02'
2579 000E             257A 2868 RUNMP    DC    XL2'000E'         START MICROPROCESSOR
257B FF               257B 2869          DC    XL1'FF'           END SVP STRING
                         2870 *
257C 8802             257D 2871 K04      DC    XL2'8802'         HALT MICROPROCESSOR
257E 9802             257F 2872 K034     DC    XL2'9802'         RESET MICROPROCESSOR CLOCK
2580 A802             2581 2873 K024     DC    XL2'A802'         SET SERVICE MODE
2582 0008             2583 2874 C        DC    XL2'0008'         X'00' --> OP REG C
2584 000A             2585 2875 CR       DC    XL2'000A'         X'00' --> OP REG CR
2586 0008             2587 2876 Y        DC    XL2'0008'         X'00' --> OP REG Y
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

2588 010C                2589 2877 LEXTZ    DC    XL2'010C'
258A 000C                258B 2878 LEXTAR   DC    XL2'000C'
258C 020F                258D 2879 LALUD    DC    XL2'020F'
258E 020D                258F 2880 LEXT     DC    XL2'020D'
2590 C809                2591 2881 CEMODE   DC    XL2'C809'
2592 0002                2593 2882 SNS23    DC    XL2'0002'
                         2883 *
2594 2D80                2594 2884 EXTBL    EQU   *
2596 2D00                2595 2885 FTR      DC    XL2'2D80'
2598 2F00                2597 2886          DC    XL2'2D00'
259A 3300                2599 2887 SCN      DC    XL2'2F00'
259C 2500                259B 2888 DXC      DC    XL2'3300'
259E 238F                259D 2889 FTG      DC    XL2'2500'
25A0 2300                259F 2890 DST      DC    XL2'238F'
25A2 2780                25A1 2891          DC    XL2'2300'
25A4 2700                25A3 2892 FHF      DC    XL2'2780'
25A6 3F00                25A5 2893          DC    XL2'2700'
25A8 FF                  25A7 2894 SBO      DC    XL2'3F00'
                         25A8 2895          DC    XL1'FF'
                         2896 *
                         2897 *-------------------------------------------------------------------------------
                         2898 *                  COMMON INDICATORS AND WORK AREAS
                         2899 *
25A9                  25A9 2900 MSG      EQU   *
25AF                  25AE 2901 MSGA     DS    CL6               ERROR MESSAGE
25F9 00               25F8 2902 MSGN     DS    CL74                BUFFER AREA
                      25F9 2903          DC    XL1'00'
25FA 00                  2904 *
                      25FA 2905 IND      DC    XL1'0'            PROGRAM INDICATORS
25FB                     2906 *
                      25FC 2907 SWS      DS    XL2               DATA SWS SENSE AREA
2601                  25FB 2908 LINKID   EQU   SWS-1             SWS 1 & 2 CONTAIN AMOP LINK CONTROL
2606                     2909 *
260D                  2600 2910 SSWSV    DS    XL4               SECTION SENSE SWITCH STORAGE
                         2911 *
2612                  2605 2912 CMD      DS    CL5               COMMAND NAME
2614                  260C 2913 CYL      DS    CL7               CURRENT CYLINDER ADDRESS   S3/3340
                      2611 2914 HD       DS    CL5               CURRENT HEAD ADDRESS   S3/3340
2615                     2915 *
                      2613 2916 LPCNT    DS    XL2               ROUTINE LOOP COUNTER
2617                  2614 2917 ERRCNT   DS    CL1               ERROR RETRY COUNTER
                         2918 *
2620                  2616 2919 ADRPTR   DS    XL2               DRIVE SELECTION POINTER
2622                     2920 *
                      2617 2921 ADRTBL   EQU   *
2624                  261F 2922          DS    XL9               DRIVE SELECTION TABLE
2626                     2923 *
                      2621 2924 IDDCR    DS    XL2               INITIAL DDCR VALUE
2628                  2623 2925 IDDDR    DS    XL2               INITIAL DDDR VALUE
                         2926 *
2632                  2625 2927 RDDCR    DS    XL2               RESIDUAL DDCR VALUE
263C                  2627 2928 RDDDR    DS    XL2               RESIDUAL DDDR VALUE
                         2929 *
263E                  2628 2930 IDDCF    EQU   *                 INITIAL DDCF
                      2631 2931 IDDCFN   DS    XL10
                         2932 *
                      2632 2933 RDDCF    EQU   *                 RESIDUAL DDCF
                      2638 2934 RDDCFN   DS    XL10
                         2935 *
                      263D 2936 SNS      DS    XL2               3340 ADAPTER SENSE INFO
                         2937 *
                      263E 2938 WORK     EQU   *                 GENERAL PURPOSE
                      2641 2939 WORKN    DS    XL4                 WORK AREA
                         2940 *
                      2642 2941 DRVWK    EQU   *                 START OF DRV DEPENDENT WORK AREAS
                         2942 *-------------------------------------------------------------------------------
                         2943 *                  DRIVE 1 INDICATORS AND WORK AREAS
                         2944 *

R4-R7 --> EXTERNAL ZONE REG
R3-R7 --> EXT ADDR REG (EXTAR)
Y REG --> A REG --> D REG
D REG --> EXTERNAL REG
CE MODE INDICATORS --> X REG
SENSE ERROR BYTES

ATTACHMENT
  EXTERNAL
    REGISTER
      ADDRESS
        TABLE
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2642 2945 DRVWK1   EQU   *              START OF DRIVE 1 WORK AREA
                              2946 *
   2642 00               2642 2947 DIND     DC    XL1'00'        DRIVE DEPENDENT INDICATORS
                              2948 *
   2643 F1               2643 2949 DRV      DC    CL1'1'         DRIVE NUMBER
   2644 C0               2644 2950 DRVADR   DC    XL1'C0'        DRIVE ADDRESS
                              2951 *
   2645 08               2645 2952 SKMSK    DC    XL1'08'        SEEK COMPLETE INTERRUPT MASK
   2646 80               2646 2953 UCKMSK   DC    XL1'80'        UNIT CHECK MASK
   2647 40               2647 2954 SKRST    DC    XL1'40'        SEEK COMPLETE INTERRUPT RESET R BYTE
                              2955 *
   2648                  2648 2956 Q        DS    XL1            SIO Q BYTE
   2649                  2649 2957 R        DS    XL1            SIO R BYTE
                              2958 *
   264A                  264D 2959 PA       DS    XL4            CURRENT PHYSICAL ACCESS POSITION
                              2960 *
   264E                  264E 2961 FF       DS    XL1            FLAG VALUE
   264F                  2650 2962 CC       DS    XL2            CYLINDER ADDRESS
   2651                  2652 2963 HH       DS    XL2            HEAD ADDRESS
   2653                  2653 2964 RR       DS    XL1            RECORD NUMBER
   2654                  2654 2965 KL       DS    XL1            KEY LENGTH
   2655                  2656 2966 DL       DS    XL2            DATA LENGTH
   2657                  2657 2967 NN       DS    XL1            NUMBER OF RECORDS
                              2968 *
                              2969 *-------------------------------------------------------------
                              2970 *              DRIVE 2 INDICATORS AND WORK AREAS
                              2971 *
                         2658 2972 DRVWK2   EQU   *              START OF DRIVE 2 WORK AREA
                              2973 *
   2658 00               2658 2974 DIND2    DC    XL1'00'        DRIVE DEPENDENT INDICATORS
                              2975 *
   2659 F2               2659 2976 DRV2     DC    CL1'2'         DRIVE NUMBER
   265A C8               265A 2977 DRVAD2   DC    XL1'C8'        DRIVE ADDRESS
                              2978 *
   265B 04               265B 2979 SKMSK2   DC    XL1'04'        SEEK COMPLETE INTERRUPT MASK
   265C 40               265C 2980 UCKMS2   DC    XL1'40'        UNIT CHECK MASK
   265D 20               265D 2981 SKRST2   DC    XL1'20'        SEEK COMPLETE INTERRUPT RESET R BYTE
                              2982 *
   265E                  265E 2983 Q2       DS    XL1            SIO Q BYTE
   265F                  265F 2984 R2       DS    XL1            SIO R BYTE
                              2985 *
   2660                  2663 2986 PA2      DS    XL4            CURRENT PHYSICAL ACCESS POSITION
                              2987 *
   2664                  2664 2988 FF2      DS    XL1            FLAG VALUE
   2665                  2666 2989 CC2      DS    XL2            CYLINDER ADDRESS
   2667                  2668 2990 HH2      DS    XL2            HEAD ADDRESS
   2669                  2669 2991 RR2      DS    XL1            RECORD NUMBER
   266A                  266A 2992 KL2      DS    XL1            KEY LENGTH
   266B                  266C 2993 DL2      DS    XL2            DATA LENGTH
   266D                  266D 2994 NN2      DS    XL1            NUMBER OF RECORDS
                              2995 *
                              2996 *-------------------------------------------------------------
                              2997 *
                         266E 2998 DGSNS    EQU   *              3340 SUBSYSTEM SENSE DATA
   266E                  2685 2999         DS    XL24
                              3000 *
                              3001 *-------------------------------------------------------------
                              3002 *
   268E                       3003         ORG   *,10,0         *** PROGRAM MAINTENANCE NOTE ***   KMG
                              3004 *              DDCF AND DDDF MUST START
                              3005 *              ON EVEN ADDRESS BOUNDARY
                              3006 *
                         268E 3007 DDCF     EQU   *              DDCF AREA
   268E                  269D 3008         DS    XL16
                              3009 *
                         269E 3010 DDDF     EQU   *              DDDF AREA
   269E                  2B4D 3011         DS    1200XL1
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              3013 ********************************************************************************
                              3014 *                                                                              *
                              3015 *                          SYMBOL DEFINITIONS                                  *
                              3016 *                                                                              *
                              3017 ********************************************************************************
                              3018 *
                              3019 *              LOCAL STORE REGISTERS
                              3020 *
   0001                       3021 XR1      EQU   X'01'          INDEX REGISTER 1
   0002                       3022 XR2      EQU   X'02'          INDEX REGISTER 2
                              3023 *
   0004                       3024 PSR      EQU   X'04'          PROGRAM STATUS REGISTER
   0008                       3025 ARR      EQU   X'08'          CURRENT LEVEL ADDRESS RECALL REG
                              3026 *
   0020                       3027 PIAR     EQU   X'20'          PROGRAM LEVEL INSTRUCTION ADDR REG
                              3028 *
                              3029 *-------------------------------------------------------------
                              3030 *              COMMON SENSE SWITCHES
                              3031 *
   0004                       3032 SSW05    EQU   X'04'          USE ALTERNATE PRINTER (3277 CRT)
                              3033 *
                              3034 *-------------------------------------------------------------
                              3035 *              SECTION SENSE SWITCHES
                              3036 *
   0040                       3037 SSW11    EQU   X'40'          INHIBIT TESTING ON DISK DRIVE 1
   0020                       3038 SSW12    EQU   X'20'          INHIBIT TESTING ON DISK DRIVE 2
                              3039 *
   0020                       3040 SSW1A    EQU   X'20'          USE DRIVE 1 ONLY
   0010                       3041 SSW1B    EQU   X'10'          USE DRIVE 2 ONLY
                              3042 *
   0040                       3043 SSW21    EQU   X'40'          INHIBIT WRITE TESTING ON DRIVE 1
   0020                       3044 SSW22    EQU   X'20'          INHIBIT WRITE TESTING ON DRIVE 2
                              3045 *
   0001                       3046 SSW2F    EQU   X'01'          ENABLE AMOP (SECTION C19)
                              3047 *
                              3048 *-------------------------------------------------------------
                              3049 *              MESSAGE / HALT IDENTIFIERS
                              3050 *
   C100                       3051 HLT00    EQU   X'C100'        NO HALT
   C101                       3052 HLT01    EQU   X'C101'        COMMON 3340 ERROR HALT
   C1E2                       3053 HLTE2    EQU   X'C1E2'        SSW 11-12 OR 1A-1B INVALID        KMG
   C1E4                       3054 HLTE4    EQU   X'C1E4'        SELECT DRIVE TO BE INITIALIZED
                              3055 *
                              3056 *-------------------------------------------------------------
                              3057 *              COMMON PROGRAM INDICATORS (IND)
                              3058 *
   0080                       3059 HUNG     EQU   X'80'          HANG CONDITION OCCURRED
   0040                       3060 HLTSW    EQU   X'40'          ERROR HALT AFTER TESTING ALL DRIVES
   0020                       3061 INTERR   EQU   X'20'          ERROR DETECTED IN 3340 INTERRUPT RTN
   0010                       3062 DRVERR   EQU   X'10'          UNIT CHECK DETECTED IN INTRP RTN
   0008                       3063 TIOERR   EQU   X'08'          TIO INTRP PENDING FAILED
   0004                       3064 OPEND    EQU   X'04'          OP END INTERRUPT EXPECTED
   0002                       3065 SKEND    EQU   X'02'          SEEK COMPLETE INTERRUPT EXPECTED
   0001                       3066 SNSAVL   EQU   X'01'          READ SENSE DATA AVAILABLE
                              3067 *
                              3068 *-------------------------------------------------------------
                              3069 *              DRIVE DEPENDENT INDICATORS (DIND)
                              3070 *
   0080                       3071 CEDM     EQU   X'80'          CE DATA MODULE MOUNTED
   0040                       3072 LPSW     EQU   X'40'          DRIVE LOOP INDICATOR
   0020                       3073 HAEDEF   EQU   X'20'          DEFECTIVE EVEN HOME ADDRESS
   0010                       3074 HAODEF   EQU   X'10'          DEFECTIVE ODD HOME ADDRESS
   0008                       3075 NOWR     EQU   X'08'          INHIBIT WRITE TESTING
   0001                       3076 SW       EQU   X'01'          GENERAL PURPOSE PROGRAM INDICATOR
                              3077 *
                              3078 *-------------------------------------------------------------
                              3079 *              3340 PROGRAM COMMUNICATION AREA (COM) INDICATORS
                              3080 *
```

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ERR LOC OBJECT CODE     ADDR STMT SOURCE STATEMENT

                        0080 3081 ADRSTP   EQU   X'80'          MICROPROCESSOR ADDR STOP ENABLED
                        0020 3082 MPLFLG   EQU   X'20'          MICRO-PROGRAM LOADED
                        0001 3083 AMOPSW   EQU   X'01'          AMOP IN EXECUTION INDICATOR
                             3084 *
                             3085 *-------------------------------------------------------
                             3086 *              BIT POSITION SYMBOLS
                             3087 *
                        0040 3088 BIT1     EQU   X'40'
                        0010 3089 BIT3     EQU   X'10'
                        0008 3090 BIT4     EQU   X'08'
                        0004 3091 BIT5     EQU   X'04'
                        0002 3092 BIT6     EQU   X'02'
                        0001 3093 BIT7     EQU   X'01'
                             3094 *
                             3095 *-------------------------------------------------------
                             3096 *              DCP SECTION REFERENCE TABLE
                             3097 *
                        0208 3098 SBYTE0   EQU   X'0208'        COMMON SENSE SWITCHES   00-07
                        0209 3099 SBYTE1   EQU   X'0209'        COMMON SENSE SWITCHES   08-0F
                        020A 3100 SBYTE2   EQU   X'020A'        SECTION SENSE SWITCHES  10-17
                        020B 3101 SBYTE3   EQU   X'0208'        SECTION SENSE SWITCHES  18-1F
                        020C 3102 SBYTE4   EQU   X'020C'        SECTION SENSE SWITCHES  20-27
                        020D 3103 SBYTE5   EQU   X'020D'        SECTION SENSE SWITCHES  28-2F
                             3104 *
                        0212 3105 TEST     EQU   X'0212'        CHECK CE CONSOLE SWITCHES
                        0216 3106 LINK     EQU   X'0216'        LINK TO NEXT ROUTINE OR SECTION
                        021A 3107 PRINT    EQU   X'021A'        PRINT A MESSAGE
                        021E 3108 UNPACK   EQU   X'021E'        UNPACK DATA - HEX TO EBCDIC
                        0222 3109 HALT     EQU   X'0222'        HALT AND DISPLAY HALT IDENTIFIER
                        022A 3110 LOAD     EQU   X'022A'        LOAD NEXT SECTION OR RECORD
                             3111 *
                        0232 3112 UTAB     EQU   X'0232'        DCP UDT TABLE
                             3113 *
                             3114 *-------------------------------------------------------
                             3115 *          OTHER REFFERENCES EXTERNAL TO THIS SECTION
                             3116 *
                        4000 3117 AMOP     EQU   X'4000'        ADAPTER MANUAL OPERATIONS PROGRAM
                        6C00 3118 LDR      EQU   X'6C00'        3340 MICROCODE LOADER PGM - MOD 12
                             3119 *
                        FFFF 3120          END
```


CROSS-REFERENCE

```
SYMBOL   T LEN VALUE  DEFN   REFERENCES
ABEND    A 004 138D   1246   1230
ADRPTR   A 002 2616   2919   1108* 1156  1164* 1169* 2385
ADRSTP   C 001 0080   3081   2579
ADRTBL   A 001 2617   2921   0942  1073  1107  1168
AMOP     C 001 4000   3117   2501  2520
AMOPGO   A 004 1E76   2520   2502
AMOPID   A 002 0A1E   0032   2498
AMOPLD   A 004 1E58   2504   2499
AMOPLK   A 004 1E30   2488   1057  1219  1825  1921
AMOPSW   C 001 0001   3083   1056
AMOPX    A 004 1E82   2525   2488* 2491
AMOPX1   A 004 1E7A   2522   2493*
AMOPX2   A 004 1E7E   2523   2494*
ARR      C 001 0008   3025   1045  1266  1285  1368  1380  1408  1438  1461  1482  1521  1553  1567
                             1596  1608  1624  1644  1673  1685  1716  1728  1740  1763  1775  1787
                             1802  2237  2377  2435  2478  2488  2534  2570  2618
BEGIN    A 004 11F3   1045   0051  0085  0121  0156  0200  0260  0325  0361  0424  0511  0609  0696
                             0765  0818  0938
BGNX     A 004 12CF   1137   1052* 1208
BGN01    A 003 120C   1054   1191
BGN02    A 006 1238   1071   1123
BGN03    A 004 1267   1090   1077  1086
BGN06    A 003 1289   1105   1092  1101
BGN07    A 003 1281   1125   1112
BIT1     C 001 0040   3088   0571  0583  0642  0665  0723  0738
BIT3     C 001 0010   3089   2219  2388
BIT4     C 001 0008   3090   2406
BIT5     C 001 0004   3091   1226  1857  2219
BIT6     C 001 0002   3092   1577
BIT7     C 001 0001   3093   0589  0630  0645  0671  0672  0747  1226  1229  1959  2013  2157  2168
                             2197  2226  2382  2592
C        A 002 2583   2374   2627
CC       A 002 2650   2962   1338*
CC2      A 002 2666   2989
CEDM     C 001 0080   3071   1224  1309  1579
CEMODE   A 002 2591   2881   1062  2601
CMD      A 005 2605   2912   1270* 1288* 1370* 1382* 1410* 1440* 1463* 1484* 1523* 1555* 1569* 1598*
                             1610* 1626* 1646* 1675* 1687* 1718* 1730* 1742* 1765* 1777* 2258
COM      A 001 0A19   0028   0869* 1056  1059  1251* 2496  2550  2579
CR       A 002 2585   2875   2629* 2630  2634* 2635
CYL      A 007 260C   2913   1277* 1292* 1297* 1345* 2259
C12      A 001 0000   0007
C17      A 002 1EBA   2554   2538  2541
C19      A 002 1E6B   2512   2498  2501
DASDI    A 004 1D56   2377   1827  1905
DASDIX   A 004 1DC5   2420   2377*
DASDX2   A 004 1DC1   2418   2378* 2414
DASD01   A 004 1D97   2401   2390
DASD02   A 005 1D9F   2404   2399
DASD03   A 004 1DAF   2409
DASD04   A 004 1DB3   2411   2383  2395
DASD05   A 003 1DB7   2413
DASD06   A 003 1DBE   2416   2397* 2401* 2407
DDCF     A 001 268E   3007   2847
DDCR     A 002 255D   2847   1068  1187
DDDF     A 001 269E   3010   0465* 0466  0466* 0526* 0527  0527* 0528* 0562* 0624* 0625  0625* 0626*
                             0627* 0628* 0633  0633* 0648  0653  0668  0711* 0712  0712* 0713* 0714*
                             0726  0741  0996* 2848
DDDR     A 002 255F   2848   0874  0895  1069  1188
DELAY    A 004 1F1C   2597   2593
DGSNS    A 001 266E   2998   1821* 2051* 2052  2052* 2054* 2056* 2057* 2212  2214  2335  2340  2345
                             2350  2355  2360  2845
DGSNS2   A 002 255B   2845   2173  2177
DIND     A 001 2642   2947   0271  0329  0368  0435  0776  0965  0968* 0969* 0973* 0974* 0976  0979*
                             0980* 0984* 0985* 0987  0993* 1083* 1088* 1098* 1103* 1125* 1206  1207*
                             1224* 1309  1579*
```

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
DIND2	A	001	2658	2974	
DL	A	002	2656	2966	0223 0292 0389 0447* 0995* 1017* 1395* 1420 1427 1445* 1452* 1499 1506 1528* 1617* 1633 1660 1701
DLYLP	A	004	1F20	2598	2599
DL2	A	002	266C	2993	
DRV	A	001	2643	2949	2257
DRVADR	A	001	2644	2950	1805 1807 1808 2167
DRVAD2	A	001	265A	2977	
DRVERR	C	001	0010	3062	1194 2207 2409
DRVWK	A	001	2642	2941	0038
DRVWK1	A	001	2642	2945	1079
DRVWK2	A	001	2658	2972	1094
DRV2	A	001	2659	2976	
DST	A	002	259F	2890	
DXC	A	002	259B	2888	
D1	A	001	252C	2820	1232 1297 1302 1345 1350
EMXX	A	001	218E	2721	
EMXXN	A	006	21C3	2722	2239
EM0A	A	001	2312	2754	
EM0AN	A	031	2330	2755	2021
EM0C	A	001	2331	2757	
EM0CN	A	018	2342	2758	2028
EM0D	A	001	2343	2760	
EM0DN	A	025	235B	2761	2036
EM0E	A	001	235C	2763	
EM0EN	A	043	2386	2764	2042
EM0F	A	001	2387	2766	
EM0FN	A	023	23C6	2768	2049
EM00	A	001	21C4	2724	
EM00N	A	008	21CB	2725	1935
EM01	A	001	21CC	2727	
EM01N	A	039	21F2	2728	1941
EM02	A	001	21F3	2730	
EM02N	A	032	2212	2731	1947 1953
EM03	A	001	2213	2733	
EM03N	A	009	221B	2734	1954
EM04	A	001	221C	2736	
EM04N	A	031	223A	2737	1934 1968
EM05	A	001	223B	2739	
EM05N	A	046	2268	2740	1974
EM06	A	001	2269	2742	
EM06N	A	042	2292	2743	1980
EM07	A	001	2293	2745	
EM07N	A	041	228B	2746	1986
EM08	A	001	228C	2748	
EM08N	A	045	22E8	2749	1992
EM09	A	001	22E9	2751	
EM09N	A	041	2311	2752	2006
EM1A	A	001	24D9	2800	
EM1AN	A	026	24F2	2801	2135
EM10	A	001	23C7	2770	
EM10N	A	024	23DE	2771	2071
EM11	A	001	23DF	2773	
EM11N	A	031	23FD	2774	2078
EM12	A	001	23FE	2776	
EM12N	A	044	2429	2777	2084
EM13	A	001	242A	2779	
EM13N	A	038	244F	2780	2090
EM14	A	001	2450	2782	
EM14N	A	042	2479	2783	2096
EM15	A	001	247A	2785	
EM15N	A	040	24A1	2786	2102
EM16	A	001	24A2	2788	
EM16N	A	028	24BD	2789	2108 2114 2121 2128
EM17	A	001	24BE	2791	
EM17N	A	009	24C6	2792	2115

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
EM18	A	001	24C7	2794	
EM18N	A	009	24CF	2795	2122
EM19	A	001	24D0	2797	
EM19N	A	009	24D8	2798	2129
EM20	A	001	24F3	2803	
EM20N	A	020	2506	2804	2141
EM30	A	001	2507	2806	0912
EM30N	A	027	2521	2807	0912 0913
ERRCNT	A	001	2614	2917	1066* 1144 1147 1154* 1221 1232* 1234 1242*
ERRPRT	A	004	1C4F	2237	1222
ERRPX	A	004	1D52	2368	2237* 2319
ERRP01	A	004	1C6C	2250	
ERRXX	A	003	1B63	2147	1830 1911 1975 2073 2079 2085 2091 2097 2103 2136
ERRXXA	A	004	1B7A	2157	2150 2153
ERRXXB	A	005	1B98	2167	2161
ERRXXC	A	004	1BEE	2196	
ERRXXD	A	004	1BFE	2202	2165
ERRXXE	A	004	1C2F	2219	2208
ERRXXF	A	006	1BE0	2192	2194
ERRXXG	A	004	1C3F	2225	2193
ERR0A	A	006	1A72	2021	2211 2213 2215
ERR0C	A	006	1A7C	2027	1960 2014 2158
ERR0D	A	006	1A91	2036	2223
ERR0E	A	006	1A9B	2042	2221
ERR0F	A	006	1AA5	2048	2198 2227
ERR0FA	A	004	1AB1	2051	2031
ERR00	A	006	19CA	1934	1839 1846 2181
ERR01	A	006	19D9	1941	1832 2188
ERR02	A	006	19E2	1947	1852
ERR03	A	006	19EB	1953	1855 2178
ERR03A	A	003	19F7	1956	1948
ERR04	A	006	1A09	1967	1875
ERR05	A	006	1A18	1974	1868
ERR06	A	006	1A22	1980	1878
ERR07	A	006	1A2B	1986	1883
ERR08	A	006	1A34	1992	1891
ERR08A	A	006	1A3A	1994	1981 1987
ERR08B	A	004	1A40	1996	1999
ERR08C	A	003	1A51	2001	1997
ERR09	A	006	1A54	2006	1896 2170 2229
ERR09A	A	004	1A5A	2008	1969 2001
ERR09B	A	004	1A62	2011	1936 1942
ERR1A	A	006	1B50	2135	0724 0739
ERR10	A	004	1AD5	2066	1903
ERR11	A	006	1AE9	2078	2069
ERR12	A	006	1AF2	2084	2066
ERR13	A	006	1AFB	2090	0572 0584 0643 0666
ERR14	A	006	1B04	2096	0569 0581 0640 0663 0721 0736
ERR15	A	006	1B0D	2102	0534 0542 0550 0558
ERR16	A	006	1B16	2108	1356 1401 1431 1512 1544 1586 1637 1644 1707 1754
ERR17	A	006	1B20	2114	1917
ERR18	A	006	1B30	2121	0224 0293 0390 1359 1392 1421 1498 1500 1539 1541 1589 1634 1661 1702
ERR19	A	006	1B40	2128	0229 0298 0395 0484 0649 0654 0669 0727 0742
ERR20	A	006	1B59	2141	2217
ERR30	A	004	10F4	0908	0878 0885 0890
EXTBL	A	001	2594	2884	2621
FAOID	A	002	0A20	0033	
FF	A	001	264E	2961	
FFPTN	A	001	254D	2835	0648 0653 0726
FF2	A	001	2664	2988	
FHF	A	002	25A3	2892	
FTG	A	002	259D	2889	
FTR	A	002	2595	2885	
HAEDEF	C	001	0020	3073	0969 0974 0987
HALT	C	001	0222	3109	0916 0953 1120 1177 1253

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
HAODEF	C	001	0010	3074	0976 0980 0985
HD	A	005	2611	2914	1278* 1293* 1302* 1350* 2260
HH	A	002	2652	2963	1339* 1361 1616*
HH2	A	002	2668	2990	
HLTE2	C	001	C1E2	3053	1118 1121
HLTE4	C	001	C1E4	3054	0951 0954
HLTSW	C	001	0040	3060	1174 1180 1243
HLT00	C	001	C100	3051	2508 2518 2548
HLT01	C	001	C101	3052	0914 0917 1178 1254 2248
HUNG	C	001	0080	3059	0877 0884 1838 1845 1874 2180 2187 2453 2468
IDDCF	A	001	2628	2930	
IDDCFN	A	010	2631	2931	1358 1588 1811* 2286
IDDCR	A	002	2621	2924	0172* 1068* 1187* 1813 1835 1851 1913 1916 2241 2276
IDDDR	A	002	2623	2925	0060* 0173* 0226 0234 0235* 0295 0303 0304* 0392 0400 0401* 0442 0457* 0463* 0472* 0478* 0479 0489 0490* 0630 0645 0671 0672* 1009 1069* 1188* 1355 1394 1425 1504 1543 1576 1581 1636 1663 1706 1753 1842 1854 2281
IND	A	001	25FA	2905	0877 0884 1065* 1174 1180* 1193* 1194* 1243* 1829 1838 1845 1860* 1865* 1866* 1874 1882 1887 1907 1910 1996 2059* 2068 2149 2180 2187 2200* 2202 2207 2318 2389 2394 2398* 2402* 2409* 2411* 2453* 2468*
INTERR	C	001	0020	3061	1194 1929 1910 2149 2202 2411
INTVL	A	001	2559	2843	
K	A	001	2577	2866	1130 1199 2578* 2581*
KL	A	001	2654	2965	1426 1505
KL2	A	001	266A	2992	
K024	A	002	2581	2873	2625
K034	A	002	257F	2872	2624
K04	A	002	257D	2871	2623
LALUD	A	002	258D	2879	2641
LDR	C	001	6C00	3118	2541 2556
LDRGO	A	004	1E88	2556	2542
LDRID	A	002	0A1C	0031	2538
LDRLD	A	004	1EA4	2544	2539
LEXT	A	002	258F	2880	2642
LEXTAR	A	002	2588	2878	2640
LEXTZ	A	002	2589	2877	2632
LINK	C	001	0216	3106	0070 0106 0141 0185 0245 0312 0346 0411 0495 0594 0680 0752 0800 0852
LINKID	A	002	25F8	2908	1218 1824 1920
LIO	A	004	18DB	1835	2447
LOAD	C	001	022A	3110	0922 1033 1256 2510 2552
LOOP	A	006	1328	1187	0068 0104 0139 0183 0243 0310 0409 0592 0678 0750 0850 1031 1166 1235
LOOPX	A	004	136E	1210	1048*
LPCNT	A	002	2613	2916	0049* 0067* 0258* 0309* 0442* 0463 0478 0481* 0486* 0607* 0677* 0816* 0831 0848* 0849
LPSW	C	001	0040	3072	1125 1206 1207 1224
MPL	A	004	1E86	2534	0920 1060
MPLFLG	C	001	0020	3082	0869 1059 1251
MPLX	A	004	1EC7	2561	2534*
MPLX1	A	004	1E8F	2558	2535*
MPLX2	A	004	1EC3	2559	2536*
MRDCKD	A	005	2168	2702	1440
MRDDGN	A	005	216D	2703	1463
MRDHAE	A	005	2159	2699	1370
MRDHAO	A	005	215E	2700	1382
MRDIPL	A	005	2186	2708	
MRDKD	A	005	2172	2704	1484
MRDLOG	A	005	217C	2706	1555
MRDROO	A	005	2163	2701	1410
MRDSNS	A	005	2181	2707	1569
MRDVKD	A	005	2177	2705	1523
MRECAL	A	005	214F	2697	1270
MSCANE	A	005	21AE	2716	1730
MSCANH	A	005	21B3	2717	1742

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
MSCNRE	A	005	21B8	2718	1765
MSCNRH	A	005	21BD	2719	1777
MSEEK	A	005	2154	2698	1288
MSG	A	001	25A9	2900	2257* 2258* 2259* 2260* 2265 2270 2272* 2277 2282 2287 2296* 2301 2306 2311 2336 2341 2346 2351 2356 2361
MSGA	A	006	25AE	2901	1934* 1935* 1941* 1947* 1953* 1954* 1968* 1974* 1980* 1986* 1992* 2006* 2021* 2028* 2036* 2042* 2049* 2071* 2078* 2084* 2090* 2096* 2102* 2108* 2114* 2115* 2121* 2122* 2128* 2129* 2135* 2141* 2239*
MSGN	A	074	25F8	2902	1816 1816* 1967 1967* 2027 2027* 2048 2048* 2205 2205* 2247 2255 2255* 2292 2294 2294* 2316 2321 2321* 2366
MSG0A	A	001	20C1	2687	0949
MSG0AN	A	045	210E	2689	0949 0950
MSG0B	A	001	210F	2691	2330
MSG0BN	A	026	2143	2693	2330 2331
MSG01	A	001	1F9A	2659	2546
MSG01N	A	019	1FAC	2660	2546 2547
MSG02	A	001	1FAD	2662	2506
MSG02N	A	019	1FBF	2663	2506 2507
MSG03	A	001	1FC0	2665	2516
MSG03N	A	017	1FD0	2666	2516 2517
MSG04	A	001	1FD1	2668	1116
MSG04N	A	042	1FFA	2669	1116 1117
MSG05	A	001	1FFB	2671	1147* 1151
MSG05N	A	025	2013	2672	1151 1152
MSG06	A	001	2014	2674	1248
MSG06N	A	050	2045	2675	1248 1249
MSG07	A	001	2046	2677	1239
MSG07N	A	028	2061	2678	1239 1240
MSG08	A	001	2062	2680	2252
MSG08N	A	020	20A6	2682	2252 2253
MSG09	A	001	20A7	2684	2325
MSG09N	A	026	20C0	2685	2325 2326
MWRCCD	A	005	219F	2713	1675
MWRCKD	A	005	219A	2712	1646
MWRHAE	A	005	2188	2709	1598
MWRHAO	A	005	2190	2710	1610
MWRKD	A	005	21A9	2715	1718
MWRREP	A	005	21A4	2714	1687
MWRROO	A	005	2195	2711	1626
NN	A	001	2657	2967	1275* 1320* 1387* 1416* 1468* 1491* 1495 1507* 1532* 1536 1615* 1653* 1657 1658* 1694* 1698 1699* 1749* 1811 1814
NN2	A	001	266D	2994	
NOKMN	A	004	1112	0922	0867
NOWR	C	001	0008	3075	0271 0329 0368 0435 0776 1088 1103
NULLS	A	001	252B	2818	0628 0813 0996 1127 1196 1275 1320 1387 1445 1528 1615 1818 1819 1821 1994 2152
NXDRV	A	003	12D3	1142	0065 0099 0134 0178 0238 0272 0307 0330 0344 0369 0404 0436 0493 0586 0675 0744 0777 0798 0844 1026 1244 1315
NXDRVX	A	004	1327	1182	1049* 1175
NXD01	A	004	12EF	1156	1145
NXD02	A	004	1307	1168	1159
N1	A	002	2549	2833	1295 1300 1343 1348 1507
OPEND	C	001	0004	3064	1193 1860 1865 1907 1996 2068 2389 2402
ORIENT	A	004	1866	1787	0213 0218 0276 0281 0287 0524 0536 0544 0552 0560 0574 0622 0656 0709 0729
ORINTX	A	004	1876	1793	1787*
PA	A	004	264D	2959	1361* 1391 1616
PATRN	A	001	2552	2839	0508* 0509* 0528 0588 0588* 0589* 0591 0693* 0694* 0713 0746 0746* 0747* 0749
PA2	A	004	2663	2986	
PFC	A	002	0A07	0020	
PIAR	C	001	0020	3027	
PID	A	002	0A01	0016	0815 0919
PRINT	C	001	021A	3107	0910 0947 1114 1149 1237 1246 2244 2250 2289 2313 2323 2328 2363 2504 2514 2544
PSR	C	001	0004	3024	

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
P1	A	003	252F	2822	0067 0101 0136 0180 0240 0309 0406 0677 0848 0889 1028 1323 1454 1475 1790 1895 1902 1998 2192 2589 2594 2598
P1200	A	002	2547	2831	0896
P2	A	002	2531	2823	1514 1546 1666 1709 1756
P20	A	002	253D	2827	1332 1335
P256	A	004	2543	2829	0223 0292 0389 0481 1010 1017
P349	A	002	2545	2830	0835
P4	A	002	2533	2824	0231 0300 0397 0486 1014
P5	A	004	2537	2825	0447
P8	A	004	2538	2826	0995 1617
P80	A	002	253F	2828	0899
Q	A	001	2648	2956	1272* 1317* 1372* 1384* 1412* 1442* 1465* 1486* 1525* 1557* 1571* 1600* 1612* 1628* 1648* 1677* 1689* 1720* 1732* 1744* 1767* 1779* 1857 1862 2210
Q2	A	001	265E	2983	
R	A	001	2649	2957	1273* 1318* 1373* 1385* 1413* 1443* 1466* 1487* 1526* 1558* 1572* 1601* 1613* 1629* 1649* 1678* 1690* 1721* 1733* 1745* 1768* 1780* 1804
RDCKD	A	004	157E	1438	0169 0215 0220 0278 0289 0379 0386 0444 0783 1002 1023
RDDCF	A	001	2632	2933	0231* 0300* 0397* 1391 1420 1452 1497 1499 1538 1540 1633 1660 1701
RDDCFN	A	010	2638	2934	1358 1588 1914* 2242* 2310
RDDCR	A	002	2625	2927	1818* 1848* 1851 1899* 1916 2008* 2300
RDDDR	A	002	2627	2928	0457 0472 0893* 0902 0905 1355 1400 1430 1511 1543 1585 1636 1663 1706 1753 1819* 1849* 1854 1900* 2009* 2305
RDDGN	A	004	15AE	1461	
RDHAE	A	004	14EA	1368	0091 0097 0132 0167 0211 0274 0339 0375 0438 0522 0620 0707 0779 0829 0842 0971
RDHAO	A	004	14FD	1380	0175 0342 0982
RDHAOA	A	005	150D	1387	1375
RDHAOX	A	004	1538	1403	1368* 1380*
RDKD	A	004	15D7	1482	0468 0474
RDKDA	A	004	15E7	1489	1723
RDKDB	A	003	1613	1505	1508
RDKDX	A	004	1636	1516	1482* 1489 1514* 1716*
RDLOG	A	004	1688	1553	0058 0063
RDROO	A	004	153C	1408	0176 1007
RDROOA	A	005	1556	1420	1456 1477
RDROOX	A	004	157A	1433	1408* 1438* 1447 1454* 1461* 1470 1475*
RDSNS	A	004	16A0	1567	0057 0062 0090 0126 0161 0205 0265 0333 0366 0429 0516 0614 0701 0770 0823 0959
RDSNSA	A	004	16C1	1581	1562 1578
RDSNSX	A	004	16E0	1591	1553* 1567*
RDVKD	A	004	163A	1521	0794
RDVKDX	A	004	1684	1548	1521* 1530 1546*
RECAL	A	004	13D4	1268	0055 0089 0125 0160 0204 0264 0332 0365 0428 0515 0613 0700 0769 0822 0958
REGLP	A	004	1F5E	2629	2647
REGRST	A	004	1F42	2618	0871 0908 2574
REGX	A	004	1F96	2650	2618*
REGX1	A	004	1F92	2649	2619*
RELOAD	A	006	1108	0919	0903 0906
RETRY	A	003	1372	1215	1962 2016 2022 2037 2043 2061 2109 2116 2123 2130 2142 2203
REZERO	A	007	214A	2695	1277 1278 1292 1293
RR	A	001	2653	2964	1415* 1423* 1448* 1471* 1490* 1495* 1502* 1531* 1536* 1540 1652* 1657* 1693* 1698* 1704* 1748*
RR2	A	001	2669	2991	
RSTAX	A	004	1E1E	2471	2451*
RSTBR	A	001	1E11	2461	2455
RSTLP	A	005	1EEE	2583	2580 2587
RSTOR	A	004	1E22	2478	0875 0882 1836 1843 1872 2174 2185
RSTORX	A	004	1E2C	2480	2478*
RSTRT	A	004	1E12	2468	2460
RSTX	A	004	1F3E	2609	2570*
RSTXR1	A	004	1E1A	2470	2436* 2457
RSTXR2	A	004	1E16	2469	2437*
RSTX1	A	004	1F36	2606	2571*

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
RSTX2	A	004	1F3A	2607	2572*
RTN	A	001	0A03	0018	
RTNOA	A	001	0D94	0504	0422
RTNOB	A	001	0E57	0603	0506
RTNOC	A	001	0F1E	0689	0605
RTNOD	A	001	0FBD	0761	0691
RTNOE	A	001	1006	0809	0763
RTNOF	A	001	1077	0861	0811
RTN01	A	001	0A3A	0045	0020
RTN02	A	001	0A74	0079	0047
RTN03	A	001	0AB1	0115	0081
RTN04	A	001	0AEA	0150	0117
RTN05	A	001	0B38	0194	0152
RTN06	A	001	0BAF	0254	0196
RTN07	A	001	0C33	0321	0256
RTN08	A	001	0C69	0355	0323
RTN09	A	001	0CE9	0420	0357
RTN10	A	001	1117	0932	0863
RUNMP	A	002	257A	2868	1131 1200
R0A	A	006	0D98	0508	
R0AA	A	004	0DAA	0515	
R0AB	A	004	0DB9	0522	0512
R0AB1	A	004	0E18	0571	0568
R0AB2	A	004	0E35	0583	0580
R0AC	A	006	0E41	0588	0513
R0B	A	004	0E58	0607	
R0BA	A	004	0E67	0613	
R0BB	A	004	0E76	0620	0610 0673
R0BB1	A	004	0EA7	0635	0631
R0BB2	A	004	0EB5	0642	0639
R0BB3	A	006	0ED2	0653	0646
R0BB4	A	004	0EDC	0656	0651
R0BB5	A	004	0EEE	0665	0662
R0BC	A	006	0F10	0677	0611
R0C	A	006	0F22	0693	
R0CA	A	004	0F34	0700	
R0CB	A	004	0F43	0707	0697
R0CB1	A	004	0F6D	0723	0720
R0CB2	A	004	0F91	0738	0735
R0CC	A	006	0FA7	0746	0698
R0D	A	004	0FC1	0765	
R0DA	A	004	0FC9	0769	
R0DB	A	003	0FD8	0776	0766
R0DC	A	004	1002	0800	0767
R0E	A	006	100A	0813	
R0EA	A	004	1020	0822	
R0EA1	A	002	102E	0827	0813* 0832 0846*
R0EB	A	004	1033	0831	0819
R0EB1	A	005	103D	0833	0836
R0EB2	A	002	1056	0840	0832* 0833* 0834* 0835 0846
R0EC	A	006	105F	0846	0820
R0FA	A	006	10BA	0889	0891
R01	A	004	0A3E	0049	
R01A	A	004	0A4E	0057	0052
R01B	A	006	0A66	0067	0053
R02	A	004	0A78	0083	
R02A	A	004	0A84	0089	0086
R02A1	A	001	0A94	0094	0083* 0101* 0103
R02B	A	006	0A9F	0101	0087
R03	A	004	0AB5	0119	
R03A	A	004	0AC1	0125	0122
R03A1	A	001	0ACD	0129	0119* 0136* 0138
R03B	A	006	0AD8	0136	0123
R04	A	004	0AEE	0154	
R04A	A	004	0AFA	0160	
R04B	A	004	0B02	0163	0157

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
R04B1	A	001	0B06	0164	0154* 0180* 0182
R04C	A	006	0B26	0180	0158
R05	A	004	0B3C	0198	
R05A	A	004	0B48	0204	
R05B	A	004	0B50	0207	0201
R05B1	A	001	0B54	0208	0198* 0240* 0242
R05B2	A	004	0B57	0211	0236
R05B3	A	005	0B7A	0228	0232
R05C	A	006	0B9D	0240	0202
R06	A	004	0BB3	0258	
R06A	A	004	0BBF	0264	
R06B	A	003	0BCE	0271	0261 0305
R06B1	A	004	0BDD	0278	
R06B2	A	005	0C02	0297	0301
R06C	A	006	0C25	0309	0262
R07A	A	003	0C3F	0329	0326
R07B	A	004	0C65	0346	0327
R08	A	004	0C6D	0359	
R08A	A	004	0C79	0365	
R08B	A	003	0C81	0368	0362
R08B1	A	001	0C8C	0372	0359* 0406* 0408
R08B2	A	004	0C97	0379	0402
R08B3	A	005	0CB4	0394	0398
R08C	A	006	0CD7	0406	0363
R09	A	004	0CED	0424	
R09A	A	004	0CF5	0428	
R09B	A	003	0D04	0435	0425 0491
R09B2	A	005	0D6D	0483	0487
R09C	A	004	0D90	0495	0426
R10	A	004	1118	0936	0956
R10A	A	004	1127	0942	0939
R10B	A	004	1145	0958	0943
R10B1	A	001	1151	0962	0936* 1028* 1030
R10C	A	003	115A	0968	0991
R10D	A	003	1171	0979	0966
R10E	A	003	118F	0993	0988
R10E1	A	005	11BA	1012	1015
R10F	A	006	11E0	1028	0940
R2	A	001	265F	2984	
SAVRSA	A	005	1DE7	2447	2442
SAVRSB	A	004	1DF2	2451	2445
SAVRSC	A	004	1DF6	2453	2448
SAVRST	A	004	1DC9	2435	0873 0880 1834 1841 1870 2172 2183
SAVRSX	A	004	1E0A	2458	2435* 2439
SBYTE0	C	001	0208	3098	
SBYTE1	C	001	0209	3099	
SBYTE2	C	001	020A	3100	0866 1076 1091
SBYTE3	C	001	020B	3101	0865 1075 1090
SBYTE4	C	001	020C	3102	1085 1100
SBYTE5	C	001	020D	3103	1071 1190 2490
SB0	A	002	25A7	2894	
SCANE	A	004	17F6	1728	0530 0635
SCANH	A	004	180A	1740	0538 0564 0716
SCANHA	A	004	181A	1747	1735 1770 1782
SCANHX	A	004	183A	1758	1728* 1740* 1747 1756* 1763* 1775*
SCN	A	002	2599	2887	
SCNRE	A	004	183E	1763	0546 0658
SCNRH	A	004	1852	1775	0554 0576 0731
SEEK	A	004	13F8	1285	0093 0128 0163 0207 0267 0335 0371 0431 0518 0616 0703 0772 0825 0838 0961
SEEKA	A	004	14CA	1353	1280 1349
SEEKX	A	004	14E6	1363	1268* 1329*
SIO	A	003	1938	1871	1804* 1805* 2264 2441
SIOSNS	A	003	18CB	2184	2167* 2168*
SKEND	C	001	0002	3065	1193 1866 1882 1887 1907 1996 2394 2398
SKMSK	A	001	2645	2952	2392

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
SKMSK2	A	001	265B	2979	
SKRST	A	001	2647	2954	2397
SKRST2	A	001	265D	2981	
SK00	A	006	1417	1295	1298
SK00A	A	006	142A	1300	1296 1303
SK00B	A	005	143D	1305	1301
SK01	A	003	1457	1317	1310
SK02	A	005	1462	1322	1324
SK03	A	006	1482	1332	1336
SK04	A	003	1498	1338	1333
SK05	A	006	14A4	1343	1346
SK06	A	006	14B7	1348	1344 1351
SNS	A	002	263D	2936	0571 0583 0642 0665 0723 0738 1127* 1196* 1226 1229 1957* 1959 2011* 2013 2030 2152 2155* 2157 2164 2219 2220 2269 2380* 2382 2388 2393 2405 2406 2591* 2592
SNSAVL	C	001	0001	3066	1193 2059 2200 2318
SNSLP	A	004	1F07	2591	2595
SNS23	A	002	2593	2882	2055
SSWSV	A	004	2600	2910	1071* 1190
SSW05	C	001	0004	3032	
SSW1A	C	001	0020	3040	1090
SSW1B	C	001	0010	3041	0865 1075
SSW11	C	001	0040	3037	0866 1076
SSW12	C	001	0020	3038	1091
SSW2F	C	001	0001	3046	2490
SSW21	C	001	0040	3043	1085
SSW22	C	001	0020	3044	1100
SVPFC	A	025	0A39	0035	2496* 2550
SVPREQ	A	002	2574	2864	1063 2602
SVPSEQ	A	001	2563	2855	1129 1198 2576
SW	C	001	0001	3076	0965 0968 0973 0979 0984 0993
SWS	A	002	25FC	2907	1217* 1823* 1919* 2908
SYSRST	A	004	1EC8	2570	1227
TEST	C	001	0212	3105	1172
TIM3S	A	003	2562	2850	0887 1893 2190
TIO	A	004	18D3	1832	
TIOBSY	A	004	194E	1880	1808* 1809* 1877 1890
TIOERR	C	001	0008	3063	
TIORDY	A	004	1930	1868	1807* 1858 1863 2160
UCKMSK	A	001	2646	2953	2163 2404
UCKMS2	A	001	265C	2980	
UDT0	A	003	0A0C	0023	
UDT1	A	003	0A0F	0024	
UNPACK	C	001	021E	3108	2262 2267 2274 2279 2284 2298 2303 2308 2333 2338 2343 2348 2353 2358
UTAB	C	001	0232	3112	0919
WCPTN	A	004	2551	2837	0228 0297 0394 0483 0508 0626 0627 0668 0693 0741 1012
WORK	A	001	263E	2938	1290* 1295* 1300* 1305* 1307* 1312* 1322* 1323* 1326 1326* 1332 1335* 1339 1341* 1343* 1348*
WORKN	A	004	2641	2939	0887* 0889* 0897* 0900* 0902 0905 1010* 1014* 1045* 1046 1285* 1286 1398* 1400 1428* 1430 1510* 1511 1583* 1585 1893* 1895* 1902* 1994* 1998* 2030* 2054 2176* 2177 2190* 2192* 2196* 2197 2225* 2226 2454* 2479 2583* 2584 2589* 2594*
WRCCD	A	004	1787	1673	
WRCKD	A	004	1743	1644	0283 0382 0449 0786 0998 1019
WRCKDA	A	004	1753	1651	1680
WRCKDX	A	004	1783	1668	1644* 1651 1666* 1673*
WRHAE	A	004	16E4	1596	0990
WRHAO	A	004	16F7	1608	0341 0977
WRHAOA	A	005	1707	1615	1603
WRKD	A	004	17E2	1716	0453 0459
WRREP	A	004	179B	1685	0790
WRREPX	A	004	17DE	1711	1685* 1692 1709*
WRROD	A	004	1718	1624	0377 0440 0781 1005
WRRODA	A	004	1728	1631	1619
WRRODX	A	004	173F	1639	1596* 1608* 1624*

C122 3340 FUNCTION TESTS - MOD 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
XEQ	A	004	187A	1802	1353 1389 1418 1450 1473 1493 1534 1560 1574 1631 1655 1696 1751
XEQX	A	004	19C6	1923	1802*
XEQ01	A	004	195C	1887	1880
XEQ02	A	006	196D	1893	1885 1888
XEQ03	A	006	1989	1902	1908
XEQ04	A	006	1973	1895	1897
XR1	C	001	0001	3021	0226* 0228 0295* 0297 0392* 0394 0479* 0483 0815* 0816 0831* 0833 0895* 0896* 0897 0899* 0900 1009* 1012 1013 1013* 1046* 1048 1049 1051 1051* 1052 1073* 1080 1081 1081* 1095 1096 1096* 1105 1107* 1108 1109 1111 1156* 1158 1161 1163 1163* 1164 1168* 1169 1170 1286* 1290 1305 1314 1322 1328 1328* 1329 1331* 1334 1334* 1338 1341 1394* 1395 1397 1397* 1398 1425* 1426* 1427* 1428 1447* 1448 1470* 1471 1489* 1490 1491 1504* 1505* 1506* 1510 1530* 1531 1532 1576* 1577 1581* 1582 1582* 1583 1651* 1652 1653 1692* 1693 1694 1747* 1748 1749 1789* 1790* 1813* 1814 1913* 1914 2241* 2242 2436 2439* 2441 2444 2444* 2447 2450 2450* 2451 2457* 2470* 2493 2522* 2535 2558* 2571 2576* 2583 2585 2585* 2586 2597* 2598* 2606* 2619 2621* 2634 2637 2644 2644* 2646 2649*
XR2	C	001	0002	3022	0038 0223 0271 0292 0329 0368 0389 0435 0447 0776 0965 0968 0969 0973 0974 0976 0979 0980 0984 0985 0987 0993 0995 1017 1079* 1080 1083 1088 1094* 1095 1098 1103 1109* 1125 1161* 1170* 1206 1207 1224 1272 1273 1275 1309 1317 1318 1320 1338 1339 1361 1361 1372 1373 1384 1385 1387 1391 1395 1412 1413 1415 1416 1420 1423 1426 1427 1442 1443 1445 1448 1452 1465 1466 1468 1471 1486 1487 1490 1491 1495 1495 1499 1502 1505 1506 1507 1525 1526 1528 1531 1532 1536 1536 1540 1557 1558 1571 1572 1579 1600 1601 1612 1613 1615 1616 1616 1617 1628 1629 1633 1648 1649 1652 1653 1657 1657 1658 1660 1677 1678 1689 1690 1693 1694 1698 1698 1699 1701 1704 1720 1721 1732 1733 1744 1745 1748 1749 1767 1768 1779 1780 1804 1805 1807 1808 1811 1814 1857 1862 2163 2167 2210 2257 2378 2385* 2386 2386* 2392 2397 2404 2418* 2437 2469* 2494 2523* 2536 2559* 2572 2607*
Y	A	002	2587	2876	2637* 2638

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

C122 3340 FUNCTION TESTS - MOD 12

OBJECT CARD LISTING

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

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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

GBK GBD   PN 42  47602 EC 827872   3340 FUNCTION TE  STS ----- MOD 12  84@@84@@ ........  ........C1220000
TCOY|OKH  &  BT,  **@E  A &  .......  ................  ................  ................  .....7-HC1220001
T  YR  ..........  ................  ................  ................  ................  .....K:UC1220002
T+-Z4 & H)COHI/|   /1G3BU8HR%BGD'L   /1E-OH*OSCYAIS|   /1E-OH*OS<BGD_<  | BQLIK*  J<,OH*  BE-H 5.%C1220003
TG-DL  DI|  HV<B  GD¬<H/ D¬OH*L5<B  GEDC /1LDOH*L=  ................  ................  .....QKOC1220004
T(O,<  C /1LDOH*  K408 BZ&V.34<BZL  -/<,OH*BE-< B>Y  @  ,(OH*J@O,AB_T  /1|MOH*OY<BGD"-  .....K/<C1220005
T(O%E N7 /1LDOH*  K408 B%4V.34<B%7  -/<,OH*BE-& B3-  @  %FOH*J@O%BB2$  /1|MOH*OY<BGD"-  .....7H@C1220006
T+-_A  C /1LDOH*  N¬- : KQ/+-DWH@B  GE|7 /1M@OH*K408  BOQV.34<BO$ -/<  ,OH*BE-M B:@@  _  MOH* 40-C1220007
TD&_LD¬<.M >)OH*  L5<BGEDC /1|8 ...  ................  ................  ................  .....MK<C1220008
T+->| N7 /1LDOH*  QR%@GEP8 OH*QR%B  GEP8AT&HMIM|  J%  O(&DWH44C 2NJO D  $& @AITYV<@ AB7Y  8 KQ 90UC1220009
T+-?HH3YAIS| U _  POH*K408 B5&V.34  <B5L -/<,OH*BE-Q  CC<@BSQLOH*J@O?  +CBP /1|MOH*OY<B  GD"- KT8C1220010
T+-OE  E)> - OA  K4@BGE+, /1/WOH*  N¬-G /1/WOH*P&OH  OH*QR%BGEP8BT&H  MIM|  J%O(&DWH44  C 2M @3MC1220011
T+-1 M* AF4 | KQ  :IL|  &OB+ DWH3Y  AIS| U ?+OH*K40@  I/<V.@ AD2? /OH  OAO <E*BGD¬<<|O1  V> - QSOC1220012
T+-1# < &D_| /1|  MOH*OY<BGD"-  N7  /1LDOH*O'@BGE|7  /1.LOH*BE-- C+U  @  2<OH*J@O2AC(¬  /1< 2TUC1220013
TCO2.5<BGEDB88 C  DA.LOH*L= ......  ................  ................  ................  .....O/YC1220014
T+-3G N7 /1LDOH*  PF<BGEP8AOH*P&OH  MOH*N¬/O( /&V&@  AF3 5 KQTL&<CING  J_ CODW+SM3O D  <_C- OLOC1220015
T+-4B KQT+-DWH@B  &CI¬ /1.LC- <TBM  ?|&%<T< DD2? /OH  OB& (V<BGD¬<(A 6  &OH*L5<BGEDC /1|  8  D P&YC1220016
T+-4'P$-H < &D_|  /1LDOH*PF OAI/<  WH@BGEP8AT HMIL¬  /1)C /L /1¬S -&  < KQTIS¬ /1¬SA-M  < KQ #IUC1220017
T+-58H2OL|  W4 O  %I%@W4<BGE)*BA&O  AIS<WI@BGE)*GA O  AIS<WD3MAIS<< KQ  LIM(( O<VM* AF4  | KQ :SOC1220018
T+-63D2M3O D($L-  AIS<: KQTOI (A<B  GD_| /OHOB- +NOO  CINMV"L3=IN| /1G  3C$U+&*BGD'L /1E  -OH* LDUC1220019
T+-7>D"-  N7 /1L  DOH*QRT3"I94<"S;  *I94< SE-INL /1¬  6 &CAO1%(OH*QR%B  GF YA <GCFO7 /1/  WOH* OA8C1220020
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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+-8ZFC8A <GCF07	/1/WOH*QM-D O*<	$C*BGFFQa)2Ē¬OH*	QB-D O*<+FaBGFO&	8&BQ'OI Ē=aBGFF$	/1- =$-C1220021
T+-9UM-D O*<+(*B	GFO&8&BQ'OI Ē=aB	GD_<+ BNLIN<: KN	L|¬aVMa AD2? /OH	OBO |GTOHI/| /1G	3CXQ ":DC1220022
T+-:¬C1C /1|MOH*	OY<BGD"- N7 /1L	D̄OH*QRT3"I98<"2;	)I98< 2ĒUIND< KĒ	/IND< KĒ¬IK%8 KQ	Ta2 7HDC1220023
T+-#ĒA-OEĪDMWZ<B	GE"QA <GCC,P /1%	D+D W|*B&F?%8 KQ	Ta/ +C&<WD̄BN(O D	$&<BGC_O(2ĒZIM7	J% #KOC1220024
T+-aN&<BGFF$ /1-	= &CAOO#>OH*$AC/	IT7 UA,#C&<WD̄BN	JO D$&C-AIS<: KQ	TOI +)%BGD_<| BQ	LIKa :RQC1220025
T+-'&O DLH̄aBG /Q	< ='C <VNKNJ||8	VN<BGD¬<|&O=XOH*	L5<BGEĐC /1|8 E	)OH*M:%BGFFQa"2;	)C|8 8Q<C1220026
T+-=.I9OXX&OCĪDD	VNL3"ID. /1-H &C	AOO'_OH*$AC/ IT7	DA_&C&<WZ2N(O D	$&<BGFF$ /1/K &C	AOOa ': C1220027
T+-"FU*BGFO&8&BQ	'OA $M 4CID*VM*	AF4C /1.LC- VNBN	M+-DVNC7"INL J<	,OH*BE-4 D $ /1G	3C'- #QQC1220028
T+/ AD . /1|MOH*	OY<BGD"- N68B C	DA.LOH*M:%BGE1T	/1N= *BGE4<BDaB	GE9%BDaBGETYBDaB	GD_< EC-C1220029
TH/ %OH*BE-8 DG*	< J >IK?B &YA(D	WDaBGD¬<&<1A¬OH*	L5<BGEĐC /1	8	.....T*C1220030
TIJAMOH*M:TMAI/<	< JAODB8; JAO C?	=DEM(JAOIMP /A	'OH*L=	.....	ODHC1220031
T+/BJOH*M:%BGD_<	< J >DEQ+ KQ1IKa	'CBQKO DLH̄aBG /Q		ADP+J BB3V -,	UADK+2 H̄F*BGG4. /14 6HYC1220032
T+/C<2LGDIN" /18	S+H V=?H&M%BGG*X	31 G /19S+H V=?H	&& OBIUDVQ-8BIUD	V.aB-D|LAO/B:<<&	WI3M 2S<C1220033
T+/DG KN¬(-DVJ3&	AITa6 KM"(DW&&4	AIS*W|aBAD&-(KQ	XIUG -JDHOH*¬&%B	G /,FF2M/O&G /OH	SO&D 'CaC1220034
T+/EBC& B<-Y OHD	:/%BG SY D C""30	DNG /1G3DK*J8C7	"I/X2-J¬31G# /OH	ĒJU8/C%GUOH*BH%G	UOH* QCaC1220035
TCJE&DJ? /1|MOH*	OY<BGD"-	.....	.....	.....	.....LD&C1220036
T+/F< N68 &C2DA;	: &B:H C /1LD̄>OD	>2 >A OA O'#%	A .Y& <BGE|6: &B	#D B8H C2U T /1$	UOH* 'A&C1220037
T+/GGDN̄D# &B< /&	V+OOGIDM̄VH̄aBGE4<	<BGEP8 OH*PF<B	GEL05 KQTC DW&KN	CL <CINGK &&| KR	AIL< ¬O<C1220038
T+/HBO DJ>YOBEBN	COH*P&OD OH*N¬-G	/1.LC- JMKM?|&O	JM*BBD2? /OHD̄ C&	HIUD5 KRAG DL*&D	* J< "S%C1220039
T+/H'H̄-|K &&4 J.	KaaJ=+ DHF* &GT	8H YROI ;/TGEIRD	11KN4| V=T3OI/&	< KQ/IN4< KQTINa	< 2Q LĒUC1220040
T+/I8 H(O-DWE3U	& -%9& HH̄aZ PO-H	W&X&B)HA ,O C/	-32U +:B 9H H	.+K BB?H&Ea#HBIV/	4 -D 984C1220041
T+/H̄34-D8? +B	BC|H& #YH G3" <H	AI/*4 KQO)&HA¬¬a	a-DMOH*BFUQD̄G",	A8%BG S.A8%BGDT>	:& #D̄HC1220042

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+/.>C DW|KM,<*M	VRCGEIP-11KN:C¬a	K1/.FaaK OH* ||	D¬T7OI/L2-JH< B	.I/L /OHĒ//U-D33	OI/& 7/-C1220043
T+/<Z(&DWEX7" ?H	ACXMB 'HA T&AI/$	/1<,O-DWE3&AI/R	5 -G /OHK+D V=?H	&B%BG S.A L_ I¬,	/O NY&C1220044
T+/(U OAISDVP&O	AIS<VPO4CI- BC*	AD-O#A2P:+3 V=-O	AIT4VH̄3GEIO&11KN	8<*MV;-7"D5%LO"|	D-.- RZOC1220045
T+/+¬& B:& C UA.	|OH* ||D¬T I¬O	'-2P#OHD:<C7OI/L	-J1|>a +&MW|*B	&G%%8 KQ'a/ SA-	WEBM)3%C1220046
T+/|Ē.C73I/L AA<	,OH*BFYQ*HFDaaBQ	M+U V=%BGD_| /OH	Ē/TH-JL%-B/X /OH	SO&G /OHD&C&HE+U	<ABQ 4RYC1220047
T+/&NAKE|? F? D	GT UNIK%<ASQ<HMY	<ABQJHMX2/'H4BBR	A(&DW&&ODI-M/NAO	BIU BC QWCBĒHC &	WDKD QIOC1220048
T+/J&K&8AIU VK-H̄	BB-Q-I-OV.<BGEA*	+ BQ=IMX2--YFDBQ	JIK3 /1&DG HW&&H	aB2Q=>H aZ .| D	W|X4 6/%C1220049
T+/K. &C /A.L?	F? GT UNIK%; KR	A -a IT8V.a AEFH	+ KRAIT"K &<4 JL	ZO-D 4AIUDV|¬H	BC)H ;LMC1220050
T+/LF &D| KRAIL7	/1KB_ D+T D&IUD	4 KQ"C-DW|2NIaYH	HAS WBBM%OH*MZ 8	AIUDVK¬HBB-Q-I-8	V.< &DHC1220051
T+/MA/1K7OH*Q;-4	AIS<WIa AF1Q(BKQ	1IT? J%O, <.D<B	G 4BAM#C &WAKE	R? DF? DGaY*&(-	N+OO 6#aC1220052
T+/M@ABQEHN:a &Ē	@B&;<BJMVH̄@BGFGY	_ 2Q6Ba AF3 5 KQ	TX -MB(HABL&AIUD	(KRAIS¬ J%OOH*	C& 8Q8C1220053
T+/N7BAN'C &WAKE	T? DF? -G? J?	NOH*Q;Y4HEBQ:O D	$<.O DLMAIS+6 JH̄	6 J&4 KRAC&DW&KQ	XO D Q8&C1220054
T+/O2F1$ /O (-	N-&ODI-M/Ē.OAA,O	BA8OCEBM,(&DN¬RO	D&C /1/:T HMITY	+ JN'IK" /1NO(-	N¬&O 5T-C1220055
T+/P_ABQEHO6a &Ē	@A ;a AM5 JN'X	J <BGFGY+ JN'IK"	/1NO(-O+&ODI-M	/*,OAA,O A3MAETW	* AD =-HC1220056
T+/QY IO E&G /1/	:,- JEL7"IT? J%	OT&-MIT, J%O?	J(&DWH#QAD,QAEH8	EKNIO HOD3&AIUD	(KQ #- C1220057
T+/RT&KQXO D$E-8	AETUV<*8G 4BAĒ	GC &WAKE7? DF? <	GT HMIK%5 JĒGX	J IO E&G /1/:,-	JEL4 *:8C1220058
T+/Ē;"2Q#O D$<H4	EDKQ7O D$< 4AIS<	WIa AF1Q+ JĒGILG	/O (-O8OODI-M	/¬.OAA,OEA@BGFG,	/1Q @L<C1220059
T+/$ROL&HE><<ABQ	EHQFa &Ēa@AO¬ /1/	:(&DWH7UB ?H& #D	CMAIS|K J-4 KR	AC&DW&KQXO D$E-4	IITD a.aC1220060
T+/*MIT? J%OOH*	C&HE4H<ABQEHQ>	a -Ēa &¬2/1 4BA)	BC &WAKF&? HF? U	GT -NIK>% 1 .T H	MIL% *C4C1220061
T+/)|aY*&(-P&-O	DI-M/V$OBA,OFA@B	GFGD̄(BA&W+% AF3	(KQTIS¬ J%OOH*	C&HE8Q<ABQEHRD	a -Q QI<C1220062
T+/;H̄? HG(&DP/ZO	D&B* AMAOH*Q;D̄8	DJOa"1O(BA&W+%	AF3 : KQTIS¬ J%	OC-DP/SM1OH* C&	HE8Q 'H̄*C1220063
T+/¬EC &WAKF¬? H	F? -GOH*PM3&HE=D	<ABQEHĒKa -Ēa O*	5 J¬/X J IO E&G	/1/:,- JE$3"EQ4	HEBQ &C4C1220064

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+/- +% AF3B@ AD  ( KQTIS¬ J%OC-D  P8KM1OH* C&HETU  <ABQEHĒW@ -Ē@ ¬  /1PX( -Q|&ODI-M  /,,O ;D̄HC1220065
T+/-# OĒ@ ¬ /1-  Ē( -Q|&ODI-M/%#0  CA,0BA3MAFC6* AD  X N *BGFGY( KQ  TIS¬ J%OC-DQ|KM  1OH* 6,MC1220066
T+//6 4BA-°C &  WAKF8? <F? OGOH*  QFT&HFC4<ABQEH$6  @ OĒ@C&¬ /1-Ē( -  Q:*HA"& 6 KM?O D  Q$% 33QC1220067
T+/S1/O ( -R2KO  AFLYG.- R+&H% AU  1 SO FM@B+-DRL2O  IITDN(&DWHOOIBJM  <L2P8I¬U< KQVIK%  < KQ 2K%C1220068
T+/T%I2M,C *W)KM  ,< V"C6AI¬? -J8  OO*&)NT--I¬, DA_  TO*HR6*BGG*U11SQ  /OH*:HTS I¬,2D+C  /14 $,UC1220069
T+/UX2LGDIS| /18  S+H V=?H&3LCFISM  O1BQXC&DWHKQV@-G  MC&DWH2QXO DR:#-  DA?H&DTYDI¬D̄ $  2 &- #Ē4C1220070
T+/VS+O&V=TYBI¬,  A AYQOH*)2¬< <B  GGSH8-BP:@/CCO*H  RL%BGFS.A AV*+ H  V=?HE4?H̄GDL-BI¬,  2D Y =/UC1220071
T+/W)C RĒ/V|O&  Ē( OBIUDVQ-8BIUD  V.@B-FVLAO/V3<<Q  WILCDIS*+ SRAIK"  YA,NO*&)NTUFI¬,  UAU 4HMC1220072
T+/XQSL--I¬, DA_  T(&DWHJOIIT%IC&D  WHKQV0 D$HC I¬O  *-SP#OHD;<<BG  <GSP(HTY<A2O6H*?  2/8U 1:8C1220073
T+/YLCBQV5KG2@Y;  CA@V3SHK@Y*<CA@  V3SHKC -V_2H$@@&  B<<MW|L-AIT72DG¬  /1(2CD@V=BP9CA8  V3KH P8-C1220074
T+/Z++?H̄G&-O_I)O  SĒ<BGF6<<H̄KPQHZ.  2/O@<H̄BPPH,?2/OQ  <.BP$H)-< KRAIK%  9ASP:@/ HC-DW&KM  ?OB 1$@C1220075
T+/D̄IFUC2/OQ<H̄BP  PH1DO1SQV<<ĒNI3C  EIT48 KQ*OA Ē¬<B  GD7H<GSP(H3C /1(  2CD@V=BP9CADVO8(  BC D RZDC1220076
T+/,DIUDWI¬H̄GH 0  QI**TO@BGD7H<H̄SP  RH8$ /1(2CD@V=BP  9CC@V#S|F| W/&O  OIY&W/&OAIW@W&LG  GIR< R1HC1220077
T+/,"<<*W*LOOIXM  : KP:OH*L*%GDF?H  8ABP:@Z ICA*V1S|  ;@Y):CA8V3K|*@Y)  1CB%V6S&Z@Y)YCBM  V5B& 6T*C1220078
T+/%:L"H̄GPOOZI)-  U;¬H̄GN-OXI)QUY¬H̄  GL&O$I*YU?*BGD7H  <F2PH̄I.4<B8O7I(T /1(  2CAUV2BL2@Y*H̄CA<  VOSMFOH*L*?|D T-  -I¬,2D 4( KQ*IK? 2 &&  *H4C1220079
T+/_53@BGD7H<F2P  H̄I.4<8BO7I(T /1(  2CAUV2BL2@Y*H̄CA<  VOSMFOH*L*?|D T-  -I¬,2D 4( KQ*IK? 2 &&  *H4C1220080
T+/>O<<MW|L-AIT7  DAZ@C $SJU1O&  $WBO F9HD+& W||H  &RSO F@OB+-D8?G  BFVL /17I<*&VO@B  GGSH PO*C1220081
T+/?,<<&W&&4AIUD  VO@ AF;%8-8P:OA  R2%BGG*X3 ¬ /18  S+H V=% &F)U< SR  AIOH* SRAIK" YAO  "O*H #,4C1220082
T+/OWF= O1KRA+ D  W&* &FD̄M: KP:+B  V=%B&D7H<L2P8I¬U  8DBP:O1 *.#4BA%  AFXH*-BR>O DĒ*T4  BIW@ '9%C1220083
T+/1/O DĒ*%BGF5U  9EBO'+&@W|< &FZ?  /1DJ<<MW&L-AIUG  DAD̄VOH*ĒNC&HGNH  <AKO>H*<5 KQ/G U  W+OU *OHC1220084
T+/2*OH*BF%I&I¬T  A >BG /DAJKBWCD@  V=BP9. VD̄-D<ABO  1I-M<ASO9I-O<ABO  "I/G /OH; 1U:I*$  /OH #I C1220085
T+/3PG-HW|KP.|<U  V3%BG /8BISDV4@B  G /8BIS<V6<BG /8  H̄ITDV#*BG /D̄AMBP  8CD@V=BP9|(UV3%B  G /8 NR&C1220086
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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

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T+/4K SQVI)| /OH  : SQXI)T /OH:BSQ  #I:7 /OHĒ-N V=C-  AI¬,2UE&<L2P8I¬X  /OHĒ-JY-O<BG /D̄  A(KD 99*C1220087
T+/5(&@BG /8DIXD  V%<BG /8DIXMV>*B  G /8DIXUVO%BG /8  DIX4V2@BG /8DIYD  V5<BG /8DIYMV7*B  G /Y ¬I-C1220088
T+/6H-V V=<BG  4BA7H( H)1CCEIT4  8 KQ'@/AH(&HWE,M  B L-&IT48ABP:@/  *. )-&<8 BQ@+ H  V=?H &Z-C1220089
T+/7CUB-% A7 AL%  BI¬,2/O-@AA7 +O&  V=SO GĒMD+& W|CU  HIT72D @:DBP:+S  V=?|D¬%BGG*G31 C  B - :ZHC1220090
T+/7= <BG 4BA8  (( D;GL&BG/U5 J8  (L& FLT2 &$K &|  2/O_( Q6"HAA'H  AAC&AGSD#-BP:C <  W&& 4:MC1220091
T+/89 OOC <;DLM  AG/7 /0 OH*:DTD  I¬,B - O-D <B  G 4BA8?C < 2R  AOH* C&HGYM8 &H  (@Z OIDC1220092
T+/94J3&AGX44 /:  ACA-H+&YQC&DHG/9  ,@-DIC&E J9,@YD  $OH*BFUQLG#"A <B  G SYDCAX /OHĒJ/D  ¬4<D P3&C1220093
T+/:? <BG& .B &  O-H <BG 4BA#  H( D;OT&BG%Q( &Y  *G,,2 &U( OOAG,,  2-J¬ /OHĒJ/<¬,<D  CA- 28&C1220094
T+/#DBTUHF<BG SY  DCA¬ /6O8O-D <H  B C /O ( -¬&L&  AG3U4 /@'OH*¬&%H  AIO<@ BN7+H HF¬H̄  &ACO ; @C1220095
T+/@VABN7G DW&&D  11KRA4-DB¬¬@ O D  ;#-OAIUDV.3CEIT4  8 KQ'@Z HC-DW&KM  ?OB ¬A@HA9¬Q6 KM  ?OB 4J<C1220096
T+/'-G2 11KOJ<*M  V) 7"G3 ¬<<HA C  B - OH* C&HG9U  4 J=NO-DVVCGEIP4  11KN"<*MV-LGEIQ<  @ BM 5HMC1220097
T+/=$/CGEIQM11KO  IG V/ 11KOEG  V/-D11KOG<*MVS3G  EIQ411KO|4-DB¬¬@  O D¬P%HA C /O  4'Q LTHC1220098
T+/"OO*LI5*) 8%P  C8@XO5MCC@¬¬L5%G  D2)PG&+.EO=|I5_N  O"G98%PC8@XO5MC  C@¬V 6*PA1+TI5;P  A4@U ĒD@C1220099
T+S J1DCS1;|T2)P  G&($F&+.N8UCS9>I  @¬E-@¬I 5_V @*E  -@*I.6*PC5>PE6*P  D&<GF8@PR&+) 6*P  T6*U 4 YC1220100
T+SA<1;.CO)N'84C  R1;.TO)XT&(LIO'X  O5'XOO@PS8_$R&FA  8@PS8@XN14CT1)X  M2)PA8@PD&(¬E6)L  A5*M &-<C1220101
T+SBG5;( 1)XR&FA  6*PT6;/ 1%GI4@P  D1(XV&<|M1DA &<|  Y44A &DA 2<J &DA  8%XO&DA &+.N8UA  &D ;ZOC1220102
T+SCB&<LDO'V 1<L  D6MCF1%|CO@|H2<T  H6)XK4@LL1(|N5)X  EO*J 1<XA1'PO8>|  IO4CS1)PS1MCDO;|  A8%M 'RMC1220103
T+SC'4@PC84CD6*X  V1MCT5UCB1MCI5*X  T2*GL2;XF1D_ &+.  NSUCS9>I @*E-@*I  8%PL1*|T&<LR2;P  E8U QQUC1220104
T+SD8@OC2&(XE8_¬  EO=|I9*PL:D?O@FA  -OFCO@4CO'FA-OFC  O'4CO=FA-OFC1@MC  1@WA-QFC1'MC1'WA  -QF 8HDC1220105
T+SE3@-V @?A-QFA  -@?|O@|A/@|CO6*P  CO)|S1*PK&(XD2<G  E6*LHO)$R1(X05_X  DO'.D6*LD1'PR1(.  D&(U 4HMC1220106
T+SF>1+PK1(XD4'$  G6*LS5;.R1<XP4=$  R2<GE9_XHO)$W6)X  O5>'.XO'.D9_XCO@L  W6)XE5=$R4%J 8%|  A5*M NYMC1220107
T+SGZ8%|A5*TSO'P  R1;.C5)XH1)XR&|.  O@|A QDCL2)$O@MA  -&<GT8@GC2(LE5;(  O>LS:DA-8@XOQDC  P6*U N:4C1220108
```

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+SHU5_V 8'R 8%X  0@|I QDCD1<|R&<L  I1DCN5>( 4'$A1DC  C5_XR1*|T4=T0@4A  -&<LD1(XO'DA-&+.  I5U JDQC1220109
T+SI¬2+LN14CI5MC  R1)GE0=|I5_N 4'$  O5"C5&FA 1(XV&(P  O84CR1+/ 5_V 9(P  I84CC4UA-8@XOQDC  P6*U 314C1220110
T+SHE5_V 8'R 8%X  0@|R QDCS2)R 1<X  D&(PO84CS1;( 0;|  TO*|H5<PN84CB9+.  Y&FCT2)R-@|) QDC  S1*H 8:QC1220111
T+S.N4UCC5<J 1<X  D&(PO84CS1;( 8%P  E4UCB9+.Y&FCT2)R  -@|/ QDCS1*PK&<.  U8>/ Q+|I5WA 9%X  T2D #,@C1220112
T+S<&5)R 8%PE4UC  I5MCP6)$G6*PS87C  9&FA 0;|TO*|H5<P  N84CB9+.Y&FCT2)R  -&<LI1DCN5>( 1'R 5%Q PC-C1220113
T+S(.1?CA&FA 9(P  I84CC2<PC4UCO6MC  N5WCO54CS8@GT9+.  004A-&<GDO)¬T1)V 0@TEO'.01DA-&+L  N1;* @.HC1220114
T+S+F5@PC8@PD&<X  N8@PR6;LP8"CE&FA 2)PT1)XR9(¬T&+$  I8@/ 5)R 2)PT1)X  R9(¬T&<.I84CI5MC  S5;H L8-C1220115
T+S|A@<R QDCA1<G  P8@PR&<|K&($N&(X  D&<LIO*) 8_PS&<G  F8@PR&<LR9MCU5*X  T&<|K&($R&(POQ($  P&+H $Z%C1220116
T+S|@8@GT9+.1@DA  -&(PO&($P&<PN1DC  I5;|E6)XU5=|1@MA  -&(PO&+.E1)I 0'$  M5'|E8@N 2)PT1)X  R9(* MD@C1220117
T+S&78"G2&FA 1%G  L8%N 2)PT1)XR9(¬  T&(¬E5*LI5*) Q+|  I5WA O'$N1<XT2)$  N@¬( QDCE9'¬EO=|  E1D "H C1220118
T+SJ28%|A5MCE6+L  A44CD2*J 5)$T&($  CO=LR@¬J QDCE9'¬  EO=|E1DCS0@GN&<T  I84A-8@XOQDCD2*J  5)Q Q8-C1220119
T+SK_84CO0@|U6¬G  5&FA 9(PE9'¬EO=|  E1DCS0@GN&<TI84A  -8@XOQDCC5_PD2;|  I5_P1'UA-&<LD1(V  6*H 3,HC1220120
T+SLY8%XD9<GL&<X  NO'$R6*PC8"G7&FA 1<LC6¬G8&FA 1<L  C1?G9&FA 1<LD1?G  A&FA 9(PE9'¬EO=|  E1D 72-C1220121
T+SMT8%|A5MCE6+L  A4".O&FA 9_XI8@N 2)PH2*.I8@PD1)X  R&|.0@"A QDCR1*G  D&<XP44CFO*XL9(X  E 9H&C1220122
T.KNJ C 1 A H A M H A& M & AP&K?=========)7¬ "D- #IHC1220123
T+SO& |Y 8R>IY8  WX?9- H D"8OH  |SO8HCY-8H U O + H C?=H Z-8D H B H %AC < -@ 8C*- }Z*C1220124
TE2OY8& 8.Q _ 8@ <O V B+|HO X-8* |OC" #R%C1220125
T KP: ;I<C1220126
TAKRG |G 8HA &ZUC1220127
TAKR) |.HAD - ¬I-C1220128
E""'*E7*=¬DC"PH$  ="7M&F| | C F% ASC R A SO Q 18570630750  318760,MC1220129
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LAST PAGE

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                           2 *
                           3          DECK  4                    LAST CHG: 11 05 75
                           4          SEQ   0
                           5          TREP
  0000                     6 START    START 0
                           7 ********************************************************************
                           8 *                                                                  *
                           9 *                          SECTION PREFACE                         *
                          10 *                                                                  *
                          11 ********************************************************************
                          12 *
  0A00                    13          ORG   X'0A00'
                          14 *
  0A00 C141        0A01   15 PID      DC    XL2'C141'      SECTION ID AND REVISION LEVEL
  0A02 00          0A02   16          DC    XL1'00'        SECTION FLAGS
  0A03 01          0A03   17 RTN      DC    XL1'01'        CURRENT ROUTINE NUMBER
  0A04 0000        0A05   18          DC    XL2'0000'      RESERVED
  0A06 0A3A        0A07   19 PFC      DC    AL2(RTN01)     ADDRESS OF ROUTINE PREFACE
  0A08 FFFF        0A09   20          DC    XL2'FFFF'      RESERVED
                          21 *
  0A0A C14000      0A0C   22 UDT0     DC    XL3'C14000'    3340 UDT ENTRY
  0A0D 101000      0A0F   23 UDT1     DC    XL3'101000'    5471 UDT FOR AMOP LINK
  0A10             0A18   24          DS    XL9            RESERVED
                          25 *
  0A19 00          0A19   26 COM      DC    XL1'00'        3340 PROGRAM COMMUNICATION AREA
  0A1A             0A1A   27          DS    XL1            RESERVED
                          28 *
  0A1B             0A1C   29 LDRID    DS    AL2            MICROCODE LDR (C17) IN STORAGE
  0A1D             0A1E   30 AMOPID   DS    AL2            AMOP (C19) IN STORAGE
  0A1F             0A20   31 FAOID    DS    AL2            ATTACHMENT MICROCODE (FA0) IN STOR
                          32 *
  0A21             0A39   33 SVPFC    DS    XL25           SECTION PREFACE STORAGE AREA
                          34 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          36 ********************************************************************
                          37 *                                                                  *
                          38 *  RTN01 - LIO ACCEPTABILITY  TESTS 'ATTACH BUSY' AFTER SYS RESET  *
                          39 *          ( EB571, A1Q2 )          LIO (OF LSR) SUCCESSFUL        *
                          40 *                                                                  *
                          41 *                                                                  *
                          42 *                              ERROR 4010 - 'ATT BUSY' ON AFTER RESET *
                          43 *                                   4011 - LIO FAILED TO SET DDDR  *
                          44 *                                          V1/V2 = EXPTD DDDR      *
                          45 *                                          V3/V4 = RCVD DDDR       *
                          46 *                                PROCESSOR CK STOP DUE TO DBO PARITY *
                          47 *                                CHECK OR I/O LSR CHECK          *
                          48 ********************************************************************
  0A3A 01          0A3A   49 RTN01    DC    XL1'01'        ROUTINE 01
  0A3B 00          0A3B   50          DC    XL1'00'
  0A3C 0A83        0A3D   51          DC    AL2(RTN02)     NEXT ROUTINE ADDRESS
                          52 *
  0A3E C0 87 22F3         53          B     BGNIOP         ROUTINE INITIALIZATION
                          54 *
                          55 *** START TEST 1 ***
                          56 *
  0A42 C0 87 240A         57          B     BGNTST         START TEST
  0A46 C1 C2 0A71         58          TIO   LI003,X'C2'    BR IF 'ATTACHMENT BUSY'
  0A4A C0 87 242C         59          B     NORMN          ELSE LOOP ON TIO
                          60 *
                          61 *** START TEST 2 ***
                          62 *
  0A4E C0 87 240A         63          B     BGNTST         START TEST
                          64 *
  0A52 0C 01 2B56 2B46    65          MVC   WORK1(2),ZERO  INITIALIZE INPUT AREA
  0A58 31 C4 22E4         66          LIO   FFFF,X'C4'     LOAD 'DDDR' WITH 'FFFF'
                          67 *
  0A5C 30 C4 2B56         68          SNS   WORK1,X'C4'    GET 'DDDR'
  0A60 0D 01 2B56 22E4    69          CLC   WORK1(2),FFFF  SEE IF AS EXPECTED
  0A66 F2 01 0D           70          JNE   LI006          BR IF NO
                          71 *
  0A69 C0 87 242C         72          B     NORMN          ELSE LOOP 'LIO' TEST
  0A6D C0 87 0216         73          B     LINK           EXIT
                          74 *   GET HERE IF 'ATTACHMENT BUSY' WAS ON AFTER SYSTEM RESET
  0A71 C0 87 246A         75 LI003   B     ERRPRT
  0A75 00          0A75   76          DC    XL1'00'        ERROR 4010
                          77 *   GET HERE IF DDDR SENSED NOT EQUAL EXPECTED
  0A76 C0 87 246A         78 LI006   B     ERRPRT
  0A7A 14          0A7A   79          DC    XL1'14'        ERROR 4011
  0A7B 22E3        0A7C   80          DC    AL2(FFFF-1)
  0A7D 22E4        0A7E   81          DC    AL2(FFFF)
  0A7F 2B55        0A80   82          DC    AL2(WORK1-1)
  0A81 2B56        0A82   83          DC    AL2(WORK1)
                          84
  0A83 02          0A83   85 RTN02    DC    XL1'02'        ROUTINE 02 NOT USED
  0A84 00          0A84   86          DC    XL1'00'
  0A85 0A88        0A86   87          DC    AL2(RTN03)     NEXT ROUTINE ADDRESS
  0A87 C0 87 0216         88          B     LINK
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                           90 ********************************************************************************
                           91 *                                                                              *
                           92 *       X-REG - TESTS THAT ALL X-REG BITS CAN BE SET/RESET                     *
                           93 *       (EA316) PATTERN IS 'FF' - 'FE' IN '11' INCREMENTS AND '01'             *
                           94 *               TO TEST ODD PARITY                                             *
                           95 *                                                                              *
                           96 *               ERRORS - 4030  X-REG CHECK                                     *
                           97 *                        4031  X-REG NOT AS EXPECTED, V1 = EXPTD               *
                           98 *                                                    V2 = RCVD                 *
                           99 *                      NOTE: IF V2 = 'CE' TRANSFER MAY HAVE FAILED             *
                          100 ********************************************************************************
                          101
  0A88 03                0A88  102 RTN03    DC    XL1'03'             ROUTINE 03
  0A8C 00                0A8C  103          DC    XL1'00'
  0A8D 0AF8              0A8E  104          DC    AL2(RTN04)          NEXT ROUTINE ADDRESS
                          105 *
  0A8F C0 87 22F3              106          B     BGNIOP              INITIALIZE
                          107 *       ATTEMPT TO TURN OFF K3 (CLOCK RESET)
  0A93 C0 87 2A0B              108          B     SVP
  0A97 A8A2              0A98  109          DC    XL2'A8A2'
                          110 *
                          111 *** START TEST 1 ***
                          112 *
  0A99 C0 87 240A              113          B     BGNTST              START TEST
                          114 *
  0A9D 3C FF 0AAD              115          MVI   XREG05,X'FF'        INITIAL X-REG VALUE
  0AA1 3C CE 2CF5       0AAA   116 XREG04   MVI   OPREG,X'CE'         INITIALIZE INPUT = 'CE'
  0AA5 C0 87 2A0B              117          B     SVP
  0AA9 0089              0AAA  118          DC    XL2'0089'           '00' -> X-REG
  0AAB 000D              0AAC  119          DC    XL2'000D'           SENSE X-REG TO PULSE DATA
  0AAD 00                0AAD  120 XREG05   DC    AL1(*-*)            SET X-REG = 'VALUE'
  0AAE 89                0AAE  121          DC    XL1'89'
  0AAF 004D              0AB0  122          DC    XL2'004D'           READ X-REG
  0AB1 2CF5              0AB2  123          DC    AL2(OPREG)             INTO WORK AREA
  0AB3 0023              0AB4  124          DC    XL2'0023'           CHECK SENSE
                          125 *
  0AB5 0D 00 2CF5 0AAD         126          CLC   OPREG(1),XREG05     ACTUAL = EXPECTED ?
  0AB8 F2 01 31                127          JNE   XREG09              BR IF NO
                          128 *
  0ABE 38 01 2B62              129          TBN   IOPIN,X'01'         X-REG CHECK ?
  0AC2 F2 10 05                130          JT    XREG07              BR IF NO
                          131 *
  0AC5 C0 87 246A              132          B     ERRPRT
  0AC9 00                0AC9  133          DC    XL1'00'             ERROR 4030
                          134 *
  0ACA 3D 01 0AAD              135 XREG07   CLI   XREG05,X'01'         SPECIAL (ODD PARITY) TESTED ?
  0ACE F2 81 16                136          JE    XREG08              BR IF YES
                          137 *
  0AD1 0E 00 0AAD 2B47         138          ALC   XREG05(1),ELEVEN    ADD '11' TO X-REG VALUE
  0AD7 38 F0 0AAD              139          TBN   XREG05,X'F0'        LAST 'VALUE' TESTED ?
  0ADB C0 90 0AA1              140          BF    XREG04              BR IF NO
                          141 *
  0ADF 3C 01 0AAD              142          MVI   XREG05,X'01'        ELSE SETUP 'ODD PARITY' DATA
  0AE3 C0 87 0AA1              143          B     XREG04
                          144 *
  0AE7 C0 87 242C              145 XREG08   B     NORMN
  0AEB C0 87 0216              146          B     LINK                EXIT
                          147 *
                          148 *       GET HERE IF X REG RECEIVED NOT EQUAL TO EXPECTED VALUE
                          149 *
  0AEF C0 87 246A              150 XREG09   B     ERRPRT
  0AF3 12                0AF3  151          DC    XL1'12'             ERROR 4031
  0AF4 0AAD              0AF5  152          DC    AL2(XREG05)         X EXPECTED
  0AF6 2CF5              0AF7  153          DC    AL2(OPREG)          X RECIEVED
                          154
  0AF8 04                0AF8  155 RTN04    DC    XL1'04'             ROUTINE 04 NOT USED
  0AF9 00                0AF9  156          DC    XL1'00'
  0AFA 0800              0AFB  157          DC    AL2(RTN05)          NEXT ROUTINE ADDRESS
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
  0AFC C0 87 0216              158          B     LINK
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          160 ********************************************************************************
                          161 *        K-REG - TEST SET/RESET OF K1, 2, 4, 5, 6 & 7                          *
                          162 *        (EA318)                                                               *
                          163 *                        ERRORS: 4050 - K RECIEVED NOT EQUAL EXPECTED          *
                          164 *                                ( BITS FAILED TO SET )                        *
                          165 *                                4051 - K BIT(S) FAILED TO RESET               *
                          166 *                                4052 - K3 FAILED TO INHIBIT 'READ X-REG'      *
                          167 *                                                                              *
                          168 ********************************************************************************
                          169
  0B00 05           0B00  170 RTN05   DC    XL1'05'           ROUTINE 05
  0B01 00           0B01  171         DC    XL1'00'
  0B02 0B68         0B03  172         DC    AL2(RTN06)        NEXT ROUTINE ADDRESS
                          173 *
  0B04 C0 87 22F3         174         B     BGNIOP            INITIALIZE
                          175 *
                          176 *** START TEST 1 ***
                          177 *
  0B08 C0 87 240A         178         B     BGNTST
                          179 *
  0B0C 3C 00 2BD2         180         MVI   ALSBIN,0
                          181 *
                          182 *        SET K-REG, K TO X-REG, READ X-REG
                          183 *
  0B10 C0 87 2A0B         184         B     SVP
  0B14 7F82         0B15  185         DC    XL2'7F82'         SET K1, 2, 3, 4, 5, 6 & 7
  0B16 0084         0B17  186         DC    XL2'0084'         K-REG -> X-REG
  0B18 004D         0B19  187         DC    XL2'004D'         READ X-REG
  0B1A 2BD2         0B1B  188         DC    AL2(ALSBIN)         INTO LOC 'ALSBIN'
  0B1C 6F82         0B1D  189         DC    XL2'6F82'         NOT K3
  0B1E 0084         0B1F  190         DC    XL2'0084'         K-REG -> X-REG
  0B20 002D         0B21  191         DC    XL2'002D'         READ X-REG INTO LOC 'IOPIN'
                          192 *
  0B22 3B 02 2B62         193         SBF   IOPIN,X'02'       MASK OFF NON-K BITS
  0B26 3D BC 2B62         194 KREG03  CLI   IOPIN,X'BC'       TEST X0,2,3,4,5,7(K2,4,5,6,7,1)
  0B2A F2 01 24           195         JNE   KREG06            BR IF NOT AS EXPECTED
                          196 *
  0B2D 3D FD 2BD2         197         CLI   ALSBIN,X'FD'      SEE IF X-REG READ WITH K3 ON
  0B31 F2 81 2F           198         JE    KREG09            BR IF YES
                          199 *
                          200 *        RESET ALL K BITS EXCEPT BIT 2 (SERVICE MODE)
                          201 *
  0B34 C0 87 2A0B         202         B     SVP
  0B38 2082         0B39  203         DC    XL2'2082'
  0B3A 0084         0B3B  204         DC    XL2'0084'         K-REG -> X-REG
  0B3C 002D         0B3D  205         DC    XL2'002D'         READ X-REG
                          206 *
  0B3E 3B 02 2B62         207         SBF   IOPIN,X'02'       MASK OFF NON-K BITS
  0B42 3D 81 2B62         208 KREG05  CLI   IOPIN,X'81'       (X-REG 0 = K-REG 2, K1 OFF = X7 ON)
  0B46 F2 01 11           209         JNE   KREG08            BR IF NOT AS EXPECTED
                          210 *
  0B49 C0 87 242C         211         B     NORMN             LOOP TEST
  0B4D C0 87 0216         212         B     LINK              EXIT
                          213 *        GET HERE IF K-REGISTER BITS DO NOT SET
  0B51 C0 87 246A         214 KREG06  B     ERRPRT
  0B55 02           0B55  215         DC    XL1'02'           ERROR 4050
  0B56 0B27         0B57  216         DC    AL2(KREG03+1)     EXPECTED
  0B58 2B62         0B59  217         DC    AL2(IOPIN)        RECIEVED
                          218 *        GET HERE IF K BITS DON'T RESET
  0B5A C0 87 246A         219 KREG08  B     ERRPRT
  0B5E 12           0B5E  220         DC    XL1'12'           ERROR 4051
  0B5F 0B43         0B60  221         DC    AL2(KREG05+1)     EXPECTED
  0B61 2B62         0B62  222         DC    AL2(IOPIN)        RECIEVED
                          223 *        GET HERE IF K3 DOESN'T INHIBIT READ X-REG
  0B63 C0 87 246A         224 KREG09  B     ERRPRT
  0B67 20           0B67  225         DC    XL1'20'           ERROR 4052
                          226
  0B68 06           0B68  227 RTN06   DC    XL1'06'           ROUTINE 06 NOT USED
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

  0B69 00           0B69  228         DC    XL1'00'
  0B6A 0B70         0B68  229         DC    AL2(RTN07)        NEXT ROUTINE ADDRESS
  0B6C C0 87 0216         230         B     LINK
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              232 ********************************************************************************
                              233 *                                                                              *
                              234 *       OP REG TEST - INSURE THAT ALL OP-REG BITS CAN BE SET AND               *
                              235 *                     READ VIA THE 'SVP DATA BUS' (NORMAL AND                  *
                              236 *                     INVERTED), FORCE OP-REG CHECK                            *
                              237 *                                                                              *
                              238 *                     PATTERNS USED IN TEST -                                  *
                              239 *                     C, CR, Y = 1FFFFF ( ALL BITS ON, NORMAL )                *
                              240 *                                010000 ( ALL BITS OFF, NORMAL )               *
                              241 *                                2FFFFF ( ALL BITS ON, INVERT )                *
                              242 *                                310000 ( ALL BITS OFF, INVERT )               *
                              243 *                                                                              *
                              244 *                     ERRORS: 4070 - OP-REG CHECK ON                           *
                              245 *                             4071 - FORCED OP-REG CHECK NOT ON                *
                              246 *                             4072 - C,CR,Y ALL FAILED TO LOAD                 *
                              247 *                             4073 - C,CR OR Y WAS SUCCESFULLY LOADED          *
                              248 *                                    V1 - V3 = EXPTD C, CR & Y                 *
                              249 *                                    V4 - V6 = RCVD  C, CR & Y                 *
                              250 ********************************************************************************
                              251
0B70 07              0B70     252 RTN07   DC    XL1'07'           ROUTINE 07
0B71 00              0B71     253         DC    XL1'00'
0B72 0CC0            0B73     254         DC    AL2(RTN08)        NEXT ROUTINE ADDRESS
                              255 *
0B74 C0 87 22F3              256         B     BGNIOP            INITIALIZE
                              257 *
                              258 *** START TEST 1 ***
                              259 *
0B78 C0 87 240A              260         B     BGNTST
                              261 *
0B7C 3C 1F 0B96              262         MVI   CPAT,X'1F'        INITIAL PATTERN TO STRING
0B80 3C FF 0B98              263         MVI   CRPAT,X'FF'       INITIAL PATTERN TO STRING
0B84 3C FF 0B9A              264         MVI   YPAT,X'FF'        INITIAL PATTERN TO STRING
0B88 3C 00 0CBF              265         MVI   CRYSW,X'00'       INITIALIZE CONTROL SW
                              266 *
0B8C 3B 70 0CBF              267 CRY01   SBF   CRYSW,X'70'       TURN OFF 'READ OK' BITS
0B90 C0 87 2A08              268         B     SVP
                              269 *       SET 'CK STOP OVRIDE', 'SERVICE MODE' & 'STOP IOP'
0B94 A882            0B95    270         DC    XL2'A882'         SET K0, K2, K4
0B96 00              0B96    271 CPAT    DC    AL1(*-*)          C  PATTERN GOES HERE
0B97 88              0B97    272         DC    XL1'88'
0B98 00              0B98    273 CRPAT   DC    AL1(*-*)          CR PATTERN GOES HERE
0B99 8A              0B99    274         DC    XL1'8A'
0B9A 00              0B9A    275 YPAT    DC    AL1(*-*)          Y  PATTERN GOES HERE
0B9B 8B              0B9B    276         DC    XL1'8B'
0B9C 0048            0B9D    277         DC    XL2'0048'         READ C-REG
0B9E 2CF3            0B9F    278         DC    AL2(C)               INTO LOC 'C'
0BA0 004A            0BA1    279         DC    XL2'004A'         READ CR-REG
0BA2 2CF4            0BA3    280         DC    AL2(CR)              INTO LOC 'CR'
0BA4 004B            0BA5    281         DC    XL2'004B'         READ Y-REG
0BA6 2CF5            0BA7    282         DC    AL2(Y)               INTO LOC 'Y'
0BA8 0023            0BA9    283         DC    XL2'0023'            CHECK SENSE
                              284 *
0BAA 38 40 2B62              285         TBN   IOPIN,X'40'          OP-REG CHECK ?
0BAE F2 10 05                286         JT    CRY02                BR IF NO
                              287 *
0BB1 C0 87 246A              288         B     ERRPRT
0BB5 00              0BB5    289         DC    XL1'00'              ERROR 4070
                              290 *
0BB6 38 2E 0B96              291 CRY02   TBN   CPAT,X'2E'           DATA = 'FF' AND INVERTED ?
0BBA F2 90 0C                292         JF    CRY03                BR IF NO
                              293 *
0BBD 3C 30 0B96              294         MVI   CPAT,X'30'           ELSE SETUP EXPECTED C,
0BC1 3C 00 0B98              295         MVI   CRPAT,X'00'                                 CR,
0BC5 3C 00 0B9A              296         MVI   YPAT,X'00'                                     Y
                              297 *
0BC9 38 31 0B96              298 CRY03   TBN   CPAT,X'31'           DATA = '00' AND INVERTED ?
0BCD F2 90 0C                299         JF    CRY04                BR IF NO
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              300 *
0BD0 3C 2E 0B96              301         MVI   CPAT,X'2E'           ELSE SETUP EXPECTED C,
0BD4 3C FF 0B98              302         MVI   CRPAT,X'FF'                                 CR,
0BD8 3C FF 0B9A              303         MVI   YPAT,X'FF'                                     Y
                              304 *
0BDC 0D 00 2CF3 0B96         305 CRY04   CLC   C(1),CPAT           'C' READ = EXPTD ?
0BE2 F2 01 04                306         JNE   CRY05               BR IF NO
                              307 *
0BE5 3A 10 0CBF              308         SBN   CRYSW,X'10'         ELSE SET 'OK' SW
0BE9 0D 00 2CF4 0B98         309 CRY05   CLC   CR(1),CRPAT         'CR' READ = EXPTD ?
0BEF F2 01 04                310         JNE   CRY06               BR IF NO
                              311 *
0BF2 3A 20 0CBF              312         SBN   CRYSW,X'20'         ELSE SET 'OK' SW
0BF6 0D 00 2CF5 0B9A         313 CRY06   CLC   Y(1),YPAT           'Y' READ = EXPTD ?
0BFC F2 01 04                314         JNE   CRY07               BR IF NO
                              315 *
0BFF 3A 40 0CBF              316         SBN   CRYSW,X'40'         ELSE SET 'OK' SW
0C03 38 70 0CBF              317 CRY07   TBN   CRYSW,X'70'         ALL OK ?
0C07 F2 90 58                318         JF    CRY14               BR IF NO
                              319 *
0C0A 38 08 0CBF              320         TBN   CRYSW,X'08'         2ND PASS COMPLETED ?
0C0E F2 90 15                321         JF    CRY11               BR IF NO
                              322 *
0C11 38 04 0CBF              323         TBN   CRYSW,X'04'         3RD PASS COMPLETED ?
0C15 F2 90 22                324         JF    CRY12               BR IF NO
                              325 *
0C18 38 02 0CBF              326         TBN   CRYSW,X'02'         4TH PASS COMPLETED ?
0C1C F2 90 2F                327         JF    CRY13               BR IF NO
                              328 *
0C1F C0 87 242C              329         B     NORMN
0C23 F2 87 73                330         J     CRY19
                              331 *       GET HERE IF 1ST PASS SUCCESSFUL
0C26 3A 08 0CBF              332 CRY11   SBN   CRYSW,X'08'         SET 'PASS 2 COMPLETE' SW
0C2A 3C 01 0B96              333         MVI   CPAT,X'01'          SETUP PATTERN 2
0C2E 3C 00 0B98              334         MVI   CRPAT,X'00'         SETUP PATTERN 2
0C32 3C 00 0B9A              335         MVI   YPAT,X'00'          SETUP PATTERN 2
0C36 C0 87 0B8C              336         B     CRY01
                              337 *       GET HERE IF 2ND PASS SUCCESSFUL
0C3A 3A 04 0CBF              338 CRY12   SBN   CRYSW,X'04'         SET 'PASS 3 COMPLETE' SW
0C3E 3C 2F 0B96              339         MVI   CPAT,X'2F'          SETUP PATTERN 3 ( INVERT )
0C42 3C FF 0B98              340         MVI   CRPAT,X'FF'         SETUP PATTERN 3
0C46 3C FF 0B9A              341         MVI   YPAT,X'FF'          SETUP PATTERN 3
0C4A C0 87 0B8C              342         B     CRY01
                              343 *       GET HERE IF 3RD PASS SUCCESSFUL
0C4E 3A 02 0CBF              344 CRY13   SBN   CRYSW,X'02'         SET 'PASS 4 COMPLETE' SW
0C52 3C 31 0B96              345         MVI   CPAT,X'31'          SETUP PATTERN 4  ( INVERT )
0C56 3C 00 0B98              346         MVI   CRPAT,X'00'         SETUP PATTERN 4
0C5A 3C 00 0B9A              347         MVI   YPAT,X'00'          SETUP PATTERN 4
0C5E C0 87 0B8C              348         B     CRY01
                              349 *       GET HERE IF ANY ERROR DETECTED
0C62 38 10 0CBF              350 CRY14   TBN   CRYSW,X'10'
0C66 F2 10 1F                351         JT    CRY15               BR IF 'C' READ OK
                              352 *
0C69 38 20 0CBF              353         TBN   CRYSW,X'20'
0C6D F2 10 18                354         JT    CRY15               BR IF 'CR' READ OK
                              355 *
0C70 38 40 0CBF              356         TBN   CRYSW,X'40'
0C74 F2 10 11                357         JT    CRY15               BR IF 'Y' READ OK
                              358 *       GET HERE IF ALL (C, CR & Y) FAILED
0C77 C0 87 246A              359         B     ERRPRT
0C7B 26              0C7B    360         DC    XL1'26'             ERROR 4072
0C7C 0B96            0C7D    361         DC    AL2(CPAT)           EXPD 'C'
0C7E 0B98            0C7F    362         DC    AL2(CRPAT)                'CR'
0C80 0B9A            0C81    363         DC    AL2(YPAT)                 'Y'
0C82 2CF3            0C83    364         DC    AL2(C)              RCVD 'C'
0C84 2CF4            0C85    365         DC    AL2(CR)                   'CR'
0C86 2CF5            0C87    366         DC    AL2(Y)                    'Y'
                              367 *       GET HERE IF ANY ONE (C, CR OR Y) WAS SUCCESSFUL
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    0C88 C0 87 246A            368 CRY15    B      ERRPRT
    0C8C 36               0C8C 369          DC     XL1'36'                ERROR 4073
    0C8D 0B96             0C8E 370          DC     AL2(CPAT)              EXPD 'C'
    0C8F 0B98             0C90 371          DC     AL2(CRPAT)                  'CR'
    0C91 0B9A             0C92 372          DC     AL2(YPAT)                   'Y'
    0C93 2CF3             0C94 373          DC     AL2(C)                 RCVD 'C'
    0C95 2CF4             0C96 374          DC     AL2(CR)                     'CR'
    0C97 2CF5             0C98 375          DC     AL2(Y)                      'Y'
                               376 *
                               377 *        FORCE 'OP-REG' CHECK WITH 'CRY SW' CHECK ( BAD PARITY -> CRY
                               378 *                                            CR = '00'  &  C4 = 0 )
                               379 *** START TEST 2 ***
                               380 *
    0C99 C0 87 240A            381 CRY19    B      BGNTST
                               382 *
    0C9D C0 87 2A0B            383          B      SVP
    0CA1 A882             0CA2 384          DC     XL2'A882'              K0, 2, 4
    0CA3 0088             0CA4 385          DC     XL2'0088'              '00' -> C-REG
    0CA5 008A             0CA6 386          DC     XL2'008A'              '00' -> CR-REG
    0CA7 208F             0CA8 387          DC     XL2'208F'              CR -> CRY SW
    0CA9 0023             0CAA 388          DC     XL2'0023'              CK SENSE
                               389 *
    0CAB 39 40 2862            390          TBF    IOPIN,X'40'            OP-REG CHECK ?
    0CAF F2 90 04              391          JF     CRY22                  BR IF NO
                               392 *
    0CB2 C0 87 242C            393          B      NORMN
                               394 *
    0CB6 C0 87 246A            395 CRY22    B      ERRPRT
    0CBA 10               0CBA 396          DC     XL1'10'                ERROR 4071
                               397 *
    0CBB C0 87 0216            398          B      LINK
                               399 *
    0CBF 00               0CBF 400 CRYSW    DC     XL1'00'                  01 = 'C' READ OK
                               401 *                                        02 = 'CR' READ OK
                               402 *                                        04 = 'Y' READ OK
                               403 *                                        08 = PASS 2 COMPLETED
                               404 *                                        04 = PASS 3 COMPLETED
                               405 *                                        02 = PASS 4 COMPLETED
                               406
    0CC0 08               0CC0 407 RTN08    DC     XL1'08'                ROUTINE 08 NOT USED
    0CC1 00               0CC1 408          DC     XL1'00'
    0CC2 0CC8             0CC3 409          DC     AL2(RTN09)             NEXT ROUTINE ADDRESS
    0CC4 C0 87 0216            410          B      LINK
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                               412 *********************************************************************
                               413 *                                                                   *
                               414 *        B-REG TEST - USE B-REG CHECK AND EVEN/ODD PARITY DATA      *
                               415 *                   ERRORS: 4090 - FORCED B-REG CK DIDN'T OCCUR     *
                               416 *                           4091 - B-REG CK                         *
                               417 *                           4093 - IOP CHECK STOP NOT SET           *
                               418 *                 REFER TO ALD PAGE EA223                           *
                               419 *                                                                   *
                               420 *********************************************************************
                               421
    0CC8 09               0CC8 422 RTN09    DC     XL1'09'                ROUTINE 09
    0CC9 00               0CC9 423          DC     XL1'00'
    0CCA 0D3D             0CCB 424          DC     AL2(RTN0A)             NEXT ROUTINE ADDRESS
                               425 *
    0CCC C0 87 22F3            426          B      BGNIOP                 INITIALIZATION
                               427 *
                               428 *        FORCE 'FF' WITH BAD PARITY VIA 'UNUSED INPUTS'
                               429 *                             ( REFER TO ALD PAGE EA221 )
                               430 *** START TEST 1 ***
                               431 *
    0CD0 C0 87 240A            432          B      BGNTST
    0CD4 C0 87 2A0B            433          B      SVP
    0CD8 2082             0CD9 434          DC     XL2'2082'              SET K2
    0CDA 058F             0CDB 435          DC     XL2'058F'              'FF' TO B-REG
    0CDC 0043             0CDD 436          DC     XL2'0043'              CHECK SENSE
    0CDE 2CF5             0CDF 437          DC     AL2(OPREG)               INTO LOC 'OPREG'
    0CE0 0084             0CE1 438          DC     XL2'0084'              K-BUS -> X-REG
    0CE2 002D             0CE3 439          DC     XL2'002D'              SENSE X-REG TO LOC 'IOPIN'
                               440 *
    0CE4 39 08 2CF5            441          TBF    OPREG,X'08'            B-REG CHECK ?
    0CE8 F2 10 05              442          JT     BREG05                 BR IF YES
                               443 *        GET HERE IF B-REG CK FAILED TO COME ON
    0CEB C0 87 246A            444          B      ERRPRT
    0CEF 00               0CEF 445          DC     XL1'00'                ERROR 4090
                               446 *
    0CF0 38 02 2862            447 BREG05   TBN    IOPIN,X'02'            'IOP CK STOP' ?
    0CF4 C0 10 242C            448          BT     NORMN                  BR IF YES
                               449 *
    0CF8 C0 87 246A            450          B      ERRPRT
    0CFC 30               0CFC 451          DC     XL1'30'                ERROR 4093
                               452
                               452
                               453 *        NOW SET B-REG WITH  EVEN  PARITY DATA
                               454 *
                               455 *** START TEST 2 ***
                               456 *
    0CFD C0 87 240A            457          B      BGNTST
    0D01 C0 87 2A0B            458          B      SVP
    0D05 A882             0D06 459          DC     XL2'A882'              SERVICE MODE
    0D07 FF8A             0D08 460          DC     XL2'FF8A'              'FF' TO 'CR' REG
    0D09 208F             0D0A 461          DC     XL2'208F'              CR -> CRY SW
    0D0B 018F             0D0C 462          DC     XL2'018F'              CRY -> B-REG
    0D0D 0023             0D0E 463          DC     XL2'0023'              CHECK SENSE
                               464 *
    0D0F 38 08 2862            465          TBN    IOPIN,X'08'            B-REG CHECK ?
    0D13 F2 90 16              466          JF     BREG09                 BR IF YES
                               467 *
                               468 *        SET B-REG WITH  ODD  PARITY DATA
                               469 *
    0D16 C0 87 2A0B            470          B      SVP
    0D1A A882             0D1B 471          DC     XL2'A882'
    0D1C 018A             0D1D 472          DC     XL2'018A'              '01' TO 'CR' REG
    0D1E 208F             0D1F 473          DC     XL2'208F'              CR -> CRY SW
    0D20 018F             0D21 474          DC     XL2'018F'              CRY -> B-REG
    0D22 0023             0D23 475          DC     XL2'0023'              CHECK SENSE
                               476 *
    0D24 38 08 2862            477          TBN    IOPIN,X'08'            B-REG CHECK ?
    0D28 C0 10 242C            478          BT     NORMN                  BR IF NO
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              479 *        GET HERE IF B-REG CHECK OCCURS
   0D2C C0 87 2A0B            480 BREG09   B     SVP
   0D30 A882            0D31  481          DC    XL2'A882'
   0D32 01AF            0D33  482          DC    XL2'01AF'          CRY -> B-REG FOR PROBING
                              483 *
   0D34 C0 87 246A            484          B     ERRPRT
   0D38 10              0D38  485          DC    XL1'10'            ERROR 4091
                              486 *
   0D39 C0 87 0216            487          B     LINK
                              488
   0D3D 0A              0D3D  489 RTN0A    DC    XL1'0A'            ROUTINE 0A NOT USED
   0D3E 00              0D3E  490          DC    XL1'00'
   0D3F 0D45            0D40  491          DC    AL2(RTN0B)         NEXT ROUTINE ADDRESS
   0D41 C0 87 0216            492          B     LINK
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              494 ********************************************************************************
                              495 *                                                                              *
                              496 *    D-REG TEST - USE D-REG/ALSD IN SW/ALS OUT REG PATH TO MOVE DATA           *
                              497 *                 ( SEE 'DREGTB' BELOW FOR PATTERNS USED )                     *
                              498 *                                                                              *
                              499 *                 ERRORS: 4080 - D-REG CK                                      *
                              500 *                         4081 - 'HOT' BIT(S) IN D-REG PATH                    *
                              501 *                         4082 - 'DROPPED' BIT(S) IN D-REG PATH                *
                              502 *                                                                              *
                              503 ********************************************************************************
                              504
   0D45 0B              0D45  505 RTN0B    DC    XL1'0B'            ROUTINE 0B
   0D46 00              0D46  506          DC    XL1'00'
   0D47 0E0B            0D48  507          DC    AL2(RTN0C)         NEXT ROUTINE ADDRESS
                              508 *
   0D49 C0 87 22F3            509          B     BGNIOP             INITIALIZATION
                              510 *
                              511 *        D-REG PATH TEST, DATA FROM OP-REG TO X-REG VIA ALSD IN SW
                              512 *          AND ALS OUT REG
                              513 *
                              514 *** START TEST 1 ***
                              515 *
   0D4D C0 87 240A            516          B     BGNTST
                              517 *
   0D51 3C FF 0DED            518          MVI   DREG26,X'FF'       INITIAL PASS = 1'S
   0D55 3C 22 0DF9            519          MVI   DREG27,X'22'              ERROR = 4082
   0D59 3C FF 0D71            520          MVI   DREG22,X'FF'
   0D5D 3C FF 0D7A            521          MVI   DREG23,X'FF'
   0D61 C2 01 22E4            522          LA    FFFF,XR1
   0D65 34 01 0DF8            523          ST    DREG28,XR1
                              524 *
   0D69 C0 87 2A0B            525 DREG21   B     SVP
   0D6D A882            0D6E  526          DC    XL2'A882'          SET K0, K2, K4
   0D6F 0888            0D70  527          DC    XL2'0888'          '08' (C4) -> OPREG 'C'
                        0D71  528 DREG22   EQU   *
   0D71 FF8A            0D72  529          DC    XL2'FF8A'          'FF' -> OPREG 'CR'
   0D73 228F            0D74  530          DC    XL2'228F'          CR -> CRY SW -> A -> D-REG
   0D75 0085            0D76  531          DC    XL2'0085'          D-REG -> X-REG
   0D77 002D            0D78  532          DC    XL2'002D'          READ X-REG
                              533 *
                        0D7A  534 DREG23   EQU   *+1
   0D79 3D FF 2B62            535          CLI   IOPIN,X'FF'        D-REG READ = EXPECTED ?
   0D7D F2 01 65              536          JNE   DREG25             BR IF NO
                              537 *
   0D80 3D 00 0D71            538          CLI   DREG22,X'00'       0'S TESTED YET ?
   0D84 F2 81 1C              539          JE    DREG24             BR IF YES
                              540 *
   0D87 3C 00 0DED            541          MVI   DREG26,X'00'       SETUP 0'S
   0D8B 3C 00 0D71            542          MVI   DREG22,X'00'
   0D8F 3C 00 0D7A            543          MVI   DREG23,X'00'
   0D93 3C 12 0DF9            544          MVI   DREG27,X'12'       ERROR 40B1
   0D97 C2 01 2B46            545          LA    ZERO,XR1
   0D9B 34 01 0DF8            546          ST    DREG28,XR1
   0D9F C0 87 0D69            547          B     DREG21             TEST WITH DATA = 0'S
                              548 *
   0DA3 C0 87 242C            549 DREG24   B     NORMN
                              550
                              551 *        TEST FOR D-REG CHECK WITH VARIOUS DATA PATTERNS
                              552 *
                              553 *** START TEST 2 ***
                              554 *
   0DA7 C0 87 240A            555          B     BGNTST
                              556 *
   0DAB C2 01 0DFE            557          LA    DREGTB,XR1         PATTERN TABLE POINTER
   0DAF 1C 00 0DBF 00         558 DREG01   MVC   DREG02(1),0(,XR1)  SETUP 'C' FIELD
   0DB4 1C 00 0DC1 01         559          MVC   DREG03(1),1(,XR1)  SETUP 'CR' FIELD
                              560
                              561 *        MOVE DATA -> CR-REG -> A-REG -> D-REG
```

C141   3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    0DB9 C0 87 2A08            562          B      SVP
    0DBD A882           0DBE   563          DC     XL2'A882'            SET K0, K2, K4
    0DBF 00             0DBF   564 DREG02   DC     AL1(*-*)             'C' DATA GOES HERE
    0DC0 88             0DC0   565          DC     XL1'88'              LOAD OPREG 'C'
    0DC1 00             0DC1   566 DREG03   DC     AL1(*-*)             'CR' DATA GOES HERE
    0DC2 8A             0DC2   567          DC     XL1'8A'              LOAD OPREG 'CR'
    0DC3 228F           0DC4   568          DC     XL2'228F'            CR -> CRY SW -> A -> D
    0DC5 0023           0DC6   569          DC     XL2'0023'            CHECK SENSE
                               570 *
    0DC7 38 04 2862            571          TBN    IOPIN,X'04'          D-REG CHECK ?
    0DCB F2 90 12              572          JF     DREG06               BR IF YES
                               573 *        GET HERE IF D-REG CHECK DIDN'T OCCUR
    0DCE D2 01 02              574          LA     2(,XR1),XR1           THEN BUMP PATTERN POINTER
    0DD1 7D FF 00              575          CLI    0(,XR1),X'FF'         END OF TABLE ?
    0DD4 C0 01 0DAF            576          BNE    DREG01                CONTINUE IF NOT
                               577 *
    0DD8 C0 87 242C            578          B      NORMN
    0DDC C0 87 0216            579          B      LINK
                               580
                               581 *        GET HERE IF D-REG CHECK OCCURRED
    0DE0 C0 87 246A            582 DREG06   B      ERRPRT
    0DE4 00             0DE4   583          DC     XL1'00'               ERROR 40B0
                               584
                               585 *        GET HERE AFTER A D-REG DATA ERROR TO PRESENT
                               586 *        ERROR STOP WITH OP-REG TO D-REG GATES OPEN FOR
                               587 *        SCOPING
                               588 *
    0DE5 C0 87 2A08            589 DREG25   B      SVP
    0DE9 A882           0DEA   590          DC     XL2'A882'             SET K0, K2, K4
    0DEB 0888           0DEC   591          DC     XL2'0888'             '08' (C4) -> OPREG 'C'
                        0DED   592 DREG26   EQU    *
    0DED FF8A           0DEE   593          DC     XL2'FF8A'             'FF' -> OPREG 'CR'
    0DEF 22AF           0DF0   594          DC     XL2'22AF'             CR -> CRY SW -> A -> D-REG
                               595 *        FORCE ERROR 'STOP' FOR SCOPING
    0DF1 3C 01 2CF6            596          MVI    LPCNT,X'01'
    0DF5 C0 87 246A            597          B      ERRPRT
    0DF9 22             0DF9   598 DREG27   DC     XL1'22'               ERROR 40B1 OR 40B2
    0DFA 22E4           0DFB   599 DREG28   DC     AL2(FFFF)             EXPECTED
    0DFC 2B62           0DFD   600          DC     AL2(IOPIN)            RECIEVED
                               601  *
                               602 ****************************************************************
                               603 *                                                              *
                               604 *        TABLE CF DATA FOR D-REG PATH TEST - BIT 4 = C4 (PARITY) FOR CR -> CRY  *
                               605 *              FORMAT: 1ST BYTE       BIT 5 ON = GOOD PARITY GENERATED *
                               606 *                      2ND BYTE - DATA FOR OPREG -> D-REG TRANSFER    *
                               607 *                                                              *
                               608 *                                                              *
                               609 *        NOTE: BAD (EVEN) PARITY DATA SHOULD BE CORRECTED IN 'CRY' SW *
                               610 *              BEFORE BEING XFRD TO D-REG                     *
                               611 *                                                              *
                               612 ****************************************************************
                               613
                        0DFE   614 DREGTB   EQU    *
    0DFE 0C00           0DFF   615          DC     XL2'0C00'             GOOD (ODD) PARITY 0'S
    0E00 0000           0E01   616          DC     XL2'0000'             BAD (EVEN) PARITY 0'S
    0E02 0CFF           0E03   617          DC     XL2'0CFF'             GOOD (ODD) PARITY F'S
    0E04 00FF           0E05   618          DC     XL2'00FF'             BAD (EVEN) PARITY F'S
    0E06 0401           0E07   619          DC     XL2'0401'             GOOD (ODD) PARITY DATA
    0E08 0801           0E09   620          DC     XL2'0801'             BAD (EVEN) PARITY DATA
    0E0A FF             0E0A   621          DC     XL1'FF'               TABLE TERMINATOR
                               622
    0E0B 0C             0E0B   623 RTN0C    DC     XL1'0C'               ROUTINE 0C NOT USED
    0E0C 00             0E0C   624          DC     XL1'00'
    0E0D 0E13           0E0E   625          DC     AL2(RTN0D)            NEXT ROUTINE ADDRESS
    0E0F C0 87 0216            626          B      LINK
                               627
    0E13 0D             0E13   628 RTN0D    DC     XL1'0D'               ROUTINE 0D NOT USED
    0E14 00             0E14   629          DC     XL1'00'
```


C141   3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    0E15 0E1B           0E16   630          DC     AL2(RTN0E)            NEXT ROUTINE ADDRESS
    0E17 C0 87 0216            631          B      LINK
                               632
    0E1B 0E             0E1B   633 RTN0E    DC     XL1'0E'               ROUTINE 0E NOT USED
    0E1C 00             0E1C   634          DC     XL1'00'
    0E1D 0E23           0E1E   635          DC     AL2(RTN0F)            NEXT ROUTINE ADDRESS
    0E1F C0 87 0216            636          B      LINK
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                               638 ********************************************************************************
                               639 *       ALS TEST                                                               *
                               640 *      ( PART 1 )- LOAD ALSB, TEST D-REG FOR DATA THEN READ ALSB               *
                               641 *                  AND TEST FOR DATA. LOAD ALSD, TEST D-REG FOR DATA           *
                               642 *                  THEN GET ALSD AND TEST FOR DATA. LOAD ALSB 0 - 31           *
                               643 *                  AND TEST, THEN LOAD ALSD 0 - 31 AND TEST.                   *
                               644 *                                                                              *
                               645 *                  ERRORS: 40F0 - IMM. DATA NOT XFRD TO D-REG                  *
                               646 *                          40F1/40F2 - DATA IN ALSB/ALSD NOT AS EXP            *
                               647 *                                      V1 = ALS EXPTD, V2 = ALS RCVD           *
                               648 *                          40F3 - DATA IN BOTH ALSB/D NOT AS EXPECTED          *
                               649 *                                                                              *
                               650 ********************************************************************************
                               651
0E23 0F              0E23      652 RTNOF    DC     XL1'0F'             ROUTINE OF
0E24 00              0E24      653          DC     XL1'00'
0E25 0FEF            0E26      654          DC     AL2(RTN10)          NEXT ROUTINE ADDRESS
                               655 *
0E27 C0 87 22F3                656          B      BGNIOP
                               657 *
0E2B 3C 00 0F6C                658          MVI    ALSSW,0
0E2F 3C CE 0EBD                659          MVI    ALSOA,X'CE'         INITIALIZE 'EXPECTED'
                               660 *
                               661 *** START TEST 1 ***
                               662 *
0E33 C0 87 240A                663          B      BGNTST
                               664 *
                               665 *        SET ALSB/D AT LOC 0000 = 'CE'
                               666 *
0E37 3C 00 2862                667          MVI    IOPIN,0             INITIALIZE INPUT AREA
0E3B C0 87 2737                668          B      LALSB
0E3F 00              0E3F      669          DC     AL1(0)
0E40 CE              0E40      670          DC     XL1'CE'
                               671 *        TEST D-REG TO INSURE THAT INSTRUCTION DECODED OK
0E41 C0 87 291B                672          B      SDREG
0E45 3D CE 2862                673          CLI    IOPIN,X'CE'         D-REG AS EXPECTED ?
0E49 C0 01 0F6D                674          BNE    ALSER1              BR IF NO
                               675 *
0E4D C0 87 27F2                676          B      SALSB               GET ALSB LOC 0000
0E51 00              0E51      677          DC     AL1(0)
                               678 *
0E52 3D CE 2862                679          CLI    IOPIN,X'CE'         SEE IF DATA AS EXPECTED
0E56 F2 81 0A                  680          JE     ALS05               BR IF YES
                               681 *
0E59 3A 01 0F6C                682          SBN    ALSSW,X'01'         ELSE SET 'ALSB ERROR'
0E5D 0C 00 28D2 2B62           683          MVC    ALSBIN(1),IOPIN     AND SAVE DATA
                               684 *
0E63 3C 00 2862                685 ALS05    MVI    IOPIN,0             INITIALIZE INPUT AREA
0E67 C0 87 276D                686          B      LALSD               LOAD ALSD LOC 0000
0E6B 00              0E6B      687          DC     AL1(0)
0E6C CE              0E6C      688          DC     XL1'CE'
                               689 *        TEST D-REG TO INSURE INSTRUCTION DECODED OK
0E6D C0 87 291B                690          B      SDREG
0E71 3D CE 2862                691          CLI    IOPIN,X'CE'         D-REG AS EXPECTED ?
0E75 F2 01 F5                  692          JNE    ALSER1              BR IF NO
                               693 *
0E78 C0 87 2801                694          B      SALSD               GET ALSD LOC 0000
0E7C 00              0E7C      695          DC     AL1(0)
                               696 *
0E7D 3D CE 2862                697          CLI    IOPIN,X'CE'         ALSD AS EXPECTED ?
0E81 F2 81 04                  698          JE     ALS06               BR IF YES
                               699 *
0E84 3A 02 0F6C                700          SBN    ALSSW,X'02'         ELSE SET 'ALSD ERROR'
                               701 *
0E88 39 03 0F6C                702 ALS06    TBF    ALSSW,X'03'         ANY ERROR ?
0E8C F2 10 0A                  703          JT     ALS07               BR IF NO
                               704 *
0E8F 38 01 0F6C                705          TBN    ALSSW,X'01'         ALSB ERROR ?
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

0E93 F2 10 DC                  706          JT     ALSER2              BR IF YES
0E96 F2 87 E2                  707          J      ALSER3              GO IF ALSD ERROR
                               708 *
0E99 C0 87 242C                709 ALS07    B      NORMN
                               710 *
0E9D 3C 00 0F6C                711          MVI    ALSSW,X'00'
                               712 *
                               713 *** START TEST 2 ***
                               714 *
0EA1 C0 87 240A                715          B      BGNTST
                               716 *
                               717 *        NOW LOAD ALS LOCATIONS 00 - 31 WITH HEX DATA '00' - '9F'
                               718 *
0EA5 3C 00 0EBB                719          MVI    ALS09,X'00'         INITIALIZE EXPECTED ADDRESS
0EA9 3C 00 0EBD                720          MVI    ALSOA,X'00'                       ''    DATA
0EAD 0C 01 0EBA 0F69           721          MVC    ALS08+3(2),SALSBA   INITIALIZE TO READ ALSB
                               722 *
0EB3 C0 87 0FA8                723          B      ALSLOD              SETUP ALS 00 - 31 = '00' - '9F'
                               724 *
0EB7 C0 87 27F2                725 ALS08    B      SALSB               GET ALSB (ALTERED TO 'SALSD' FOR 2ND
0EBB 00              0EBB      726 ALS09    DC     AL1(*-*)            ADDRESS 00 - 31              PASS)
0EBD                 0EBD      727 ALS0A    EQU    *+1
0EBC 3D 00 2862                728          CLI    IOPIN,X'00'         ALS AS EXPECTED ?
0EC0 F2 81 2C                  729          JE     ALS10               BR IF YES
                               730 *
0EC3 0D 00 0E8A 0F6B           731          CLC    ALS08+3(1),SALSDA   TESTING ALSD ?
0EC9 F2 81 13                  732          JE     ALS0D               BR IF YES
                               733 *
0ECC 3A 01 0F6C                734          SBN    ALSSW,X'01'         ELSE SET ALSB ERROR
0ED0 0C 00 28D2 0EBD           735          MVC    ALSBIN(1),ALSOA     SAVE EXPECTED DATA
0ED6 0C 00 28D3 2B62           736          MVC    ALSBIN+1(1),IOPIN     AND RECIEVED
0EDC F2 87 10                  737          J      ALS10
                               738 *
0EDF 3A 02 0F6C                739 ALS0D    SBN    ALSSW,X'02'         SET ALSD ERROR
0EE3 0C 00 28D4 0EBD           740          MVC    ALSBIN+2(1),ALS0A   SAVE EXPECTED DATA
0EE9 0C 00 28D5 2B62           741          MVC    ALSBIN+3(1),IOPIN     AND RECIEVED
                               742 *
0EEF 3D 1F 0EBB                743 ALS10    CLI    ALS09,31            LAST ALS TESTED ?
0EF3 F2 81 18                  744          JE     ALS15               BR IF YES
                               745 *
0EF6 0E 00 0EBB 2B36           746          ALC    ALS09(1),I1         ELSE BUMP ALS ADDRESS
0EFC 3D FF 0EBD                747          CLI    ALSOA,X'FF'         'FF' TEST IN PROGRESS ?
0F00 C0 81 0EB7                748          BE     ALS08               BR IF YES
                               749 *
0F04 0E 00 0EBD 2B36           750          ALC    ALSOA(1),I1         BUMP 'DATA'
0F0A C0 87 0EB7                751          B      ALS08                AND CONTINUE
                               752 *
0F0E 0D 01 0EBA 0F6B           753 ALS15    CLC    ALS08+3(2),SALSDA   ALSD TESTED YET ?
0F14 F2 81 1A                  754          JE     ALS20               BR IF YES, RUN 'FF' TEST
                               755 *
0F17 0C 01 0EBA 0F6B           756          MVC    ALS08+3(2),SALSDA   ELSE SETUP TO READ ALSD
0F1D 3C 00 0EBB                757          MVI    ALS09,0             SETUP ADDRESS = '00'
0F21 3D FF 0EBD                758          CLI    ALSOA,X'FF'         'FF' TEST IN PROGRESS ?
0F25 C0 81 0EB7                759          BE     ALS08               BR IF YES
                               760 *
0F29 3C 80 0EBD                761          MVI    ALSOA,X'80'         INITIALIZE EXPECTED DATA
0F2D C0 87 0EB7                762          B      ALS08               GO READ ALS'D'
                               763 *
0F31 39 03 0F6C                764 ALS20    TBF    ALSSW,X'03'         ANY ERROR ?
0F35 F2 10 0A                  765          JT     ALS21               BR IF NO
                               766 *
0F38 38 01 0F6C                767          TBN    ALSSW,X'01'         ALSB ERROR ?
0F3C F2 10 33                  768          JT     ALSER2              BR IF YES
0F3F F2 87 39                  769          J      ALSER3              ELSE BR ON ALSD ERROR
                               770 *
0F42 C0 87 242C                771 ALS21    B      NORMN
                               772 *
0F46 3D FF 0EBD                773          CLI    ALSOA,X'FF'         'FF' TEST DONE ?
```

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```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0F4A C0 81 0216            774          BE    LINK              BR IF YES
                              775 *
                              776 *** START TEST 3 ***
                              777 *
   0F4E C0 87 240A            778          B     8GNTST
                              779 *
   0F52 3C FF 0EBD            780          MVI   ALSOA,X'FF'       SETUP DATA = 'FF'
   0F56 3C 00 0EB8            781          MVI   ALSO9,X'00'             INITIAL ALS LOC = 0000
   0F5A 0C 01 0EBA 0F69       782          MVC   ALSO8+3(2),SALSBA FIRST TEST ALSB
   0F60 C0 87 0F89            783          B     ALSLOF            SETUP ALSB/D = 'FF'
                              784 *
   0F64 C0 87 0EB7            785          B     ALSO8             TEST
                              786 *
   0F68 27F2          0F69    787 SALSBA   DC    AL2(SALSB)        SENSE ALS'B' ROUTINE ADDRESS
   0F6A 2801          0F68    788 SALSDA   DC    AL2(SALSD)        SENSE ALS'D' ROUTINE ADDRESS
   0F6C               0F6C    789 ALSSW    DS    XL1
                              790 *
   0F6D C0 87 246A            791 ALSER1   B     ERRPRT
   0F71 00            0F71    792          DC    XL1'00'           ERROR 40F0
                              793 *
   0F72 C0 87 246A            794 ALSER2   B     ERRPRT
   0F76 12            0F76    795          DC    XL1'12'           ERROR 40F1
   0F77 28D2          0F78    796          DC    AL2(ALSBIN)
   0F79 28D3          0F7A    797          DC    AL2(ALSBIN+1)
                              798 *
   0F7B C0 87 246A            799 ALSER3   B     ERRPRT
   0F7F 22            0F7F    800          DC    XL1'22'           ERROR 40F2
   0F80 28D4          0F81    801          DC    AL2(ALSBIN+2)
   0F82 28D5          0F83    802          DC    AL2(ALSBIN+3)
                              803 *
   0F84 C0 87 246A            804 ALSER4   B     ERRPRT
   0F88 30            0F88    805          DC    XL1'30'           ERROR 40F3
                              806 *
                              807
                              808 *-------------------------------------------------*
                              809 *                                                 *
                              810 *       ALSLOF - SETUP ALSB/D = 'FF'              *
                              811 *                                                 *
                              812 *                                                 *
                              813 *       ALSLOD - SETUP ALS LOCATIONS AS 00 = '00' *
                              814 *                                      80 = '80'  *
                              815 *                                      1F = '1F' ETC *
                              816 *                                                 *
                              817 *-------------------------------------------------*
                              818
   0F89 34 08 0FEE            819 ALSLOF   ST    ALSLOE+3,ARR      SAVE RETURN LINK
   0F8D 34 01 0FEA            820          ST    ALSLOC+3,XR1           XR1
   0F91 3C FF 28D1            821          MVI   ALSB+31,X'FF'
   0F95 0C 1E 28D0 28D1       822          MVC   ALSB+30(31),ALSB+31
                              823 *
   0F9B 3C FF 2C11            824          MVI   ALSD+31,X'FF'
   0F9F 0C 1E 2C10 2C11       825          MVC   ALSD+30(31),ALSD+31
   0FA5 F2 87 37              826          J     ALSLO9
                              827
                              827
   0FA8 34 08 0FEE            828 ALSLOD   ST    ALSLOE+3,ARR      SAVE RETURN LINK
   0FAC 34 01 0FEA            829          ST    ALSLOC+3,XR1           XR1
   0FB0 C2 01 28B2            830          LA    ALSB,XR1          POINT TO ALSB TABLE
   0FB4 3C 00 0FB9            831          MVI   ALSLO4,X'00'      INITIAL DATA = '00'
                      0FB9    832 ALSLO4   EQU   *+1
   0FB8 7C 00 00              833 ALSLO5   MVI   0(,XR1),X'00'     DATA TO ALS FIELD
   0FBB D2 01 01              834          LA    1(,XR1),XR1       BUMP ALS FIELD POINTER
   0FBE 0E 00 0FB9 2B36       835          ALC   ALSLO4,I1         BUMP DATA BY 1
   0FC4 3D 20 0FB9            836          CLI   ALSLO4,32         ALSB FIELD SETUP ?
   0FC8 F2 01 0C              837          JNE   ALSLO8           BR IF NO
                              838 *
   0FCB C2 01 28F2            839          LA    ALSD,XR1          ELSE POINT TO ALSD FIELD
```


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```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   0FCF 3C 80 0FB9            840          MVI   ALSLO4,X'80'      INITIAL ALSD DATA = '80'
   0FD3 C0 87 0FB8            841          B     ALSLO5            MOVE ALSD DATA TO FIELD
                              842 *
   0FD7 3D A0 0FB9            843 ALSLO8   CLI   ALSLO4,160         ALSD FIELD SETUP ?
   0FDB C0 01 0FB8            844          BNE   ALSLO5            BR IF NO, CONTINUE
                              845 *
   0FDF C0 87 2720            846 ALSLO9   B     LALSB1            GO LOAD ALSB 00 - 31
   0FE3 C0 87 2756            847          B     LALSD1            GO LOAD ALSD 00 - 31
                              848 *
   0FE7 C2 01 0000            849 ALSLOC   LA    *-*,XR1           RESTORE XR1
   0FEB C0 87 0000            850 ALSLOE   B     *-*               RETURN TO CALLER
```

C141   3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                               ***********************************************************************
                               *                                                                     *
                               *         ZLS TEST ( PART 1 ) LOAD ZLS, TEST D-REG FOR DATA THEN READ *
                               *                        ZLS AND TEST DATA RECIEVED. LOAD ZLS LOC     *
                               *                        ATIONS 00 - 31 WITH X'00' - X'31' AND        *
                               *                        READ, THEN LOAD WITH X'FF' AND READ.         *
                               *                                                                     *
                               *                ERRORS: 4100 - IMM. DATA NOT XFRD TO D-REG           *
                               *                        4101 - DATA READ NOT AS WRITTEN              *
                               *                               V1 = EXPECTED, V2 = RECIEVED          *
                               *                        4102 - ZLS CHECK                             *
                               ***********************************************************************
                               *
    0FEF 10               0FEF RTN10     DC    XL1'10'              ROUTINE 10
    0FF0 00               0FF0           DC    XL1'00'
    0FF1 1131             0FF2           DC    AL2(RTN11)           NEXT ROUTINE ADDRESS
                               *
    0FF3 C0 87 2329                      B     BEGIN
                               *
    0FF7 C0 87 2837                      B     LMBI                 SET LEVEL 5 MODE REG TO '00'
    0FFB 88FF             0FFC           DC    XL2'88FF'
                               *
                               *** START TEST 1 ***
                               *
    0FFD C0 87 240A                      B     BGNTST
                               *
    1001 3C 00 2862                      MVI   IOPIN,0              INITIALIZE INPUT AREA
    1005 0C 01 286D 2846                 MVC   ZLSAR(2),ZERO         ZLS ADDRESS = 0000
    100B 3C CE 2C32                      MVI   ZLS,X'CE'             DATA = 'CE'
    100F C0 87 26D2                      B     LZLS
                               *
    1013 C0 87 2918                      B     SDREG                GET D-REG
                          1018 ZLS03     EQU   *+1
    1017 3D CE 2862                      CLI   IOPIN,X'CE'          AS EXPECTED ?
    101B F2 01 76                        JNE   ZLSER1               BR IF NO
                               *
    101E C0 87 1103                      B     ZLSSNS               ELSE SENSE ZLS ADDRESS 00
    1022 00               1022           DC    XL1'00'
    1023 3D CE 2862                      CLI   IOPIN,X'CE'          AS EXPECTED ?
    1027 F2 01 73                        JNE   ZLSER2               BR IF NO
                               *
    102A C0 87 242C                      B     NORMN
                               *
                               ***** START TEST 2 ***** TEST ZLS LOCATIONS 00 - 31
                               *
    102E C0 87 240A                      B     BGNTST
                               *
    1032 3C 00 1044                      MVI   ZLS0A,X'00'          INITIAL DATA = 00
    1036 C0 87 10C9                      B     ZLSLOD               SETUP ZLS 00 -31 = '00' - '1F'
                               *
    103A 3C 00 1042                ZLS07 MVI   ZLS09,X'00'          INITIAL ZLS ADDRESS = 00
    103E C0 87 1103                ZLS08 B     ZLSSNS               SENSE ZLS
    1042 00               1042     ZLS09 DC    AL1(*-*)               AT LOCATION
                          1044     ZLS0A EQU   *+1
    1043 3D 00 2862                      CLI   IOPIN,X'00'          AS EXPECTED ?
    1047 F2 01 5C                        JNE   ZLSER3               BR IF NO
                               *
    104A C0 87 2A08                      B     SVP
    104E A882             104F           DC    XL2'A882'            SVC MODE
    1050 0023             1051           DC    XL2'0023'            IDLE SENSE
                               *
    1052 39 20 2862                      TBF   IOPIN,X'20'          ZLS CHECK ?
    1056 F2 10 56                        JT    ZLSER4               BR IF YES
                               *
    1059 3D 1F 1042                      CLI   ZLS09,31             LOCATION 31 TESTED ?
    105D F2 81 18                        JE    ZLS20                BR IF YES, RUN 'FF' TEST
                               *
    1060 0E 00 1042 2836                 ALC   ZLS09(1),I1          ELSE BUMP ADDRESS
```


C141   3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
    1066 3D FF 1044                      CLI   ZLS0A,X'FF'          'FF' TEST IN PROGRESS ?
    106A C0 81 103E                      BE    ZLS08                BR IF YES
                               *
    106E 0E 00 1044 2B36                 ALC   ZLS0A(1),I1          ELSE BUMP EXPECTED DATA
    1074 C0 87 103E                      B     ZLS08
                               *
    1078 C0 87 242C                ZLS20 B     NORMN
                               *
    107C 3D FF 1044                      CLI   ZLS0A,X'FF'          '-F' TEST COMPLETE ?
    1080 C0 81 0216                      BE    LINK                 BR IF YES
                               *
                               *** START TEST 3 *** LOAD THEN READ ZLS 00 - 31 = FF
                               *
    1084 C0 87 240A                      B     BGNTST
                               *
    1088 3C FF 1044                      MVI   ZLS0A,X'FF'          EXPECTED DATA
    108C C0 87 10B4                      B     ZLSLOF               GO SETUP ZLS DATA = 'FF'
                               *
    1090 C0 87 103A                      B     ZLS07                TEST

                               *         GET HERE IF IMMEDIATE DATA NOT TRANSFERRED TO D-REG
    1094 C0 87 246A               ZLSER1 B     ERRPRT
    1098 02               1098           DC    XL1'02'              ERROR 4100
    1099 1018             109A           DC    AL2(ZLS03)           EXPECTED
    109B 2B62             109C           DC    AL2(IOPIN)           RECIEVED
                               *         GET HERE IF DATA READ FROM ZLS NOT AS EXPECTED
    109D C0 87 246A               ZLSER2 B     ERRPRT
    10A1 12               10A1           DC    XL1'12'              ERROR 4101
    10A2 1018             10A3           DC    AL2(ZLS03)           EXPECTED
    10A4 2B62             10A5           DC    AL2(IOPIN)           RECIEVED
                               *         GET HERE IF DATA READ FROM ZLS NOT AS EXPECTED
    10A6 C0 87 246A               ZLSER3 B     ERRPRT
    10AA 12               10AA           DC    XL1'12'              ERROR 4101
    10AB 1044             10AC           DC    AL2(ZLS0A)           EXPECTED
    10AD 2B62             10AE           DC    AL2(IOPIN)           RECIEVED
                               *         GET HERE IF ZLS CHECK OCCURS
    10AF C0 87 246A               ZLSER4 B     ERRPRT
    10B3 20               10B3           DC    XL1'20'              ERROR 4102

                               *-----------------------------------------------------------*
                               *                                                           *
                               *         ZLSLOF - SETUP ZLS 00 - 31 = 'FF'                 *
                               *                                                           *
                               *                                                           *
                               *         ZLSLOD - SETUP ZLS LOCATIONS AS 00 = '00'         *
                               *                                         01 = '01'         *
                               *                                         31 = '1F' ETC     *
                               *                                                           *
                               *-----------------------------------------------------------*

    10B4 34 08 1102               ZLSLOF ST    ZLSLOE+3,ARR         SAVE RETURN LINK
    10B8 34 01 10FE                      ST    ZLSLOC+3,XR1              XR1
    10BC 3C FF 2C51                      MVI   ZLS+31,X'FF'
    10C0 0C 1E 2C50 2C51                 MVC   ZLS+30(31),ZLS+31
                               *
    10C6 F2 87 24                        J     ZLSL09
                               *
    10C9 34 08 1102               ZLSLOD ST    ZLSLOE+3,ARR         SAVE RETURN LINK
    10CD 34 01 10FE                      ST    ZLSLOC+3,XR1              XR1
    10D1 C2 01 2C32                      LA    ZLS,XR1              POINT TO ZLS  TABLE
    10D5 3C 00 10DA                      MVI   ZLSL04,X'00'         INITIAL DATA = '00'
                          10DA    ZLSL04 EQU   *+1
    10D9 7C 00 00                 ZLSL05 MVI   0(,XR1),X'00'        DATA TO ZLS FIELD
    10DC D2 01 01                        LA    1(,XR1),XR1          BUMP ZLS FIELD POINTER
    10DF 0E 00 10DA 2836                 ALC   ZLSL04,I1            BUMP DATA BY 1
    10E5 3D 20 10DA                      CLI   ZLSL04,32            ZLS  FIELD SETUP ?
    10E9 C0 01 10D9                      BNE   ZLSL05               BR IF NO
                               *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   10ED 0C 01 2B6D 2B46       988 ZLSL09   MVC   ZLSAR(2),ZERO       INITIAL ZLS ADDRESS = 0000
   10F3 3C 20 2B63            989          MVI   LENGTH,32             ALL LOCATIONS
   10F7 C0 87 26D2            990          B     LZLS
                              991 *
   10FB C2 01 0000            992 ZLSLOC   LA    *-*,XR1              RESTORE XR1
   10FF C0 87 0000            993 ZLSLOE   B     *-*                  RETURN TO CALLER
                              994
                              995 ********************************************************************
                              996 *                                                                  *
                              997 *        ZLSSNS - SENSE ANY ZLS ADDRESS, RETURN RESULTS IN 'IOPIN' *
                              998 *                                                                  *
                              999 ********************************************************************
                             1000
   1103 34 08 1130            1001 ZLSSNS  ST    ZLS52+3,ARR
   1107 34 01 112C            1002         ST    ZLS51+3,XR1
   110B 35 01 1130            1003         L     ZLS52+3,XR1          GET PARM ADDRESS
   110F 1C 00 1121 00         1004         MVC   ZLS50,0(1,XR1)       PUT ZLS ADDRS INTO STRING
   1114 D2 01 01              1005         LA    1(,XR1),XR1          BUMP LINKAGE POINTER
   1117 34 01 1130            1006         ST    ZLS52+3,XR1
                              1007 *
   111B C0 87 2A08            1008         B     SVP
   111F A882             1120 1009         DC    XL2'A882'            SERVICE MODE
                         1121 1010 ZLS50   EQU   *
   1121 008A             1122 1011         DC    XL2'008A'            00 -> CR-REG
   1123 028C             1124 1012         DC    XL2'028C'            ZLS -> ZLS OUT REG
   1125 0086             1126 1013         DC    XL2'0086'            ZLS OUT REG -> X-REG
   1127 002D             1128 1014         DC    XL2'002D'            SENSE X-REG
                              1015 *
   1129 C2 01 0000            1016 ZLS51   LA    *-*,XR1
   112D C0 87 0000            1017 ZLS52   B     *-*
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                             1019 ********************************************************************
                             1020 *                                                                  *
                             1021 *        COARSE CONTROL STOR TEST - THIS TEST PRECEDES USE OF CS BY *
                             1022 *          PART 1 OF THE ADAPTER TEST. CONTROL STOR IS RIGOROUSLY  *
                             1023 *          TESTED BY THE MICROCODE LOADER CS TEST ( C11 ).         *
                             1024 *          HERE THE CS LOC 0000 IS TESTED VIA ALL CONTROL STOR DATA *
                             1025 *          IN BUFFERS ( PRIME AND ALTERNATE FOR EACH LEVEL ) USING *
                             1026 *          ALL 1'S AND ALL 0'S.                                    *
                             1027 *                                                                  *
                             1028 *              ERRORS: 4110 - SOME C. DATA IN BUFFER PATH SUCCESFUL *
                             1029 *                      4111 - ALL CS DATA TESTS UNSUCCESSFUL       *
                             1030 *                                                                  *
                             1031 ********************************************************************
                             1032
   1131 11              1131 1033 RTN11    DC    XL1'11'              ROUTINE 11
   1132 00              1132 1034          DC    XL1'00'
   1133 128E            1134 1035          DC    AL2(RTN12)           NEXT ROUTINE ADDRESS
                             1036 *
   1135 C0 87 2329           1037          B     BEGIN
                             1038 *
   1139 3B 10 1191           1039          SBF   LCSL,X'10'           INITIAL FOR 'PRIME' PATH
   113D 3B 10 1193           1040          SBF   LCSR,X'10'           INITIAL FOR 'PRIME' PATH
   1141 C0 87 2837           1041          B     LMBI                 ALL MODE BUFFERS = 00
   1145 88FF            1146 1042          DC    XL2'88FF'
                             1043 *
                             1044 *** START TEST 1 ***
                             1045 *
   1147 C0 87 240A           1046          B     BGNTST
   114B 0C 01 128C 2B46      1047          MVC   CSSW4+1(2),ZERO      INITIALIZE CS BUFFER MEMO
   1151 3C 00 128D           1048          MVI   CSSW4+2,0
   1155 3C 00 128A           1049          MVI   CSSW,0                 AND ERROR SWITCH
   1159 3C 00 1179           1050          MVI   CS03,0               INITIAL POINTER = 000
                             1051 *
   115D 3C 10 1188           1052 CS00     MVI   CSDTC,X'10'          INITIAL 'C'
                             1053 *
   1161 3C 00 118D           1054          MVI   CSDTCR,X'00'         INITIALIZE DATA LEFT = '00'
   1165 3C 00 118F           1055          MVI   CSDTY,0              INITIALIZE DATA RIGHT = '00'
   1169 3C 00 2CF5           1056          MVI   OPREG,0              CLEAR READ IN AREA
   116D 0C 01 2CF4 2CF5      1057          MVC   OPREG-1(2),OPREG
                             1058 *
                             1059 *       WRITE/READ CONTROL STORAGE LOCATION 0000
                             1060 *
   1173 C0 87 2A08           1061 CS01     B     SVP
   1177 A882            1178 1062          DC    XL2'A882'            K0, 2, 4  ( SERVICE MODE )
                        1179 1063 CS03     EQU   *
   1179 008B            117A 1064          DC    XL2'008B'            POINTER VALUE -> Y-REG
   1178 028F            117C 1065          DC    XL2'028F'            Y -> D-REG
   117D 888E            117E 1066          DC    XL2'888E'            D -> INDEX
   117F 8E8E            1190 1067          DC    XL2'8E8E'            SERVICE ACCESS ( RETAIN INDEX )
                             1068 *
   1181 0088            1182 1069          DC    XL2'0088'            '00' -> C
   1183 008A            1184 1070          DC    XL2'008A'            'BLOCK' -> CR
   1185 008B            1186 1071          DC    XL2'008B'            'DISP' ( 00 ) -> Y
   1187 028F            1188 1072          DC    XL2'028F'            Y -> A -> D-REG
   1189 088D            118A 1073          DC    XL2'088D'            R2 - 7/D-REG -> CSAR B/D
                        1188 1074 CSDTC    EQU   *                    CONTROL STOR DATA 'C'
   1188 0088            118C 1075          DC    XL2'0088'                TO OP-REG C
                        118D 1076 CSDTCR   EQU   *                    CONTROL STOR DATA CR
   118D 008A            118E 1077          DC    XL2'008A'                TO OP-REG CR
                        118F 1078 CSDTY    EQU   *                    CONTROL STOR DATA Y
   118F 008B            1190 1079          DC    XL2'008B'                TO OP-REG Y
                        1191 1080 LCSL     EQU   *
   1191 AE8E            1192 1081          DC    XL2'AE8E'            WRITE CS LEFT
                        1193 1082 LCSR     EQU   *
   1193 CE8E            1194 1083          DC    XL2'CE8E'            WRITE CS RIGHT
   1195 0E8E            1196 1084          DC    XL2'0E8E'            SERVICE ACCESS
   1197 0048            1198 1085          DC    XL2'0048'            SENSE INTO 'C'
   1199 2CF3            119A 1086          DC    AL2(C)
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   119B 004A             119C 1087          DC    XL2'004A'          SENSE INTO 'CR'
   119D 2CF4             119E 1088          DC    AL2(CR)
   119F 006B             11A0 1089          DC    XL2'006B'          SENSE INTO 'Y'
   11A1 2CF5             11A2 1090          DC    AL2(Y)
                              1091 *
   11A3 0D 00 118B 2CF3       1092          CLC   CSDTC(1),C         DATA READ AS EXPECTED ?
   11A9 C0 01 1257            1093          BNE   CS30               BR IF NO
                              1094 *
   11AD 0D 00 118D 2CF4       1095          CLC   CSDTCR(1),CR       DATA READ AS EXPECTED ?
   11B3 C0 01 1257            1096          BNE   CS30               BR IF NO
                              1097 *
   11B7 0D 00 118F 2CF5       1098          CLC   CSDTY(1),Y         DATA READ AS EXPECTED ?
   11BD C0 01 1257            1099          BNE   CS30               BR IF NO
                              1100 *
   11C1 0C 00 128B 1179       1101          MVC   CSSW4(1),CS03      SAVE POINTER FOR BUFFER IN TEST
   11C7 0C 00 128C 1191       1102          MVC   CSSW4+1(1),LCSL    SAVE MODE (PRIMARY OR ALTERNATE)
   11CD 0C 00 128D 118B       1103          MVC   CSSW4+2(1),CSDTC   SAVE DATA PATTERN
   11D3 3D FF 118D            1104          CLI   CSDTCR,X'FF'       ALL 1'S TEST IN PROGRESS ?
   11D7 F2 81 07              1105          JE    CS03A              BR IF YES
                              1106 *
   11DA 3A 10 128A            1107          SBN   CSSW,X'10'         ELSE SET 0'S SUCCESFUL, THIS BUFFER
   11DE F2 87 0B              1108          J     CS04               CONTINUE TEST
                              1109 *
   11E1 3B 10 128A            1110 CS03A    TBN   CSSW,X'10'         WERE 0'S SUCCESSFUL, THIS BUFFER ?
   11E5 F2 90 04              1111          JF    CS04               BR IF NO
                              1112 *
   11E8 3A 80 128A            1113          SBN   CSSW,X'80'         ELSE SET 'ANY BUFFER SUCCESFUL'
                              1114 *
   11EC 3D FF 118D            1115 CS04     CLI   CSDTCR,X'FF'       WERE FF'S WRITTEN ?
   11F0 F2 01 17              1116          JNE   CS05               BR IF NO
                              1117 *
   11F3 3B 10 128A            1118          SBF   CSSW,X'10'         TURN OFF '0'S SUCCESFUL', THIS PATH
   11F7 3B 10 1191            1119          TBN   LCSL,X'10'         'ALTERNATE' PATH TESTED ?
   11FB F2 10 1C              1120          JT    CS06               BR IF YES
                              1121 *
   11FE 3A 10 1191            1122          SBN   LCSL,X'10'         ELSE ENABLE 'ALTERNATE'
   1202 3A 10 1193            1123          SBN   LCSR,X'10'           CS DATA IN BUFFER
   1206 C0 87 115D            1124          B     CS00
                              1125 *
   120A 3C FF 118D            1126 CS05     MVI   CSDTCR,X'FF'       ELSE SETUP LEFT DATA = 'FF'
   120E 3C FF 118F            1127          MVI   CSDTY,X'FF'        ELSE SETUP RIGHT DATA = 'FF'
   1212 3C 0F 118B            1128          MVI   CSDTC,X'0F'          AND C4 - C7 = 'F'
   1216 C0 87 1173            1129          B     CS01
                              1130 *
   121A 3B 10 1191            1131 CS06     SBF   LCSL,X'10'         RESET 'ALTERNATE' CS DATA
   121E 3B 10 1193            1132          SBF   LCSR,X'10'               IN BUFFER
                              1133
   1222 3D C0 1179            1134          CLI   CS03,X'C0'         INDEX PTR = '110' ?
   1226 F2 81 0A              1135          JE    CS09               BR IF YES
                              1136 *
   1229 0E 00 1179 283C       1137          ALC   CS03,I32           ELSE BUMP POINTER BY 1
   122F C0 87 115D            1138          B     CS00               AND CONTINUE
                              1139 *
   1233 39 7F 128A            1140 CS09     TBF   CSSW,X'7F'         ANY ERRORS OCCUR ?
   1237 F2 90 08              1141          JF    CS14               BR IF YES
                              1142 *
   123A C0 87 242C            1143          B     NORMN
   123E C0 87 0216            1144          B     LINK
                              1145
                              1146 *    IF ANY ERRORS OCCURRED DETERMINE WHICH ERR MSG TO OUTPUT
                              1147 *
   1242 3C 01 2CF6            1148 CS14     MVI   LPCNT,1            OUTPUT ERROR IMMEDIATELY
   1246 38 C0 128A            1149          TBN   CSSW,X'C0'         ANY UNIQUE PATH SUCCESFUL ?
   124A F2 90 05              1150          JF    CS15               BR IF NO
                              1151 *
   124D C0 87 246A            1152          B     ERRPRT
   1251 00                 1251 1153          DC    XL1'00'            ERROR 4110
                              1154 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1252 C0 87 246A            1155 CS15     B     ERRPRT
   1256 10                 1256 1156          DC    XL1'10'            ERROR 4111
                              1157 *
                              1158 *    GET HERE ON ANY READ COMPARE ERROR
                              1159 *
   1257 0D 00 128D 118B       1160 CS30     CLC   CSSW4+2(1),CSDTC   DATA SAME AS SUCCESFUL READ ?
   125D F2 81 08              1161          JE    CS30A              BR IF YES
                              1162 *
   1260 3A 20 128A            1163          SBN   CSSW,X'20'         ELSE SET 'SOME ERROR'
   1264 C0 87 11EC            1164          B     CS04
                              1165 *
   1268 0D 00 128B 1179       1166 CS30A    CLC   CSSW4(1),CS03      BUFFER SAME AS SUCCESFUL READ ?
   126E F2 01 11              1167          JNE   CS30B              BR IF NO
                              1168 *
   1271 0D 00 128C 1191       1169          CLC   CSSW4+1(1),LCSL    ALT/PRIME SAME ?
   1277 F2 01 08              1170          JNE   CS30B              BR IF NO
                              1171 *
   127A 3A 20 128A            1172          SBN   CSSW,X'20'         SET 'SOME ERROR'
   127E C0 87 11EC            1173          B     CS04               AND CONTINUE
                              1174 *
   1282 3A 60 128A            1175 CS30B    SBN   CSSW,X'60'         SET 'SOME OTHER CS BUFFER PATH ERR'
   1286 C0 87 11EC            1176          B     CS04                 AND 'SOME ERROR'
                              1177 *
                              1178 *    RESULT SWITCH
                              1179 *
   128A 00                 128A 1180 CSSW   DC    XL1'00'            80 - ANY CS DATA IN BUFFER SUCCESSFUL
                              1181 *                                  40 - SOME CS DATA IN BUFFER FAILED
                              1182 *                                  20 - SOME ERROR OCCURRED
                              1183 *                                  10 - 0'S SUCCESSFUL, HIS BUFFER
                              1184 *
   128B                    128B 1185 CSSW4  EQU   *                  MEMO TO IDENTIFY CS DATA IN BFR PATH
                           128D 1186          OS    XL3
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1188 ********************************************************************************
                         1189 *                                                                              *
                         1190 *       HOT TRAP BIT TEST - ATTEMPT TO RESET TRAPS A, B & C, THEN              *
                         1191 *                           INSURE THAT INDEX 'LINK' WORDS ARE NOT             *
                         1192 *                           AFFECTED BY ANY TRAP BIT.                          *
                         1193 *                                                                              *
                         1194 *             ERRORS: 4120 - TRAP C HOT                                        *
                         1195 *                     4121 - TRAP B HOT                                        *
                         1196 *                     4122 - TRAP A HOT                                        *
                         1197 *                                                                              *
                         1198 ********************************************************************************
                         1199
128E 1290 1331           128E 1200 RTN12   DC    XL1'12'             ROUTINE 12
                         128F 1201         DC    XL1'00'
                         1291 1202         DC    AL2(RTN13)          NEXT ROUTINE ADDRESS
                         1203 *
1292 C0 87 2329          1204              B     BEGIN
                         1205 *
                         1206 *       SCN, DST AND FHF REGISTERS ARE RESET DURING 'BEGIN' ROUTINE
                         1207 *       TO INHIBIT TRAPS A, B & C
                         1208 *
1296 C0 87 2837          1209              B     LMBI                SET ALL REMAINING MODE BUFFERS = 00
129A 889CFF              129C 1210         DC    XL3'889CFF'
                         1211 *
129D C0 87 2871          1212              B     LCSI
12A1 0000                12A2 1213         DC    XL2'00G0'
12A3 080000              12A5 1214         DC    XL3'080000'         NO-OP
12A6 000001FF            12A9 1215         DC    XL4'000001FF'       B    0001, HANG
                         1216 *
                         1217 *** START TEST 1 ***
                         1218 *
12AA C0 87 240A          1219              B     BGNTST
                         1220 *
12AE 3C 00 28D1          1221              MVI   ALSB+31,X'00'
12B2 0C 1E 28D0 28D1     1222              MVC   ALSB+30(31),ALSB+31
12B8 3C 00 2C11          1223              MVI   ALSD+31,X'00'
12BC 0C 1E 2C10 2C11     1224              MVC   ALSD+30(31),ALSD+31
12C2 3C 03 28B9          1225              MVI   ALSB+7,X'03'          INDEX TO ALLOW TRAP A
12C6 3C 05 28BD          1226              MVI   ALSB+11,X'05'         INDEX TO ALLOW TRAP B
12CA 3C 06 28BF          1227              MVI   ALSB+13,X'06'         INDEX TO ALLOW TRAP C
12CE 3C E7 28C1          1228              MVI   ALSB+15,X'E7'         INDEX TO SERVICE ANY TRAP
12D2 3C 06 12EB          1229              MVI   TRAP05,X'06'          INITIAL INDEX
12D6 3C 00 1302          1230              MVI   TRAP06,0              INITIAL ERROR CODE
                         1231 *
12DA 3C 00 28F2          1232 TRAP04       MVI   ALSD,0                INITIAL BASE LVL MIAR = 0000
12DE 3C 00 2C0E          1233              MVI   ALSD+28,0             INITIAL TRAP LVL MIAR = 0000
12E2 C0 87 2720          1234              B     LALSB1                LOAD ALS B
12E6 C0 87 2756          1235              B     LALSD1                LOAD ALS D
                         1236 *
                         12EB 1237 TRAP05  EQU   *+1
12EA 3C 06 2B66          1238              MVI   INDEX,X'06'           PREPARE INDEX
                         1239 *
12EE C0 87 29CF          1240              B     IOPGO                 RUN IOP
                         1241 *
12F2 C0 87 2801          1242              B     SALSD                 STOP IOP, GET MIAR FOR LVL 7
12F6 1C                  12F6 1243         DC    AL1(28)
                         1244 *
12F7 3D 00 2B62          1245              CLI   IOPIN,X'00'           ANY TRAPS TAKEN ?
12FB F2 81 05            1246              JE    TRAP07                BR IF NO
                         1247 *
12FE C0 87 246A          1248              B     ERRPRT
1302 00                  1302 1249 TRAP06  DC    XL1'00'               ERROR 4120, 4121 OR 4122
                         1250 *
1303 3D 03 12EB          1251 TRAP07       CLI   TRAP05,X'03'          TESTED ALL TRAPS ?
1307 F2 81 1F            1252              JE    TRAP10                 BR IF YES
                         1253 *
130A 3D 05 12EB          1254              CLI   TRAP05,X'05'          TESTED TRAP B ?
130E F2 81 0C            1255              JE    TRAP08                BR IF YES
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1256 *
1311 3C 10 1302          1257              MVI   TRAP06,X'10'          SETUP TRAP B ERROR
1315 3C 05 12E9          1258              MVI   TRAP05,X'05'            AND INDEX
1319 C0 87 12DA          1259              B     TRAP04
                         1260 *
131D 3C 20 1302          1261 TRAP08       MVI   TRAP06,X'20'          SETUP TRAP A ERROR
1321 3C 03 12EB          1262              MVI   TRAP05,X'03'            AND INDEX
1325 C0 87 12DA          1263              B     TRAP04
                         1264 *
1329 C0 87 242C          1265 TRAP10       B     NORMN
132D C0 87 0216          1266              B     LINK
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1268 ********************************************************************************
                         1269 *                                                                              *
                         1270 *        ALS TEST (PART 2) - LOAD ALSB 00 - 31 THEN READ ALSB USING            *
                         1271 *                            ALL POINTER/MODE COMBINATIONS VIA ACCESS          *
                         1272 *                            AND PROCESS POINTERS AS WELL AS INDEX REG         *
                         1273 *                                                                              *
                         1274 *                            READ PROCESS AND ACCESS POINTERS THEN             *
                         1275 *                            TEST 'TIME SLICE FL' AND 'ADDRESS EQUAL           *
                         1276 *                            COMPARE' CONDITION ( USE CSAR = 0000 -            *
                         1277 *                            FFFF IN 0101 INCREMENTS )                         *
                         1278 *                                                                              *
                         1279 *                  ERRORS: 4130 - ACCESS POINTER READ FAILED                   *
                         1280 *                          4131 - PROCESS POINTER READ FAILED                  *
                         1281 *                          4132 - INDEX READ FAILED                            *
                         1282 *                          4133 - PROCESS POINTER NOT AS EXPECTED              *
                         1283 *                          4134 - ACCESS POINTER NOT AS EXPECTED               *
                         1284 *                          4135 - TIME SLICE FL FAILED TO SET/RESET            *
                         1285 *                          4136 - 'ADDRESS COMPARE' FAILED TO SET/RESET        *
                         1286 *                          4137 - 'CSAR' CHECK                                 *
                         1287 *                                                                              *
                         1288 ********************************************************************************
                         1289
1331 13                  1331 1290 RTN13    DC    XL1'13'            ROUTINE 13
1332 00                  1332 1291          DC    XL1'00'
1333 1559                1334 1292          DC    AL2(RTN14)         NEXT ROUTINE ADDRESS
                              1293 *
1335 C0 87 22F3                1294          B     BGNIOP
                               1295 *
1339 C0 87 0FA8                1296          B     ALSLOD             SETUP ALS 00 - 31
133D C2 01 1504                1297          LA    ALSTBL-2,XR1       POINT TO DATA TABLE
                               1298 *
                               1299 *** START TEST 1 ***
                               1300 *
1341 C0 87 240A                1301 ALS30    B     BGNTST
1345 1C 00 137B 01             1302          MVC   ALS33,1(1,XR1)     GET ALS ADDRESS TO BE ACCESSED
134A 3A 80 137B                1303          SBN   ALS33,X'80'        SETUP SMODE INSTR 'CR' FIELD
134E 1C 00 1383 00             1304          MVC   ALS35,0(1,XR1)     SETUP INDEX (PTR/LINK)
1353 1C 00 1503 01             1305          MVC   ALSEXP,1(1,XR1)    SETUP EXPECTED 'DATA'
1358 0C 01 2BD3 22E4           1306          MVC   ALSBIN+1(2),FFFF   INITIALIZE READ AREAS
135E 3C FF 2B62                1307          MVI   IOPIN,X'FF'
1362 1C 00 13D6 02             1308          MVC   ALS36A,2(1,XR1)    SETUP EXPECTED PROCESS POINTER
1367 1C 00 13E2 02             1309          MVC   ALS36B,2(1,XR1)    SETUP EXPECTED ACCESS POINTER
136C 38 C2 1503                1310          TBN   ALSEXP,X'02'         DSAR OR INDEX MODES ?
1370 F2 90 04                  1311          JF    ALS32                BR IF NO
1373 3A 10 13E2                1312          SBN   ALS36B,X'10'         ELSE TURN ON 'MO(DS) BIT' IN EXPTD
                               1313 *                                    ACCESS POINTER
                               1314 *       SETUP MODE BUFFER PER TABLE ENTRY
                               1315 *
1377 C0 87 2837                1316 ALS32    B     LMBI
                         137B  1317 ALS33    EQU   *
137B 00                  137B  1318          DC    AL1(*-*)
137C FF                  137C  1319          DC    XL1'FF'
                               1320 *
                               1321 *       SETUP INDEX REG, PROCCESS AND ACCESS POINTERS
                               1322 *         THEN READ ALS USING THESE 3 METHODS.
                               1323 *
137D C0 87 2A0B                1324          B     SVP
1381 E882                1382  1325          DC    XL2'E882'          SERVICE MODE AND PREVENT TRAP
                         1383  1326 ALS35    EQU   *
1383 00                  1383  1327          DC    AL1(*-*)           DATA (POINTER/LINK)
1384 8A                  1384  1328          DC    XL1'8A'              TO 'CR' REG
1385 228F                1386  1329          DC    XL2'228F'          CR -> CRY SW -> A -> D-REG
1387 8B8E                1388  1330          DC    XL2'8B8E'          RUN IOP, D-REG -> INDEX REG
1389 8E8E                138A  1331          DC    XL2'8E8E'          RUN IOP, AGAIN  (RETAIN INDEX REG)
138B F882                138C  1332          DC    XL2'F882'          K0, K1, K2, K3, K4  CLK RST & PRVNT
                               1333 *                                                      TRAPS
138D 004D                138E  1334          DC    XL2'004D'          READ ALSB USING ACCESS POINTER
138F 2BD2                1390  1335          DC    AL2(ALSBIN)
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                               1336 *
1391 004F                1392  1337          DC    XL2'004F'          READ ALSB USING PROCESS POINTER
1393 2BD3                1394  1338          DC    AL2(ALSBIN+1)
                               1339 *
1395 004C                1396  1340          DC    XL2'004C'          READ INDEX WORD FROM ALSB USING
1397 2BD4                1398  1341          DC    AL2(ALSBIN+2)            LINK ADDRESS
                               1342 *
1399 0047                139A  1343          DC    XL2'0047'          READ PROCESS POINTER
139B 2BD5                139C  1344          DC    AL2(ALSBIN+3)
                               1345 *
139D 0065                139E  1346          DC    XL2'0065'          READ ACCESS POINTER
139F 2BD6                13A0  1347          DC    AL2(ALSBIN+4)
                               1348 *
13A1 38 03 1503                1349          TBN   ALSEXP,X'03'       INDEX ONLY ADDRESS ?
13A5 F2 10 20                  1350          JT    ALS37              BR IF YES
                               1351 *
13A8 1D 00 2BD2 01             1352          CLC   ALSBIN,1(1,XR1)    ACCESS POINTER METHOD WORK ?
13AD C0 01 14C7                1353          BNE   ALSER5             BR IF NO
                               1354 *
13B1 38 02 1503                1355          TBN   ALSEXP,X'02'       VALID PROCESS POINTER ADDRESS ?
13B5 F2 10 09                  1356          JT    ALS36              BR IF NO
                               1357 *
13B8 1D 00 2BD3 01             1358          CLC   ALSBIN+1,1(1,XR1)  PROCESS POINTER METHOD OK ?
13BD C0 01 14D0                1359          BNE   ALSER6             BR IF NO
                               1360 *
13C1 38 01 1383                1361 ALS36    TBN   ALS35,X'01'        ODD ALS ADDRESS ?
13C5 F2 90 09                  1362          JF    ALS40              BR IF NO
                               1363 *
13C8 1D 00 2BD4 01             1364 ALS37    CLC   ALSBIN+2,1(1,XR1)  INDEX READ OK ?
13CD C0 01 14D9                1365          BNE   ALSER7             BR IF NO
                               1366 *
13D1 3B 03 2BD5                1367 ALS40    SBF   ALSBIN+3,X'03'     IGNORE 'ADDRS CMPR' & 'TIME SLICE'
                         13D6  1368 ALS36A   EQU   *+1
13D5 3D 00 2BD5                1369          CLI   ALSBIN+3,X'00'     PROCESS POINTER AS SETUP ?
13D9 C0 01 14E2                1370          BNE   ALSER8             BR IF NO
                               1371 *
13DD 3B 03 2BD6                1372          SBF   ALSBIN+4,X'03'     IGNORE 'ADDRS CMPR' & 'TIME SLICE'
                         13E2  1373 ALS36B   EQU   *+1
13E1 3D 00 2BD6                1374          CLI   ALSBIN+4,X'00'     ACCESS POINTER AS SETUP ?
13E5 C0 01 14EB                1375          BNE   ALSER9             BR IF NO
                               1376 *
13E9 C0 87 242C                1377          B     NORMN              LOOP ON LAST TABLE TEST
                               1378 *
13ED D2 01 03                  1379          LA    3(,XR1),XR1        THEN BUMP TABLE POINTER
13F0 7D FF 00                  1380          CLI   0(,XR1),X'FF'      END OF TEST ?
13F3 C0 01 1341                1381          BNE   ALS30              BR IF NO
                               1382 *
                               1383 *       TEST 'TIME SLICE FLIP LATCH'
                               1384 *
                               1385 *
                               1386 *** START TEST 2 ***
                               1387 *
13F7 C0 87 240A                1388          B     BGNTST
                               1389 *
13FB 3C 00 1408                1390          MVI   ALS55,X'00'        INITIAL 'INDEX'
13FF 0C 01 2BD3 2B38           1391 ALS50    MVC   ALSBIN+1(2),I2     CLEAR INPUT AREA
                               1392 *
1405 C0 87 2A0B                1393          B     SVP
1409 E882                1408  140A 1394          DC    XL2'E882'
140B 00                  140B  1395 ALS55    DC    AL1(*-*)           INDEX REG DATA GOES HERE
140C 8A                  140C  1396          DC    XL1'8A'            DATA -> CR REG
140D 228F                140E  1397          DC    XL2'228F'          CRY -> A -> D
140F 8B8E                1410  1398          DC    XL2'8B8E'          D -> INDEX REG
1411 F882                1412  1399          DC    XL2'F882'          K0, 1, 2, 3, 4
1413 0045                1414  1400          DC    XL2'0045'          SNS ACCESS POINTER
1415 2BD2                1416  1401          DC    AL2(ALSBIN)        'TS LATCH' SHOULD BE ON
                               1402 *       NOW RESET 'TIME SLICE FL'
1417 E882                1418  1403          DC    XL2'E882'          K0, 1, 2, 4
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1419 8B8E             141A 1404          DC    XL2'8B8E'          D-REG -> INDEX REG
   141B F882             141C 1405          DC    XL2'F882'          K2, 3
   141D 0065             141E 1406          DC    XL2'0065'          SNS ACCESS POINTER
   141F 28D3             1420 1407          DC    AL2(ALSBIN+1)      'TS LATCH' SHOULD BE OFF
                              1408 *
   1421 38 02 28D2            1409          TBN   ALSBIN,X'02'       TS FL ON, AS EXPECTED ?
   1425 F2 90 CC              1410          JF    ALSERA             BR IF NO
                              1411 *
   1428 39 02 28D3            1412          TBF   ALSBIN+1,X'02'     'T S FL' OFF, AS EXPECTED ?
   142C F2 90 C5              1413          JF    ALSERA             BR IF NO
                              1414 *
   142F 0E 00 1408 2B3C       1415          ALC   ALS55,I32          ADD X'20' TO NEXT INDEX
   1435 3D E0 1408            1416          CLI   ALS55,X'E0'        LAST TEST COMPLETE ? (POINTER 110)
   1439 C0 01 13FF            1417          BNE   ALS50              BR IF NO
                              1418 *
   143D C0 87 242C            1419          B     NORMN               ELSE CONTINUE
                              1420 *
                              1421 *        TEST 'ADDRESS COMPARE'
                              1422 *
   1441 3C 00 1459            1423          MVI   ALS62-1,0          INITIAL CSAR VALUE = 0000
   1445 3C 00 1487            1424          MVI   ALS63,0            INITIAL CSAR VALUE = 0000
                              1425 *
                              1426 *** START TEST 2***
                              1427 *
   1449 C0 87 240A            1428 ALS60    B     BGNTST
                              1429 *
   144D 0C 01 2BD3 2B3A       1430 ALS61    MVC   ALSBIN+1(2),I3     RESET EXPECTED BITS
                              1431 *
   1453 C0 87 2A08            1432          B     SVP
   1457 E882             1458 1433          DC    XL2'E882'          K0, 1, 2, 4
   1459 008A             145A 1434 ALS62    DC    XL2'008A'          '00' -> CR REG
   145B 228F             145C 1435          DC    XL2'228F'          CR -> CRY -> A -> D-REG
   145D 0C8D             145E 1436          DC    XL2'0C8D'          R -> CSARB, D -> CSARD,
                              1437 *                                  R-BUS & D-REG -> 'ADDRESS COMPARE'
   145F F882             1460 1438          DC    XL2'F882'          K0 - K4
   1461 0045             1462 1439          DC    XL2'0045'          SENSE 'ACCESS POINTER'
   1463 28D2             1464 1440          DC    AL2(ALSBIN)          INTO 'ALSBIN'
                              1441 *        SETUP ADDRESS COMPARE UNEQUAL
   1465 E882             1466 1442          DC    XL2'E882'          K0, 1, 2, 4
   1467 018A             1468 1443          DC    XL2'018A'          '01' -> CR REG
   1469 228F             146A 1444          DC    XL2'228F'          CR -> CRY -> A -> D-REG
   146B 088D             146C 1445          DC    XL2'088D'          R -> CSARB, D -> CSARD
   146D F882             146E 1446          DC    XL2'F882'          K0 - K4
   146F 0065             1470 1447          DC    XL2'0065'          SENSE 'ACCESS POINTER'
   1471 28D3             1472 1448          DC    AL2(ALSBIN+1)        INTO LOC 'ALSBIN+1'
                              1449 *
   1473 38 01 28D2            1450          TBN   ALSBIN,X'01'       ADDRESS COMPARE ON, AS EXPECTED ?
   1477 F2 90 7F              1451          JF    ALSERB             BR IF NO
                              1452 *
   147A 39 01 28D3            1453          TBF   ALSBIN+1,X'01'     ADDRS COMPARE OFF, AS EXPECTED ?
   147E F2 90 78              1454          JF    ALSERB             BR IF NO
                              1455 *
   1481 C0 87 2A08            1456          B     SVP
   1485 E882             1486 1457          DC    XL2'E882'          K0, 1, 2, 4
                         1487 1458 ALS63    EQU   *
   1487 008A             1488 1459          DC    XL2'008A'          '00' -> CR REG
   1489 228F             148A 1460          DC    XL2'228F'          CR -> CRY -> A -> D-REG
   148B 088D             148C 1461          DC    XL2'088D'          R -> CSARB, D -> CSARD,
   148D 0063             148E 1462          DC    XL2'0063'          GET 'CHECK SENSE'
   148F 28D2             1490 1463          DC    AL2(ALSBIN)          INTO 'ALSBIN'
                              1464 *
   1491 39 02 28D2            1465          TBF   ALSBIN,X'02'         CSAR CHECK ?
   1495 F2 10 66              1466          JT    ALSERC               BR IF YES
                              1467 *
   1498 C0 87 242C            1468          B     NORMN
                              1469 *
   149C 3D 40 1459            1470          CLI   ALS62-1,X'40'      DONE ?
   14A0 C0 81 0216            1471          BE    LINK               BR IF YES
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   14A4 3D FF 1459            1472 *
   14A8 F2 81 10              1473          CLI   ALS62-1,X'FF'      EVEN PARITY DONE ?
                              1474          JE    ALS64              BR IF YES
                              1475 *
   14AB 0E 00 1459 2B47       1476          ALC   ALS62-1(1),ELEVEN  BUMP CSAR DATA ( +17 )
   14B1 0E 00 1487 2B47       1477          ALC   ALS63(1),ELEVEN    BUMP CSAR DATA ( +17 )
   14B7 C0 87 1449            1478          B     ALS60              CONTINUE
                              1479 *
   14B8 3C 40 1459            1480 ALS64    MVI   ALS62-1,X'40'      ODD PARITY
   14BF 3C 40 1487            1481          MVI   ALS63,X'40'        ODD PARITY
   14C3 C0 87 1449            1482          B     ALS60              CONTINUE TEST
                              1483
                              1484 *        GET HERE IF ACCESS POINTER FAILS
   14C7 C0 87 246A            1485 ALSER5   B     ERRPRT
   14CB 02               14CB 1486          DC    XL1'02'                  ERROR 4130
   14CC 1503             14CD 1487          DC    AL2(ALSEXP)
   14CE 28D2             14CF 1488          DC    AL2(ALSBIN)
                              1489 *        GET HERE IF PROCESS POINTER FAILS
   14D0 C0 87 246A            1490 ALSER6   B     ERRPRT
   14D4 12               14D4 1491          DC    XL1'12'                  ERROR 4131
   14D5 1503             14D6 1492          DC    AL2(ALSEXP)
   14D7 28D3             14D8 1493          DC    AL2(ALSBIN+1)
                              1494 *        GET HERE IF INDEX FAILS
   14D9 C0 87 246A            1495 ALSER7   B     ERRPRT
   14DD 22               14DD 1496          DC    XL1'22'                  ERROR 4132
   14DE 28D4             14DF 1497          DC    AL2(ALSBIN+2)
   14E0 2B62             14E1 1498          DC    AL2(IOPIN)
                              1499 *        GET HERE IF PROCESS POINTER NOT AS EXPECTED
   14E2 C0 87 246A            1500 ALSER8   B     ERRPRT
   14E6 32               14E6 1501          DC    XL1'32'                  ERROR 4133
   14E7 13D6             14E8 1502          DC    AL2(ALS36A)              EXPECTED POINTER
   14E9 2BD5             14EA 1503          DC    AL2(ALSBIN+3)            RECIEVED  **
                              1504 *        GET HERE IF ACCESS  POINTER NOT AS EXPECTED
   14EB C0 87 246A            1505 ALSER9   B     ERRPRT
   14EF 42               14EF 1506          DC    XL1'42'                  ERROR 4134
   14F0 13E2             14F1 1507          DC    AL2(ALS36B)              EXPECTED POINTER
   14F2 2BD6             14F3 1508          DC    AL2(ALSBIN+4)            RECIEVED  **
                              1509 *        GET HERE IF TS FL FAILS TO SET
   14F4 C0 87 246A            1510 ALSERA   B     ERRPRT
   14F8 50               14F8 1511          DC    XL1'50'                  ERROR 4135
                              1512 *        GET HERE IF 'ADDRESS COMPARE' TEST FAILS
   14F9 C0 87 246A            1513 ALSER8   B     ERRPRT
   14FD 60               14FD 1514          DC    XL1'60'                  ERROR 4136
                              1515 *        GET HERE IF 'CSAR CHECK'
   14FE C0 87 246A            1516 ALSERC   B     ERRPRT
   1502 70               1502 1517          DC    XL1'70'                  ERROR 4137
                              1518
                              1519 *--------------------------------------------------------*
                              1520 *                                                        *
                              1521 *        ALSTBL - DEFINES INDEX (PTR/LINK) VALUE,        *
                              1522 *                 DATA FOR SMODE INST AND EXPTD DATA     *
                              1523 *                 AS FOLLOWS: BYTE 1 - XXXY ZZZZ WHERE   *
                              1524 *                                    XXX = PTR AND       *
                              1525 *  NOTE: POINTERS TESTED FOR         ZZZZ = L1 - L4 (INDEX)*
                              1526 *        MODES 00, 01 & 10,                              *
                              1527 *        INDEX TESTED WITH         BYTE 2 - XX      WHERE XX *
                              1528 *        MODES 01 & 11.            IS THE DATA IN THE ADDRESED*
                              1529 *                                  ALS LOCATION (BIT 0 IS  *
                              1530 *                                  ADDED TO XX FOR SMODE INST)*
                              1531 *                                                        *
                              1532 *                                  BYTE 3 - EXPECTED POINTER *
                              1533 *                                                        *
                              1534 *--------------------------------------------------------*
                              1535
   1503 00               1503 1536 ALSEXP   DC    AL1(*-*)           EXPECTED DATA SAVE AREA
                              1537 *
   1504 000000           1506 1538 ALSTBL   DC    XL3'000000'        PTR 000  MODE 00  EXPTD PTR 00
   1507 00010C           1509 1539          DC    XL3'00010C'                   01             0C
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   150A 000204           150C 1540          DC    XL3'000204'          10          04
   150D 010308           150F 1541          DC    XL3'010308'          11          08
                              1542 *
   1510 200424           1512 1543          DC    XL3'200424'          PTR 001
   1513 220528           1515 1544          DC    XL3'220528'
   1516 200620           1518 1545          DC    XL3'200620'
   1519 23072C           1518 1546          DC    XL3'23072C'
                              1547 *
   151C 400844           151E 1548          DC    XL3'400844'          PTR 010
   151F 440948           1521 1549          DC    XL3'440948'
   1522 400A40           1524 1550          DC    XL3'400A40'
   1525 450B4C           1527 1551          DC    XL3'450B4C'
                              1552 *
   1528 600C60           152A 1553          DC    XL3'600C60'          PTR 011
   152B 660D6C           152D 1554          DC    XL3'660D6C'
   152E 600E64           1530 1555          DC    XL3'600E64'
   1531 670F68           1533 1556          DC    XL3'670F68'
                              1557 *
   1534 801084           1536 1558          DC    XL3'801084'          PTR 100
   1537 881188           1539 1559          DC    XL3'881188'
   153A 801280           153C 1560          DC    XL3'801280'
   153D 89138C           153F 1561          DC    XL3'89138C'
                              1562 *
   1540 A014A0           1542 1563          DC    XL3'A014A0'          PTR 101
   1543 AA15AC           1545 1564          DC    XL3'AA15AC'
   1546 A016A4           1548 1565          DC    XL3'A016A4'
   1549 AB17A8           1548 1566          DC    XL3'AB17A8'
                              1567 *
   154C C018C0           154E 1568          DC    XL3'C018C0'          PTR 110
   154F CC19CC           1551 1569          DC    XL3'CC19CC'
   1552 C01AC4           1554 1570          DC    XL3'C01AC4'
   1555 CD1BC8           1557 1571          DC    XL3'CD1BC8'
                              1572 *
   1558 FF               1558 1573          DC    XL1'FF'              TERM
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              1575 ********************************************************************************
                              1576 *                                                                              *
                              1577 *        ZLS TEST ( PART 2 ) - READ ZLS, ADDRESSED BY THE POINTER              *
                              1578 *            ( LOCATIONS 00 - 06 ) AND BY THE POINTER AND 'BIT 0 ->            *
                              1579 *            ZLSAR' (LOCATIONS 10 - 16 )                                       *
                              1580 *                                                                              *
                              1581 *            ERROR: 4140 - ZLS DATA READ NOT AS WRITTEN                        *
                              1582 *                                                                              *
                              1583 ********************************************************************************
                              1584
   1559 14               1559 1585 RTN14    DC    XL1'14'              ROUTINE 14
   155A 00               155A 1586          DC    XL1'00'
   155B 15E4             155C 1587          DC    AL2(RTN15)           NEXT ROUTINE ADDRESS
                              1588 *
   155D C0 87 2329            1589          B     BEGIN
                              1590 *
   1561 C0 87 2837            1591          B     LMBI                 ALL MODE = 00
   1565 88FF             1566 1592          DC    XL2'88FF'
                              1593 *
   1567 C0 87 10C9            1594          B     ZLSLOD               SETUP ZLS 00 - 31 = '00' - '1F'
                              1595 *
   156B 3C 00 157C            1596          MVI   ZLS61A,0             DATA EXPECTED INITIALLY = 00
   156F 3C 00 128A            1597          MVI   CSSW,0               CLEAR RESULT SW
                              1598 *
                              1599 *** START TEST 1 ***
                              1600 *
   1573 C0 87 240A       1601 ZLS61    B     BGNTST
                              1602 *
   1577 3C 00 1585            1603          MVI   ZLS63,0              INITIAL INDEX = 00
                         157C 1604 ZLS61A   EQU   *+1
   157B 3C 00 1592            1605          MVI   ZLS65,0              EXPECTED DATA STARTS WITH 00
                              1606 *
   157F C0 87 2A08            1607 ZLS62    B     SVP                  SERVICE MODE
   1583 A882             1584 1608          DC    XL2'A882'
                         1585 1609 ZLS63    EQU   *
   1585 008B             1586 1610          DC    XL2'008B'            00 -> Y-REG
   1587 028F             1588 1611          DC    XL2'028F'            Y -> D-REG
   1589 888E             158A 1612          DC    XL2'888E'            D -> INDEX
   158B 8E8E             158C 1613          DC    XL2'8E8E'            SERVICE ACCESS, LOAD POINTER FROM
   158D 0086             158E 1614          DC    XL2'0086'            ZLSOUT -> X-REG                  INDEX
   158F 002D             1590 1615          DC    XL2'002D'            SENSE X-REG
                         1592 1616 ZLS65    EQU   *+1
   1591 3D 00 2B62            1617          CLI   IOPIN,X'00'          ZLS READ = EXPECTED ?
   1595 F2 81 04              1618          JE    ZLS68                BR IF YES
                              1619 *
   1598 3A 01 128A            1620          SBN   CSSW,X'01'           ELSE SET 'ERROR OCCURRED' SW
   159C 3D C0 1585       1621 ZLS68         CLI   ZLS63,X'C0'          TEST DONE ?  (POINTER 110)
   15A0 F2 81 10              1622          JE    ZLS70                BR IF YES
                              1623 *
   15A3 0E 00 1585 2B3C       1624          ALC   ZLS63(1),I32         ELSE BUMP INDEX BY X'20'
   15A9 0E 00 1592 2B36       1625          ALC   ZLS65(1),I1          BUMP EXPECTED DATA
   15AF C0 87 157F            1626          B     ZLS62                CONTINUE
                              1627 *
   15B3 38 01 128A       1628 ZLS70         TBN   CSSW,X'01'           ANY ERROR OCCUR ?
   15B7 F2 10 25              1629          JT    ZLSER9               BR IF YES
                              1630 *
   15BA C0 87 242C            1631          B     NORMN                LOOP
                              1632 *
   15BE 38 02 128A            1633          TBN   CSSW,X'02'           2ND PASS DONE ?
   15C2 C0 10 0216            1634          BT    LINK                 BR IF YES
                              1635 *
   15C6 C0 87 2837            1636          B     LMBI                 SET ALL MODE BUFFERS = 11
   15CA 8387888F93979B9F 15D2 1637          DC    XL9'8387888F93979B9FFF'
   15D2 FF                    1637
                              1638 *
   15D3 3A 02 128A            1639          SBN   CSSW,X'02'           SET '2ND' PASS INDICATOR
   15D7 3C 10 157C            1640          MVI   ZLS61A,X'10'         INITIALLY DATA = 10
   15DB C0 87 1573            1641          B     ZLS61                GO RUN 2ND PASS
```

C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1642 *
   15DF C0 87 246A       1643 ZLSER9  B     ERRPRT
   15E3 00               15E3 1644    DC    XL1'00'          ERROR 4140
```


C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1646 ********************************************************************************
                         1647 *                                                                              *
                         1648 *        BRANCH INSTRUCTION TEST - EXECUTE AN UNCONDITIONAL BRANCH             *
                         1649 *                                 THEN TEST THAT THE D-REG CONTAINS THE        *
                         1650 *                                 DISPLACEMENT AND THE IAR = THE BR ADDRESS    *
                         1651 *                                                                              *
                         1652 *                                 EXECUTE AN UNCONDITIONAL SUBROUTINE BRANCH   *
                         1653 *                                 AND TEST D-REG AS BEFORE, ALSO TEST MIAR     *
                         1654 *                                 OR   SIAR AND ACCESS POINTER FOR BRANCH      *
                         1655 *                                 ADDRESS AND 'SUBROUTINE' MODE                *
                         1656 *                                                                              *
                         1657 *                                 EXECUTE BRANCH INSTRUCTION WITH BAD PARITY   *
                         1658 *                                 AND 'CK STOP O'RIDE' OFF AND TEST THAT       *
                         1659 *                                 IAR DOESN'T ACQUIRE BRANCH ADDRESS.          *
                         1660 *                                                                              *
                         1661 *                         ERRORS: 4150 - BR DISPL DID NOT GO TO D-REG          *
                         1662 *                                 4151 - MIAR DID NOT ACQUIRE BR ADDRESS       *
                         1663 *                                 4152 - MIAR (B) DID NOT ACQUIPE BR ADDRESS   *
                         1664 *                                 4153 - MIAR (D) DID NOT ACQUIRE BR ADDRESS   *
                         1665 *                                 4154 - IAR DID NOT SWITCH AS MODE CHANGED    *
                         1666 *                                 4155 - SUBROUTINE MODE NOT SET IN ACCS POINTER*
                         1667 *                                 4156 - OP-REG CHECK DID NOT OCCUR            *
                         1668 *                                 4157 - OP-REG CK DID NOT SUPPRESS INSTRUCTION *
                         1669 *                                                                              *
                         1670 ********************************************************************************
                         1671
   15E4 15               15E4 1672 RTN15    DC    XL1'15'          ROUTINE 15
   15E5 00               15E5 1673          DC    XL1'00'
   15E6 1737             15E7 1674          DC    AL2(RTN16)       NEXT ROUTINE ADDRESS
                         1675 *
   15E8 C0 87 22F3       1676               B     BGNIOP
                         1677 *
   15EC C0 87 2837       1678               B     LMBI             PTR 000 MODE = 00
   15F0 80FF             15F1 1679          DC    XL2'80FF'
                         1680 *
                         1681 *** START TEST 1 ***
                         1682 *
   15F2 C0 87 240A       1683               B     BGNTST
                         1684 *
                         1685 *        EXECUTE 'B' (UNCONDITIONAL BkANCH) INSTRUCTION
                         1686 *
   15F6 3C 00 16F0       1687               MVI   BR21,0           C, CR, Y = 001234
   15FA 3C 12 16F2       1688               MVI   BR22,X'12'         ( B    1234 INSTRUCTION )
   15FE 3C 34 16F4       1689               MVI   BR23,X'34'
   1602 3C 88 16F6       1690               MVI   BR24,X'88'       SET 'CK STOP O'RIDE'
                         1691 *
   1606 C0 87 16DE       1692               B     BR20             EXECUTE TEST STRING
                         1693 *
   160A 3D 34 1730       1694               CLI   BRXREG,X'34'     BR DISP IN D-REG ?
   160E F2 01 A5         1695               JNE   BR40             BR IF NO
                         1696 *
   1611 0D 00 1731 2B3F  1697               CLC   BRMIAR-1(1),X1234-1 MIAR (B) AS EXPECTED ?
   1617 F2 81 0C         1698               JE    BR05             BR IF YES
                         1699 *
   161A 0D 00 1732 2B40  1700               CLC   BRMIAR(1),X1234  MIAR (D) AS EXPECTED ?
   1620 F2 01 98         1701               JNE   BR41             BR IF NO
   1623 F2 87 9A         1702               J     BR41A            ELSE BRANCH
                         1703 *
   1626 0D 00 1732 2B40  1704 BR05    CLC   BRMIAR(1),X1234  MIAR (D) AS EXPECTED ?
   162C F2 01 96         1705               JNE   BR41B            BR IF NO
                         1706 *
   162F C0 87 242C       1707               B     NORMN
                         1708 *
                         1709 *** START TEST 2 ***
                         1710 *
   1633 C0 87 240A       1711               B     BGNTST
                         1712 *
                         1713 *        NOW EXECUTE 'BU' INSTRUCTION
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1714 *
 1637 3C 04 16F2         1715         MVI   BR22,X'04'          C, CR, Y = 00048C
 163B 3C 8C 16F4         1716         MVI   BR23,X'8C'            ( BU   040C INST. )
 163F C0 87 276D         1717         B     LALSD               INITIALIZE MIARD = 00
 1643 0000               1644 1718    DC    XL2'0000'
                         1719 *
 1645 C0 87 276D         1720         B     LALSD               INITIALIZE SIARD = 00
 1649 0100               164A 1721    DC    XL2'0100'
                         1722 *
 164B C0 87 16DE         1723         B     BR20                GO EXECUTE TEST STRING
                         1724 *
 164F 3D 8C 1730         1725         CLI   BRXREG,X'8C'        D-REG = BR DISP. ?
 1653 F2 01 60           1726         JNE   BR40
                         1727 *
 1656 38 01 2CF6         1728         TBN   LPCNT,X'01'         'ODD' PASS ?
 165A F2 90 13           1729         JF    BR09                BR IF NO, EXPECT SIAR TO CONTAIN
                         1730 *                                             BRANCH ADDRESS
 165D 0D 01 1732 2B42    1731         CLC   BRMIAR(2),X048C     ELSE TEST MIAR
 1663 F2 01 64           1732         JNE   BR42                BR IF NOT AS EXPECTED
                         1733 *
 1666 38 08 1735         1734         TBN   BRACC,X'08'         ACC PTR = 'SUBROUTINE' MODE ?
 166A F2 90 62           1735         JF    BR43                BR IF NO
 166D F2 87 09           1736         J     BR10
                         1737 *
 1670 0D 01 1734 2B42    1738 BR09    CLC   BRSIAR(2),X048C     SIAR = BR ADDRESS ?
 1676 F2 01 51           1739         JNE   BR42                BR IF NO
                         1740 *
 1679 C0 87 242C         1741 BR10    B     NORMN
                         1742 *
                         1743 *** START TEST 3 ***
                         1744 *
 167D C0 87 240A         1745         B     BGNTST
                         1746 *
                         1747 *       EXECUTE BR INSTRUCTION WITHOUT 'CK STOP O'RIDE'
                         1748 *
 1681 3C 08 16F6         1749         MVI   BR24,X'08'          RESET 'CK STOP O'RIDE
 1685 C0 87 276D         1750         B     LALSD               MIARD = 00
 1689 0000               168A 1751    DC    XL2'0000'
                         1752 *
 168B C0 87 276D         1753         B     LALSD               SIARD = 00
 168F 0100               1690 1754    DC    XL2'0100'
                         1755 *
 1691 C0 87 16DE         1756         B     BR20                GO EXECUTE TEST STRING
                         1757 *
 1695 39 40 1736         1758         TBF   BRCHK,X'40'         OP-REG CHECK ?
 1699 F2 90 38           1759         JF    BR44                BR IF NO
                         1760 *
 169C 0D 01 1732 2B42    1761         CLC   BRMIAR(2),X048C     MIAR = BR ADDRESS ?
 16A2 F2 81 34           1762         JE    BR45                BR IF YES
                         1763 *
 16A5 0D 01 1734 2B42    1764         CLC   BRSIAR(2),X048C     SIAR = BR ADDRESS ?
 16AB F2 81 2B           1765         JE    BR45                BR IF YES
                         1766 *
 16AE C0 87 242C         1767         B     NORMN
 16B2 C0 87 0216         1768         B     LINK
                         1769
                         1770 *       GET HERE IF BR DISPLACEMENT DID NOT GO TO D-REG
 16B6 C0 87 246A         1771 BR40    B     ERRPRT
 16BA 00                 16BA 1772    DC    XL1'00'             ERR 4150
                         1773 *       GET HERE IF MIAR NOT EQUAL BRANCH ADDRESS
 16BB C0 87 246A         1774 BR41    B     ERRPRT
 16BF 10                 16BF 1775    DC    XL1'10'             ERR 4151
                         1776 *       GET HERE IF MIAR (B) ONLY FAILS
 16C0 C0 87 246A         1777 BR41A   B     ERRPRT
 16C4 20                 16C4 1778    DC    XL1'20'             ERR 4152
                         1779 *       GET HERE IF MIAR (D) ONLY FAILS
 16C5 C0 87 246A         1780 BR41B   B     ERRPRT
 16C9 30                 16C9 1781    DC    XL1'30'             ERR 4153
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         1782 *       GET HERE IF IAR DID NOT SWITCH ON 'BU' INST
 16CA C0 87 246A         1783 BR42    B     ERRPRT
 16CE 40                 16CE 1784    DC    XL1'40'             ERR 4154
                         1785 *       GET HERE IF SUBROUTINE MODE NOT SET
 16CF C0 87 246A         1786 BR43    B     ERRPRT
 16D3 50                 16D3 1787    DC    XL1'50'             ERR 4155
                         1788 *       GET HERE IF OP-REG CHECK DID NOT OCCUR
 16D4 C0 87 246A         1789 BR44    B     ERRPRT
 16D8 60                 16D8 1790    DC    XL1'60'             ERR 4156
                         1791 *       GET HERE IF INSTRUCTION NOT SUPPRESSED
 16D9 C0 87 246A         1792 BR45    B     ERRPRT
 16DD 70                 16DD 1793    DC    XL1'70'             ERR 4157
                         1794 *
                         1795 *       EXECUTE 'B' OR 'BU' INSTRUCTION
                         1796 *
 16DE 34 08 172F         1797 BR20    ST    BR30+3,ARR          SAVE LINKAGE
                         1798 *
 16E2 C0 87 2A0B         1799         B     SVP
                         1800 *       SETUP INDEX REG
 16E6 E882               16E7 1801    DC    XL2'E882'           SERVICE MODE
 16E8 018A               16E9 1802    DC    XL2'018A'           '01' -> CR-REG
 16EA 228F               16EB 1803    DC    XL2'228F'           CR -> D-REG
 16EC 8B8E               16ED 1804    DC    XL2'8B8E'           D -> INDEX
                         1805 *       SETUP OP-REG WITH BRANCH INSTRUCTION
 16EE A882               16EF 1806    DC    XL2'A882'           SERVICE MODE
                         16F0 1807 BR21 EQU   *
 16F0 0088               16F1 1808    DC    XL2'0088'           C-REG
                         16F2 1809 BR22 EQU   *
 16F2 128A               16F3 1810    DC    XL2'128A'           CR-REG
                         16F4 1811 BR23 EQU   *
 16F4 3488               16F5 1812    DC    XL2'3488'           Y-REG
                         16F6 1813 BR24 EQU   *
 16F6 8882               16F7 1814    DC    XL2'8882'           NOT SERVICE MODE
                         1815 *       RUN IOP TO EXECUTE
 16F8 008F               16F9 1816    DC    XL2'008F'           IOP START PROCESS
 16FA E882               16FB 1817    DC    XL2'E882'           SERVICE MODE
                         1818 *       GET D-REG, SHOULD CONTAIN 'D' PORTION OF BRANCH
 16FC 0085               16FD 1819    DC    XL2'0085'           D -> X-REG
 16FE 0049               16FF 1820    DC    XL2'0049'           SENSE X-REG
 1700 1730               1701 1821    DC    AL2(BRXREG)           INTO LOC 'BRXREG'
 1702 0043               1703 1822    DC    XL2'0043'           CHECK SENSE
 1704 1736               1705 1823    DC    AL2(BRCHK)            INTO LOC 'BRCHK'
                         1824 *       GET MIAR AND SIAR FROM ALS
 1706 A882               1707 1825    DC    XL2'A882'             SERVICE MODE
 1708 008A               1709 1826    DC    XL2'008A'           MIAR -> CR-REG
 170A B882               170B 1827    DC    XL2'B882'           CLOCK RESET
 170C 004E               170D 1828    DC    XL2'004E'           SENSE MIARB
 170E 1731               170F 1829    DC    AL2(BRMIAR-1)         INTO LOC 'BRMIAR'
 1710 004A               1711 1830    DC    XL2'004A'           SENSE MIARD
 1712 1732               1713 1831    DC    AL2(BRMIAR)
 1714 A882               1715 1832    DC    XL2'A882'           SERVICE MODE
 1716 018A               1717 1833    DC    XL2'018A'           SIAR ADDRS -> CR-REG
 1718 B882               1719 1834    DC    XL2'B882'           CLOCK RESET
 171A 004E               171B 1835    DC    XL2'004E'           SENSE SIARB
 171C 1733               171D 1836    DC    AL2(BRSIAR-1)         INTO LOC 'BRSIAR'
 171E 004A               171F 1837    DC    XL2'004A'           SENSE SIARD
 1720 1734               1721 1838    DC    AL2(BRSIAR)
                         1839 *       RUN IOP, THEN SENSE ACCESS POINTER
 1722 8882               1723 1840    DC    XL2'8882'           NOT SERVICE MODE
 1724 008F               1725 1841    DC    XL2'008F'           START PRICESS
 1726 B882               1727 1842    DC    XL2'B882'           SERVICE MODE, CLOCK RESET
 1728 0065               1729 1843    DC    XL2'0065'           SENSE ACCESS POINTER
 172A 1735               1728 1844    DC    AL2(BRACC)                    INTO LOC 'BRACC'
                         1845 *
 172C C0 87 0000         1846 BR30    B     *-*                 RETURN
                         1847 *
 1730                    1730 1848 BRXREG DS   XL1
 1731                    1732 1849 BRMIAR DS   XL2
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1733                  1734 1850 BRSIAR   DS    XL2
   1735                  1735 1851 BRACC    DS    XL1
   1736                  1736 1852 BRCHK    DS    XL1
                         1853
   1737 16               1737 1854 RTN16    DC    XL1'16'          ROUTINE 16 NOT USED
   1738 00               1738 1855          DC    XL1'00'
   1739 173F             173A 1856          DC    AL2(RTN17)       NEXT ROUTINE ADDRESS
   173B C0 87 0216             1857          B     LINK
                               1858
   173F 17               173F 1859 RTN17    DC    XL1'17'          ROUTINE 17 NOT USED
   1740 00               1740 1860          DC    XL1'00'
   1741 1747             1742 1861          DC    AL2(RTN18)       NEXT ROUTINE ADDRESS
   1743 C0 87 0216             1862          B     LINK
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                               1864 ********************************************************************************
                               1865 *                                                                              *
                               1866 *        DLS TEST - WRITE THEN READ DLS LOCATIONS 00 - 63 ( ADDRESSED *
                               1867 *                   BY R-BUS ) WITH DATA IN 00 - 63 = '00' - '3F' THEN*
                               1868 *                   WITH ALL LOCATIONS SET TO 'FF'                     *
                               1869 *                                                                      *
                               1870 *                   ERRORS: 4180 - SOME DLS READ FAILED, DATA = 'FF'   *
                               1871 *                           4181 - DLS READ NOT AS EXPECTED            *
                               1872 *                                                                      *
                               1873 ********************************************************************************
                               1874
   1747 18               1747 1875 RTN18    DC    XL1'18'          ROUTINE 18
   1748 00               1748 1876          DC    XL1'00'
   1749 1828             174A 1877          DC    AL2(RTN19)       NEXT ROUTINE ADDRESS
                               1878 *
   1748 C0 87 2329             1879          B     BEGIN
                               1880 *
                               1881 *** START TEST 1 ***
                               1882 *
   174F C0 87 240A             1883          B     BGNTST
                               1884 *
   1753 3C 00 17D8             1885          MVI   DLSCNT,0         ERROR COUNTER = 00
   1757 C0 87 17EE             1886          B     DLSLOD           SETUP DLS = 00 - 3F
                               1887 *
   175B 3C 40 2B63             1888 DLS03     MVI   LENGTH,64        SENSE ALL DLS
   175F 0C 01 2B6F 2B46        1889          MVC   DLSAR(2),ZERO    INITIAL DLS ADDRESS = 0000
   1765 C0 87 267E             1890          B     SDLS             SENSE DLS 00 - 63 INTO 'DLSIN'
                               1891 *
   1769 C2 01 2C72             1892          LA    DLS,XR1          XR1 = EXPECTED POINTER
   176D C2 02 2CB2             1893          LA    DLSIN,XR2        XR2 = RECIEVED POINTER
   1771 6D 00 00 00            1894 DLS05     CLC   0(,XR1),0(1,XR2) EXPECTED = RECIEVED ?
   1775 F2 01 32               1895          JNE   DLSER1           BR IF NO
                               1896 *
   1778 D2 01 01               1897 DLS06     LA    1(,XR1),XR1      BUMP EXPECTED POINTER
   177B E2 02 01               1898          LA    1(,XR2),XR2            RECIEVED POINTER
   177E 34 01 2B5A             1899          ST    WORK3,XR1              SAVE POINTER
   1782 0D 01 2B5A 2B4D        1900          CLC   WORK3(2),ADLSIN        DONE ?
   1788 C0 01 1771             1901          BNE   DLS05                  BR IF NO
                               1902 *
   178C 3D FF 2C72             1903          CLI   DLS,X'FF'              'FF' TEST DONE ?
   1790 F2 81 08               1904          JE    DLS20                  BR IF YES
                               1905 *
   1793 C0 87 17D9             1906          B     DLSLOF                 ELSE SETUP DLS = FF'S
                               1907 *
   1797 C0 87 1758             1908          B     DLS03            AND REPEAT TEST
                               1909 *
   179B 39 7F 17D8             1910 DLS20     TBF   DLSCNT,X'7F'     ANY OTHER ERRORS ?
   179F F2 90 2D               1911          JF    DLSER3           BR IF YES
                               1912 *
   17A2 C0 87 242C             1913          B     NORMN
   17A6 C0 87 0216             1914          B     LINK
                               1915 *
   17AA 3D FF 2C72             1916 DLSER1    CLI   DLS,X'FF'        'FF' TEST IN PROGRESS ?
   17AE F2 81 12               1917          JE    DLS25            BR IF YES
                               1918 *
   17B1 34 01 17D5             1919          ST    DLS30,XR1        SAVE ADDRESS OF EXPECTED
   17B5 34 02 17D7             1920          ST    DLS31,XR2                AND RECIEVED DATA
   17B9 0E 00 17D8 2B36        1921          ALC   DLSCNT(1),1        BUMP ERROR COUNT
   17BF C0 87 1778             1922          B     DLS06            AND CONTINUE TEST
                               1923 *
   17C3 39 7F 17D8             1924 DLS25     TBF   DLSCNT,X'7F'     ANY ERROR OCCUR ?
   17C7 F2 90 05               1925          JF    DLSER3           BR IF YES
                               1926 *
   17CA C0 87 246A             1927          B     ERRPRT
   17CE 00               17CE  1928          DC    XL1'00'          ERROR 4180
                               1929 *
   17CF C0 87 246A             1930 DLSER3    B     ERRPRT
   17D3 12               17D3  1931          DC    XL1'12'          ERROR 4181
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   17D4 0000             17D5 1932 DLS30    DC    AL2(*-*)
   17D6 0000             17D7 1933 DLS31    DC    AL2(*-*)
                               1934 *
   17D8                  17D8 1935 DLSCNT   DS    XL1
                               1936
                               1937 *-------------------------------------------------*
                               1938 *                                                 *
                               1939 *       DLSLOF - SETUP DLS 00 - 63 = 'FF'         *
                               1940 *                                                 *
                               1941 *                                                 *
                               1942 *       DLSLOD - SETUP DLS LOCATIONS AS 00 = '00' *
                               1943 *                                      01 = '01'  *
                               1944 *                                      63 = '3F' ETC *
                               1945 *                                                 *
                               1946 *-------------------------------------------------*
                               1947
   17D9 34 08 1827             1948 DLSLOF   ST    DLSLOE+3,ARR      SAVE RETURN LINK
   17DD 34 01 1823             1949          ST    DLSLOC+3,XR1          XR1
   17E1 3C FF 2C81             1950          MVI   DLS+63,X'FF'
   17E5 0C 3E 2C80 2C81        1951          MVC   DLS+62(63),DLS+63
                               1952 *
   17EB F2 87 24               1953          J     DLSLO9
                               1954 *
   17EE 34 08 1827             1955 DLSLOD   ST    DLSLOE+3,ARR      SAVE RETURN LINK
   17F2 34 01 1823             1956          ST    DLSLOC+3,XR1          XR1
   17F6 C2 01 2C72             1957          LA    DLS,XR1           POINT TO DLS  TABLE
   17FA 3C 00 17FF             1958          MVI   DLSLO4,X'00'      INITIAL DATA = '00'
                         17FF  1959 DLSLO4   EQU   *+1
   17FE 7C 00 00               1960 DLSLO5   MVI   0(,XR1),X'00'     DATA TO DLS FIELD
   1801 D2 01 01               1961          LA    1(,XR1),XR1       BUMP DLS FIELD POINTER
   1804 0E 00 17FF 2B36        1962          ALC   DLSLO4,I1         BUMP DATA BY 1
   180A 3D 40 17FF             1963          CLI   DLSLO4,64         DLS  FIELD SETUP ?
   180E C0 01 17FE             1964          BNE   DLSLO5            BR IF NO
                               1965 *
   1812 0C 01 2B6F 2B46        1966 DLSLO9   MVC   DLSAR(2),ZERO      INITIAL DLS ADDRESS = C000
   1818 3C 40 2B63             1967          MVI   LENGTH,64           ALL LOCATIONS
   181C C0 87 262C             1968          B     LDLS
                               1969 *
   1820 C2 01 0000             1970 DLSLOC   LA    *-*,XR1           RESTORE XR1
   1824 C0 87 0000             1971 DLSLOE   B     *-*               RETURN TO CALLER
                               1972
   1828 19               1828  1973 RTN19    DC    XL1'19'           ROUTINE 19 NOT USED
   1829 00               1829  1974          DC    XL1'00'
   182A 1830             182B  1975          DC    AL2(RTN1A)        NEXT ROUTINE ADDRESS
   182C C0 87 0216             1976          B     LINK
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                               1978 ************************************************************
                               1979 *                                                          *
                               1980 *       SLKI INSTRUCTION - EXECUTE AN SLKI INSTRUCTION THAT WILL MOVE*
                               1981 *                          DATA = 00 -> X-REG, SET 'PCR' AND RESET  *
                               1982 *                          'SVP REQ'                       *
                               1983 *                                                          *
                               1984 *                          TEST 'IOP HALT' IN IDLE SENSE AND       *
                               1985 *                            'PREVENT I/O' IN ADAPTER SENSE BYTE 1 *
                               1986 *                                                          *
                               1987 *       SABR/SADR INSTRUCTION - LOAD DLS WITH OWN ADDRESSES THEN    *
                               1988 *                          EXECUTE 'SABR' AND 'SADR' INSTRUCTIONS  *
                               1989 *                                                          *
                               1990 *       SZR INSTRUCTION - EXECUTE SZR INST. AND TEST RESULTS       *
                               1991 *                                                          *
                               1992 *                          ERRORS: 41A0 - SLKI FAILED              *
                               1993 *                                  41A1 - PCR OR SVP REQ. FAILED   *
                               1994 *                                  41A2 - X-REG DID NOT ACQUIRE DATA *
                               1995 *                                                          *
                               1996 *                                  41A3 - SABR AND SADR FAILED     *
                               1997 *                                  41A4 - ALSB AND ALSD FAILED TO  *
                               1998 *                                    ACQUIRE DATA          *
                               1999 *                                  41A5 - ALSB OR ALSD FAILED      *
                               2000 *                                  41A6 - 'IOP HALT' FAILED TO SET *
                               2001 *                                  41A7 - 'PRVENT I/O FAILED TO SET *
                               2002 *                                                          *
                               2003 *                                  41A8 - D-REG DIDNT ACQUIRE SZR DATA
                               2004 *                                  41A9 - ZLS DIDNT ACQUIRE SZR DATA *
                               2005 *                                                          *
                               2006 ************************************************************
                               2007
   1830 1A               1830  2008 RTN1A    DC    XL1'1A'           ROUTINE 1A
   1831 00               1831  2009          DC    XL1'00'
   1832 1A0B             1833  2010          DC    AL2(RTN1B)        NEXT ROUTINE ADDRESS
                               2011 *
   1834 C0 87 2329             2012          B     BEGIN
                               2013 *
                               2014 *** START TEST 1 ***
                               2015 *
   1838 3C BC 1862             2016          MVI   SLKO1,X'BC'     DATA TO X-REG,SET PCR FL AND
                               2017 *                               RESET SVP FL
   183C C0 87 240A             2018          B     BGNTST
                               2019 *
   1840 3C 00 128A             2020 SLK00    MVI   CSSW,X'00'        INITIALIZE ERROR SW
   1844 C0 87 2A08             2021          B     SVP
   1848 A882             1849  2022          DC    XL2'A882'         SERVICE MODE
   184A 018A             184B  2023          DC    XL2'018A'         '01' -> CR
   184C 228F             184D  2024          DC    XL2'228F'         CR -> D-REG
   184E 8B8E             184F  2025          DC    XL2'8B8E'         D -> INDEX
                               2026 *         SETUP  SZI  00,04  INSTRUCTION
   1850 0388             1851  2027          DC    XL2'0388'         '03' -> C
   1852 808A             1853  2028          DC    XL2'808A'         '80' -> CR
   1854 048B             1855  2029          DC    XL2'048B'         '04' -> Y
   1856 8882             1857  2030          DC    XL2'8882'         NOT SVC MODE
   1858 008F             1859  2031          DC    XL2'008F'         RUN IOP
                               2032 *         RESET 'PCR' AND SET 'SVP REQUEST'
   185A 8882             185B  2033          DC    XL2'8882'         NOT SERVICE MODE
   185C 0083             185D  2034          DC    XL2'0083'         SET SVP REQUEST
   185E 0081             185F  2035          DC    XL2'0081'         RESET PCR FL
   1860 A882             1861  2036          DC    XL2'A882'         SERVICE MODE
                               2037 *         SETUP  SLKI  1C,00  INSTRUCTION
                         1862  2038 SLK01    EQU   *
   1862 BC8A             1863  2039          DC    XL2'BC8A'         'BC' -> CR  R3, 4 & 5 = 00 -> X-REG
   1864 008B             1865  2040          DC    XL2'008B'         '00' -> Y               SET PCR
   1866 8882             1867  2041          DC    XL2'8882'         NOT SVC MODE            RESET SVP
   1868 008F             1869  2042          DC    XL2'008F'         RUN IOP
   186A 004D             186B  2043          DC    XL2'004D'         SENSE X-REG
   186C 1730             186D  2044          DC    AL2(BRXREG)          INTO LOC 'BRXREG'
   186E A882             186F  2045          DC    XL2'A882'         SVC MODE
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          2046 *       GET RESULTS OF SLKI INSTRUCTION
 1870 0042                1871 2047    DC    XL2'0042'          IDLE SENSE INTO
 1872 1735                1873 2048    DC    AL2(BRACC)               LOC 'BRACC'
 1874 0040                1875 2049    DC    XL2'0040'          ADAPTER SENSE BYTE 1
 1876 1736                1877 2050    DC    AL2(BRCHK)               INTO LOC 'BRCHK'
 1878 0085                1879 2051    DC    XL2'0085'          D -> X-REG
 187A 002D                187B 2052    DC    XL2'002D'          SENSE X-REG
                          2053 *
 187C 3D BC 1862          2054         CLI   SLK01,X'BC'        'SET PCR' CMND ?
 1880 F2 81 19            2055         JE    SLK04              BR IF YES TO TEST RESULTS
                          2056 *
 1883 38 01 1735          2057         TBN   BRACC,X'01'        PCR ACTIVE ?
 1887 F2 10 04            2058         JT    SLK02              BR IF NO
                          2059 *
 188A 3A 01 128A          2060         SBN   CSSW,X'01'         ELSE SET 'PCR' ERROR
 188E 38 80 1736          2061 SLK02   TBN   BRCHK,X'80'         'SVP REQ' ON ?
 1892 F2 10 1D            2062         JT    SLK06              BR IF YES
                          2063 *
 1895 3A 02 128A          2064         SBN   CSSW,X'02'         ELSE SET 'SVP REQ' ERROR
 1899 F2 87 16            2065         J     SLK06              CONTINUE TEST OF RESULTS
                          2066 *
 189C 39 01 1735          2067 SLK04   TBF   BRACC,X'01'        PCR ON ?
 18A0 F2 10 04            2068         JT    SLK05              BR IF YES
 18A3 3A 01 128A          2069         SBN   CSSW,X'01'         ELSE SET 'PCR' ERROR
                          2070 *
 18A7 39 80 1736          2071 SLK05   TBF   BRCHK,X'80'         SVP OFF ?
 18AB F2 10 04            2072         JT    SLK06              BR IF YES
 18AE 3A 02 128A          2073         SBN   CSSW,X'02'         ELSE SET 'SVP REQ' ERROR
                          2074 *
 18B2 3D 00 2862          2075 SLK06   CLI   IOPIN,X'00'        D-REG = '00' ?
 18B6 F2 10 04            2076         JT    SLK07              BR IF YES
 18B9 3A 04 128A          2077         SBN   CSSW,X'04'         ELSE SET 'D-REG' ERROR
                          2078 *
 18BD 3D 00 1730          2079 SLK07   CLI   BRXREG,X'00'        X-REG = '00' ?
 18C1 F2 81 04            2080         JE    SLK07A             BR IF YES
 18C4 3A 08 128A          2081         SBN   CSSW,X'08'         ELSE SET 'X-REG' ERROR
                          2082 *
 18C8 39 0F 128A          2083 SLK07A  TBF   CSSW,X'0F'         ANY ERROR ?
 18CC F2 90 21            2084         JF    SLK08              BR IF YES
                          2085 *
 18CF 38 02 1735          2086         TBN   BRACC,X'02'        'IOP HALT' SET ?
 18D3 F2 90 45            2087         JF    SLKER7             BR IF NO
                          2088 *
 18D6 38 01 1736          2089         TBN   BRCHK,X'01'        'PREVENT I/O' SET ?
 18DA F2 90 43            2090         JF    SLKER8             BR IF NO
                          2091 *
 18DD C0 87 242C          2092         B     NORMN
                          2093 *
 18E1 3D B0 1862          2094         CLI   SLK01,X'B0'        TESTED SLKI WITH BITS 4 & 5 OFF ?
 18E5 F2 81 3D            2095         JE    SLK20              BR IF YES
                          2096 *
 18E8 3C B0 1862          2097         MVI   SLK01,X'B0'        ELSE SETUP
 18EC C0 87 1840          2098         B     SLK00              AND RE-RUN TEST
                          2099
                          2100 *       GET HERE IF ANY ERROR OCCURRED
                          2101 *
 18F0 38 0F 128A          2102 SLK08   TBN   CSSW,X'0F'         'ALL' TESTS FAIL ?
 18F4 F2 10 1A            2103         JT    SLKER2             BR IF YES
                          2104 *
 18F7 38 03 128A          2105         TBN   CSSW,X'03'         'PCR' AND 'SVP' FAIL ?
 18FB F2 10 0E            2106         JT    SLKER1             BR IF YES
                          2107 *
 18FE 38 04 128A          2108         TBN   CSSW,X'04'         'D-REG = 00' FAIL ?
 1902 F2 10 0C            2109         JT    SLKER2
                          2110 *
 1905 38 08 128A          2111         TBN   CSSW,X'08'         'X-REG = 00' FAIL ?
 1909 F2 10 0A            2112         JT    SLKER3             BR IF YES
                          2113 *       GET HERE IF 'PCR' OR 'SVP REQ' FAILS
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

 190C C0 87 246A          2114 SLKER1  B     ERRPRT
 1910 10                  2115         DC    XL1'10'            ERROR 41A1
                          2116 *       GET HERE IF ALL TESTS FAIL
 1911 C0 87 246A          2117 SLKER2  B     ERRPRT
 1915 00                  2118         DC    XL1'00'            ERROR 41A0
                          2119 *       GET HERE IF 'X-REG' TEST FAILS
 1916 C0 87 246A          2120 SLKER3  B     ERRPRT
 191A 20                  2121         DC    XL1'20'            ERROR 41A2
                          2122 *       GET HERE IF 'IOP HALT' FAILS
 191B C0 87 246A          2123 SLKER7  B     ERRPRT
 191F 60                  2124         DC    XL1'60'            ERROR 41A6
                          2125 *       GET HERE IF 'SVP REQUEST' FAILS
 1920 C0 87 246A          2126 SLKER8  B     ERRPRT
 1924 70                  2127         DC    XL1'70'            ERROR 41A7
                          2128 *
                          2129 *       TEST 'SABR' AND 'SADR' INSTRUCTIONS
                          2130 *
 1925 C0 87 17EE          2131 SLK20   B     DLSLOD             SETUP DLS REGS = OWN ADDRS
                          2132 *
                          2133 *** START TEST 2 ***
                          2134 *
 1929 C0 87 240A          2135         B     BGNTST
                          2136 *
 192D 3C 00 128A          2137         MVI   CSSW,0
 1931 C0 87 2A0B          2138         B     SVP
 1935 A882                1936 2139    DC    XL2'A882'          SVC MODE
                          2140 *       BUILD 'SABR' INSTRUCTION  ( MOVE DATA ('0F') FROM DLS 0F TO
                          2141 *                                          ALSB 00 )
 1937 0688                1938 2142    DC    XL2'0688'          '06' -> C
 1939 808A                193A 2143    DC    XL2'808A'          '80' -> CR
 193B 0F88                193C 2144    DC    XL2'0F88'          '0F' -> Y
 193D 8882                193E 2145    DC    XL2'8882'          NOT SVC MODE
 193F 008F                1940 2146    DC    XL2'008F'          RUN IOP
 1941 A882                1942 2147    DC    XL2'A882'          SVC MODE
                          2148 *       GET RESULTS OF SABR INST.
 1943 0085                1944 2149    DC    XL2'0085'          D -> X-REG
 1945 004D                1946 2150    DC    XL2'004D'          SENSE X-REG INTO
 1947 1735                1948 2151    DC    AL2(BRACC)               LOC 'BRACC'
                          2152 *       BUILD 'SADR' INSTRUCTION ( MOVE DATA ('1F') FROM DLS 1F TO
 1949 A08A                194A 2153    DC    XL2'A08A'          'A0' -> CR          ALSD 00 )
 194B 1F88                194C 2154    DC    XL2'1F88'          '1F' -> Y
 194D 8882                194E 2155    DC    XL2'8882'          NOT SVC MODE
 194F 008F                1950 2156    DC    XL2'008F'          RUN IOP
 1951 A882                1952 2157    DC    XL2'A882'          SVC MODE
                          2158 *       GET RESULTS OF SADR INST.
 1953 0085                1954 2159    DC    XL2'0085'          D -> X-REG
 1955 006D                1956 2160    DC    XL2'006D'          SENSE X-REG INTO
 1957 1736                1958 2161    DC    AL2(BRCHK)               LOC 'BRCHK'
                          2162 *
 1959 C0 87 27F2          2163         B     SALSB              GET ALSB
 195D 00                  195D 2164    DC    XL1'00'
 195E 3D 0F 2862          2165         CLI   IOPIN,X'0F'        AS EXPECTED ?
 1962 F2 81 04            2166         JE    SLK25              BR IF YES
 1965 3A 01 128A          2167         SBN   CSSW,X'01'         ELSE SET 'ALSB' ERROR SW
                          2168 *
 1969 C0 87 2801          2169 SLK25   B     SALSD              GET ALSD
 196D 00                  196D 2170    DC    XL1'00'
 196E 3D 1F 2862          2171         CLI   IOPIN,X'1F'        AS EXPECTED ?
 1972 F2 81 04            2172         JE    SLK26              BR IF YES
 1975 3A 02 128A          2173         SBN   CSSW,X'02'         ELSE SET 'ALSD' ERROR SW
                          2174 *
 1979 3D 0F 1735          2175 SLK26   CLI   BRACC,X'0F'        'D-REG' AS EXPECTED ?
 197D F2 81 04            2176         JE    SLK27              BR IF YES
 1980 3A 04 128A          2177         SBN   CSSW,X'04'         ELSE SET 'SABR' D-REG ERROR
                          2178 *
 1984 3D 1F 1736          2179 SLK27   CLI   BRCHK,X'1F'        'D-REG' AS EXPECTED ?
 1988 F2 81 04            2180         JE    SLK28              BR IF YES
 198B 3A 08 128A          2181         SBN   CSSW,X'08'         ELSE SET 'SADR' D-REG ERROR
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          2182 *
   198F 39 0F 128A        2183 SLK28    TBF   CSSW,X'0F'          ANY ERROR ?
   1993 F2 90 07          2184          JF    SLK30               BR IF YES
                          2185 *
   1996 C0 87 242C        2186          B     NORMN
   199A F2 87 20          2187          J     SLK50               GO TO NEXT TEST
                          2188
   199D 38 0F 128A        2189 SLK30    TBN   CSSW,X'0F'          'ALL' TESTS FAIL ?
   19A1 F2 10 0F          2190          JT    SLKER5              BR IF YES
                          2191 *        GET HERE IF 'SOME' TEST(S) FAILED
   19A4 39 03 128A        2192          TBF   CSSW,X'03'          BOTH ALS FAIL TO ACQUIRE DATA ?
   19A8 F2 10 03          2193          JT    SLKER4              BR IF NO
                          2194 *        GET HERE IF ALSD AND ALSB FAILED TO ACQUIRE DATA BUT D-REG
                          2195 *            ACQUIRED DATA OK
   19AB F2 87 0A          2196          J     SLKER6
                          2197 *        GET HERE IF D-REG FAILED TO ACQUIRE DATA
   19AE C0 87 246A        2198 SLKER4   B     ERRPRT
   19B2 50          19B2  2199          DC    XL1'50'             ERROR 41A5
                          2200 *
   19B3 C0 87 246A        2201 SLKER5   B     ERRPRT
   19B7 30          19B7  2202          DC    XL1'30'             ERROR 41A3
                          2203 *
   19B8 C0 87 246A        2204 SLKER6   B     ERRPRT
   19BC 40          19BC  2205          DC    XL1'40'             ERROR 41A4
                          2206 *
                          2207 *        SZR INSTRUCTION TEST ( MOVE DATA FROM DLS 15 TO ZLS 01 )
                          2208 *
                          2209 *** START TEST 3 ***
                          2210 *
   19BD C0 87 240A        2211 SLK50    B     BGNTST
                          2212 *
   19C1 C0 87 2A0B        2213          B     SWP
   19C5 A882        19C6  2214          DC    XL2'A882'             SVC MODE
   19C7 0788        19C8  2215          DC    XL2'0788'     '07' -> C    SZR  1F,01 INSTRUCTION ( MOVE
   19C9 818A        19CA  2216          DC    XL2'818A'     '81' -> CR     DATA ('0F') FROM DLS OF TO
                    19CB  2217 SLK55    EQU   *                        ZLS 01 )
   19CB 0F8B        19CC  2218          DC    XL2'0F8B'     '0F' -> Y
   19CD 8882        19CE  2219          DC    XL2'8882'     NOT SVC MODE
   19CF 008F        19D0  2220          DC    XL2'008F'     RUN IOP
   19D1 A882        19D2  2221          DC    XL2'A882'     SVC MODE
                          2222 *        GET RESULTS OF SZR INST.
   19D3 0085        19D4  2223          DC    XL2'0085'     D-REG -> X
   19D5 004D        19D6  2224          DC    XL2'004D'     SENSE X-REG
   19D7 1735        19D8  2225          DC    AL2(BRACC)          INTO LOC 'BRACC'
   19D9 018A        19DA  2226          DC    XL2'018A'     ZLS ADDRESS -> CR
   19DB 028C        19DC  2227          DC    XL2'028C'     ZLS -> ZLS OUT
   19DD 0086        19DE  2228          DC    XL2'0086'   ZLS OUT -> X-REG
   19DF 006D        19E0  2229          DC    XL2'006D'   SENSE X-REG
   19E1 1736        19E2  2230          DC    AL2(BRCHK)          INTO LOC 'BRCHK'
                          2231 *
   19E3 3D 0F 1735        2232          CLI   BRACC,X'0F'         D-REG AS EXPECTED ?
   19E7 F2 01 0F          2233          JNE   SLKERA              BR IF NO
                          2234 *
   19EA 3D 0F 1736        2235          CLI   BRCHK,X'0F'         ZLS AS EXPECTED ?
   19EE F2 01 11          2236          JNE   SLKERB              BR IF NO
                          2237 *
   19F1 C0 87 242C        2238          B     NORMN
   19F5 C0 87 0216        2239          B     LINK
                          2240
   19F9 C0 87 246A        2241 SLKERA   B     ERRPRT
   19FD 82          19FD  2242          DC    XL1'82'               ERROR 41A8
   19FE 19CB        19FF  2243          DC    AL2(SLK55)            EXPECTED
   1A00 1735        1A01  2244          DC    AL2(BRACC)            RECIEVED
                          2245 *
   1A02 C0 87 246A        2246 SLKERB   B     ERRPRT
   1A06 92          1A06  2247          DC    XL1'92'               ERROR 41A9
   1A07 19CB        1A08  2248          DC    AL2(SLK55)            EXPECTED
   1A09 1736        1A0A  2249          DC    AL2(BRCHK)            RECIEVED
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          2250
   1A0B 1B          1A0B  2251 RTN1B    DC    XL1'1B'             ROUTINE 1B NOT USED
   1A0C 00          1A0C  2252          DC    XL1'00'
   1A0D 1A13        1A0E  2253          DC    AL2(RTN1C)          NEXT ROUTINE ADDRESS
   1A0F C0 87 0216        2254          B     LINK
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2256 ********************************************************************
                         2257 *                                                                  *
                         2258 *        SLKR, LLKR INSTRUCTION TEST -                             *
                         2259 *              SET SVP, RESET PCR, '90' -> X-REG THEN EXECUTE SLKR *
                         2260 *              AND INSURE THAT PCR IS SET, SVP REQ IS RESET D-REG  *
                         2261 *              AND X-REG GET SET FROM THE ADDRESSED DLS REGISTER   *
                         2262 *                                                                  *
                         2263 *              EXECUTE AN LLKR AND INSURE THAT D-REG AND THE ADDRESSED*
                         2264 *              DLS REGISTER ACQUIRE 'FF' FROM X-REG, THEN EXECUTE AN *
                         2265 *              LLKR AND INSURE THAT D-REG AND DLS ACQUIRE X'1C' FROM *
                         2266 *              THE Y-REG AS WELL AS THE CONDITION OF PCR AND SVP REQ.*
                         2267 *                                                                  *
                         2268 *              ERRORS: 41C0 - PCR WON'T RESET                      *
                         2269 *                      41C1 - SVP REQ. WON'T SET                   *
                         2270 *                      41C2 - SLKR INST. DIDN'T SET PCR            *
                         2271 *                      41C3 - SLKR INST. DID NOT RESET SVP REQ.    *
                         2272 *                      41C4 - D-REG DIDN'T ACQUIRE DLS DATA        *
                         2273 *                      41C5 - X-REG DIDN'T ACQUIRE DLS DATA        *
                         2274 *                      41C6 - LLKR INST. FAILED                    *
                         2275 *                      41C7 - DLS DIDN'T ACQUIRE X-REG DATA        *
                         2276 *                      41C8 - D-REG DIDN'T ACQUIRE Y 0-5, SVP (BIT 6) *
                         2277 *                             OR PCR (BIT 7)                       *
                         2278 *                      41C9 - DLS DIDN'T ACQUIRE Y 0-5, SVP (BIT 6) *
                         2279 *                             OR PCR (BIT 7)                       *
                         2280 *                      41CA - 'IOP HALT' BIT NOT SET               *
                         2281 ********************************************************************
                         2282
1A13 1C          1A13    2283 RTN1C   DC    XL1'1C'          ROUTINE 1C
1A14 00          1A14    2284         DC    XL1'00'
1A15 1B70        1A16    2285         DC    AL2(RTN1D)       NEXT ROUTINE ADDRESS
                         2286 *
1A17 C0 87 2329          2287         B     BEGIN
                         2288 *
                         2289 *** START TEST 1 ***
                         2290 *
1A1B C0 87 240A          2291         B     BGNTST
                         2292 *
                         2293 *       RESET PCR AND SET SVP REQUEST
                         2294 *
1A1F C0 87 17EE          2295         B     DLSLOD
1A23 C0 87 2A08          2296         B     SVP
1A27 8882        1A28    2297         DC    XL2'8882'        NOT SVC MODE
1A29 0083        1A2A    2298         DC    XL2'0083'        SET 'SVP REQUEST'
1A2B 0081        1A2C    2299         DC    XL2'0081'        RESET PCR, '00' -> X-REG
1A2D 0042        1A2E    2300         DC    XL2'0042'        IDLE SENSE
1A2F 1735        1A30    2301         DC    AL2(BRACC)          INTO LOC 'BRACC'
1A31 0060        1A32    2302         DC    XL2'0060'        ADAPTER SENSE BYTE 1
1A33 1736        1A34    2303         DC    AL2(BRCHK)             INTO LOC 'BRCHK'
                         2304 *
1A35 38 01 1735          2305         TBN   BRACC,X'01'      PCR OFF ?
1A39 F2 90 F5            2306         JF    LLKER1           BR IF NO
                         2307 *
1A3C 38 80 1736          2308         TBN   BRCHK,X'80'      SVP REQ. ON ?
1A40 F2 90 F3            2309         JF    LLKER2           BR IF NO
                         2310 *
                         2311 *       EXECUTE SLKR INST.
                         2312 *
1A43 C0 87 2A08          2313         B     SVP
1A47 A882        1A48    2314         DC    XL2'A882'        SVC MODE
1A49 018A        1A4A    2315         DC    XL2'018A'        '01' -> CR
1A4B 228F        1A4C    2316         DC    XL2'228F'        CR -> D-REG
1A4D 888E        1A4E    2317         DC    XL2'888E'        D -> INDEX
1A4F 0388        1A50    2318         DC    XL2'0388'        '03' -> C
1A51 808A        1A52    2319         DC    XL2'808A'        '80' -> CR
1A53 048B        1A54    2320         DC    XL2'048B'        '04' -> Y
1A55 8882        1A56    2321         DC    XL2'8882'        NOT SVC MODE
1A57 008F        1A58    2322         DC    XL2'008F'        RUN IOP
1A59 A882        1A5A    2323         DC    XL2'A882'        SVC MODE
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

1A5B BC8A                1A5C 2324         DC    XL2'BC8A'        'BC' -> CR
1A5D 1F8B                1A5E 2325         DC    XL2'1F8B'        '1F' -> Y
1A5F 8882                1A60 2326         DC    XL2'8882'        NOT SVC MODE
1A61 008F                1A62 2327         DC    XL2'008F'        RUN IOP
1A63 004D                1A64 2328         DC    XL2'004D'        SENSE X-REG
1A65 1730                1A66 2329         DC    AL2(BRXREG)         INTO LOC 'BRXREG'
1A67 A882                1A68 2330         DC    XL2'A882'        SVC MODE
1A69 0042                1A6A 2331         DC    XL2'0042'        IDLE SENSE
1A6B 1735                1A6C 2332         DC    AL2(BRACC)          INTO LOC 'BRACC'
1A6D 0040                1A6E 2333         DC    XL2'0040'        ADAPTER SENSE BYTE 1
1A6F 1736                1A70 2334         DC    AL2(BRCHK)          INTO LOC 'BRCHK'
1A71 0085                1A72 2335         DC    XL2'0085'        D -> X-REG
1A73 002D                1A74 2336         DC    XL2'002D'        SENSE X-REG
                         2337 *
1A75 38 01 1735          2338         TBN   BRACC,X'01'      PCR ON ?
1A79 F2 10 BF            2339         JT    LLKER3           BR IF NO
                         2340 *
1A7C 39 80 1736          2341         TBF   BRCHK,X'80'      SVP REQ. OFF ?
1A80 F2 90 BD            2342         JF    LLKER4           BR IF NO
                         2343 *
1A83 38 02 1735          2344         TBN   BRACC,X'02'      'IOP HALT' SET ?
1A87 F2 90 E1            2345         JF    LLKER8           BR IF NO
                         2346 *
1A8A 3D 1F 2B62          2347         CLI   IOPIN,X'1F'      D-REG SET FROM DLS ?
1A8E F2 01 B4            2348         JNE   LLKER5           BR IF NO
                         2349 *
1A91 3D 1F 1730          2350         CLI   BRXREG,X'1F'     X-REG SET FROM DLS ?
1A95 F2 01 B2            2351         JNE   LLKER6           BR IF NO
                         2352 *
                         2353 *       EXECUTE LLKR INSTRUCTION
                         2354 *
1A98 3C 00 128A          2355         MVI   CSSW,0
1A9C C0 87 2A0B          2356         B     SVP
1AA0 A882        1AA1    2357         DC    XL2'A882'        SERVICE MODE
1AA2 0B88        1AA3    2358         DC    XL2'0B88'        '0B' -> C
1AA4 A08A        1AA5    2359         DC    XL2'A08A'        'A0' -> CR
1AA6 008B        1AA7    2360         DC    XL2'008B'        '00' -> Y
1AA8 FF89        1AA9    2361         DC    XL2'FF89'        'FF' -> X-REG
1AAA 8882        1AAB    2362         DC    XL2'8882'        NOT SVC MODE
1AAC 008F        1AAD    2363         DC    XL2'008F'        RUN IOP
1AAE A882        1AAF    2364         DC    XL2'A882'        SVC MODE
1AB0 0085        1AB1    2365         DC    XL2'0085'        D -> X-REG
1AB2 002D        1AB3    2366         DC    XL2'002D'        SENSE X-REG
                         2367 *
1AB4 3D FF 2B62          2368         CLI   IOPIN,X'FF'      D-REG AS EXPECTED ?
1AB8 F2 01 94            2369         JNE   LLKER7           BR IF NO
                         2370 *
1ABB 3C 00 2B6F          2371         MVI   DLSAR,0          DLS ADDRESS 00
1ABF C0 87 267E          2372         B     SDLS
                         2373 *
1AC3 3D FF 2CB2          2374         CLI   DLSIN,X'FF'      LOCAL REGISTER 00 AS EXPECTED ?
1AC7 F2 01 8A            2375         JNE   LLKER8           BR IF NO
                         2376 *
                         2377 *       EXECUTE LLKR  ( WITH R BIT 7 'ON', Y0 - Y5 AND SVP/PCR (BITS
                         2378 *                       6 & 7) GO TO DLS 31 )
                         2379 *
1ACA 3C 00 2C91          2380         MVI   DLS+31,0         INITIALIZE DLS 31 = 00
1ACE 3C 1F 2B6F          2381         MVI   DLSAR,31
1AD2 C0 87 262C          2382         B     LDLS
                         2383 *
1AD6 3C 1D 1AF7          2384         MVI   LLK21,X'1D'      INITIAL EXPECTED DATA = '1D' FROM
1ADA 3C 1D 1B06          2385         MVI   LLK22,X'1D'         Y-REG AND BITS 6 & 7 = 01
1ADE C0 87 2A0B          2386 LLK20   B     SVP
1AE2 A882        1AE3    2387         DC    XL2'A882'        SERVICE MODE
1AE4 0E8E        1AE5    2388         DC    XL2'0E8E'        IOP START ( SENSE STROBE )
1AE6 0B88        1AE7    2389         DC    XL2'0B88'        '0B' -> C
1AE8 A18A        1AE9    2390         DC    XL2'A18A'        'A1' -> CR
1AEA 1F8B        1AEB    2391         DC    XL2'1F8B'        '1F' -> Y
```

C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1AEC 8882             1AED 2392          DC    XL2'8882'          NOT SVC MODE
   1AEE 008F             1AEF 2393          DC    XL2'008F'          RUN IOP
   1AF0 A882             1AF1 2394          DC    XL2'A882'          SVC MODE
   1AF2 0085             1AF3 2395          DC    XL2'0085'          D -> X-REG
   1AF4 002D             1AF5 2396          DC    XL2'002D'          SENSE X-REG
                              2397 *
                         1AF7 2398 LLK21    EQU   *+1
   1AF6 3D 1D 2B62            2399          CLI   IOPIN,X'1D'        D-REG AS EXPECTED ?
   1AFA F2 01 5C              2400          JNE   LLKER9             BR IF NO
                              2401 *
   1AFD 3C 1F 2B6F            2402          MVI   DLSAR,X'1F'        DLS ADDRESS '1F'
   1B01 C0 87 267E            2403          B     SDLS
                         1B06 2404 LLK22    EQU   *+1
   1B05 3D 1D 2B62            2405          CLI   IOPIN,X'1D'        DLS AS EXPECTED ?
   1B09 F2 01 56              2406          JNE   LLKERA             BR IF NO
                              2407 *
   1B0C 3D 1E 1AF7            2408          CLI   LLK21,X'1E'        2ND PASS DONE ?
   1B10 F2 81 16              2409          JE    LLK25              BR IF YES
                              2410 *
   1B13 3C 1E 1AF7            2411          MVI   LLK21,X'1E'        EXPECTED DATA = '1C' FROM Y0 - Y5
   1B17 3C 1E 1B06            2412          MVI   LLK22,X'1E'          AND BITS 6 & 7 = 10
   1B1B C0 87 2A0B            2413          B     SVP
   1B1F 8882             1B20 2414          DC    XL2'8882'          NOT SERVICE MODE
   1B21 0083             1B22 2415          DC    XL2'0083'          SET 'SVP REQ'
   1B23 00A1             1B24 2416          DC    XL2'00A1'          RESET 'PCR'
                              2417 *
   1B25 C0 87 1ADE            2418          B     LLK20
                              2419 *
   1B29 C0 87 242C            2420 LLK25    B     NORMN
   1B2D C0 87 0216            2421          B     LINK
                              2422
                              2423 *        GET HERE IF PCR DID NOT RESET ( MANUAL CONTROL )
   1B31 C0 87 246A            2424 LLKER1   B     ERRPRT
   1B35 00               1B35 2425          DC    XL1'00'            ERROR 41C0
                              2426 *        GET HERE IF SVP REQ. DID NOT SET ( MANUAL MODE )
   1B36 C0 87 246A            2427 LLKER2   B     ERRPRT
   1B3A 10               1B3A 2428          DC    XL1'10'            ERROR 41C1
                              2429 *        GET HERE IF SLKR DID NOT SET PCR
   1B3B C0 87 246A            2430 LLKER3   B     ERRPRT
   1B3F 20               1B3F 2431          DC    XL1'20'            ERROR 41C2
                              2432 *        GET HERE IF SLKR DID NOT RESET SVP REQUEST
   1B40 C0 87 246A            2433 LLKER4   B     ERRPRT
   1B44 30               1B44 2434          DC    XL1'30'            ERROR 41C3
                              2435 *        GET HERE IF D-REG DID NOT ACQUIRE DLS DATA
   1B45 C0 87 246A            2436 LLKER5   B     ERRPRT
   1B49 40               1B49 2437          DC    XL1'40'            ERROR 41C4
                              2438 *        GET HERE IF X-REG DID NOT ACQUIRE DLS DATA
   1B4A C0 87 246A            2439 LLKER6   B     ERRPRT
   1B4E 50               1B4E 2440          DC    XL1'50'            ERROR 41C5
                              2441 *        GET HERE IF LLKR INSTRUCTION FAILED
   1B4F C0 87 246A            2442 LLKER7   B     ERRPRT
   1B53 60               1B53 2443          DC    XL1'60'            ERROR 41C6
                              2444 *        GET HERE IF DLS DID NOT ACQUIRE X-REG DATA
   1B54 C0 87 246A            2445 LLKER8   B     ERRPRT
   1B58 70               1B58 2446          DC    XL1'70'            ERROR 41C7
                              2447 *        GET HERE IF D-REG DID NOT ACQUIRE Y 0-5, PCR & SVP REQ
   1B59 C0 87 246A            2448 LLKER9   B     ERRPRT
   1B5D 82               1B5D 2449          DC    XL1'82'            ERROR 41C8
   1B5E 1AF7             1B5F 2450          DC    AL2(LLK21)         EXPECTED
   1B60 2B62             1B61 2451          DC    AL2(IOPIN)         RECIEVED
                              2452 *        GET HERE IF DLS DID NOT ACQUIRE Y 0-5, PCR & SVP
   1B62 C0 87 246A            2453 LLKERA   B     ERRPRT
   1B66 92               1B66 2454          DC    XL1'92'            ERROR 41C9
   1B67 1AF7             1B68 2455          DC    AL2(LLK21)
   1B69 2CD1             1B6A 2456          DC    AL2(DLSIN+31)
                              2457 *        GET HERE IF 'IOP HALT' FAILED TO SET
   1B6B C0 87 246A            2458 LLKERB   B     ERRPRT
   1B6F A0               1B6F 2459          DC    XL1'A0'            ERROR 41CA
```


C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
                              2460
   1B70 1D               1B70 2461 RTN1D    DC    XL1'1D'            ROUTINE 1D NOT USED
   1B71 00               1B71 2462          DC    XL1'00'
   1B72 1B78             1B73 2463          DC    AL2(RTN1E)         NEXT ROUTINE ADDRESS
   1B74 C0 87 0216            2464          B     LINK
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2466 ********************************************************************************
                         2467 *                                                                              *
                         2468 *       LBI INSTRUCTION TEST - EXECUTE AN LBI  00,AA  INSTRUCTION              *
                         2469 *                              AND TEST RESULTS IN DLS 00                      *
                         2470 *                                                                              *
                         2471 *       MV INSTRUCTION TEST - EXECUTE MOVE INSTRUCTIONS AS FOLLOWS:            *
                         2472 *                              Z0 TO Z1, 01 -> 10                              *
                         2473 *                              Z1 TO Z0, 10 -> 02                              *
                         2474 *                              Z0 TO Z0, 02 -> 03                              *
                         2475 *                              Z1 TO Z1, 10 -> 11                              *
                         2476 *                                                                              *
                         2477 *                 ERRORS: 41E0 - LBI FAILED, D-REG DIDN'T ACQUIRE DATA         *
                         2478 *                         41E1 - LBI FAILED, DLS DIDN'T ACQUIRE DATA           *
                         2479 *                         41E2 - MV FAILED, D-REG DIDN'T ACQUIRE DATA          *
                         2480 *                         41E3 - MV FAILED, DLS DIDN'T ACQUIRE DATA            *
                         2481 *                                                                              *
                         2482 ********************************************************************************
                         2483
1B78 1E                  1B78 2484 RTN1E   DC    XL1'1E'          ROUTINE 1E
1B79 00                  1B79 2485         DC    XL1'00'
1B7A 1C65                1B7B 2486         DC    AL2(RTN1F)       NEXT ROUTINE ADDRESS
                         2487 *
1B7C C0 87 2329                2488         B     BEGIN
                         2489 *
1B80 C0 87 17EE                2490         B     DLSLOD
                         2491 *
                         2492 *** START TEST 1 ***
                         2493 *
1B84 C0 87 240A                2494         B     BGNTST
                         2495 *
                         2496 *       EXECUTE 'LBI  00,AA' INSTRUCTION
                         2497 *
1B88 C0 87 2A0B                2498         B     SVP
                         2499 *
1B8C A882                1B8D 2500         SETUP INDEX = '01'
1B8E 018A                1B8F 2501         DC    XL2'A882'        SVC MODE
1B90 228F                1B91 2502         DC    XL2'018A'        '01' -> CR
1B92 888E                1B93 2503         DC    XL2'228F'        CR -> D-REG
                         2504 *            DC    XL2'888E'        D -> INDEX
1B94 0388                1B95 2505         SETUP ZLS 00 = '04'
1B96 808A                1B97 2506         DC    XL2'0388'        '03' -> C
1B98 048B                1B99 2507         DC    XL2'808A'        '80' -> CR
1B9A 8882                1B9B 2508         DC    XL2'048B'        '04' -> Y
1B9C 008F                1B9D 2509         DC    XL2'8882'        NOT SVC MODE
1B9E A882                1B9F 2510         DC    XL2'008F'        RUN IOP
1BA0 0888                1BA1 2511         DC    XL2'A882'        SVC MODE
1BA2 808A                1BA3 2512         DC    XL2'0888'        '08' -> C
1BA4 AA8B                1BA5 2513         DC    XL2'808A'        '80' -> CR
1BA6 8882                1BA7 2514         DC    XL2'AA8B'        'AA' -> Y
1BA8 008F                1BA9 2515         DC    XL2'8882'        NOT SERVICE MODE
1BAA A882                1BAB 2516         DC    XL2'008F'        RUN IOP
1BAC 0085                1BAD 2517         DC    XL2'A882'        SERVICE MODE
1BAE 002D                1BAF 2518         DC    XL2'0085'        D -> X-REG
                         2519 *            DC    XL2'002D'        SENSE X-REG
                         1BB1 2520 LBI05   EQU   *+1
1BB0 3D AA 2B62                2521         CLI   IOPIN,X'AA'      D-REG AS EXPECTED ?
1BB4 F2 81 09                  2522         JE    LBI10            BR IF YES
                         2523 *
1BB7 C0 87 246A                2524         B     ERRPRT
1BBB 02                  1BBB 2525         DC    XL1'02'          ERROR 41E0
1BBC 1B81                1BBD 2526         DC    AL2(LBI05)
1BBE 2B62                1BBF 2527         DC    AL2(IOPIN)
                         2528 *
1BC0 3C 00 2B6F                2529 LBI10   MVI   DLSAR,0          DLS ADDRESS 00
1BC4 C0 87 267E                2530         B     SDLS
                         2531 *
1BC8 3D AA 2CB2                2532         CLI   DLSIN,X'AA'      DLS 00 AS EXPECTED ?
1BCC F2 81 09                  2533         JE    MOV00            BR IF YES, DO MV TEST
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2534 *
1BCF C0 87 246A                2535         B     ERRPRT           ERROR 41E1
1BD3 12                  1BD3 2536         DC    XL1'12'
1BD4 1B81                1BD5 2537         DC    AL2(LBI05)
1BD6 2CB2                1BD7 2538         DC    AL2(DLSIN)
                         2539 *
                         2540 *       EXECUTE MOVE INSTRUCTIONS
                         2541 *
1BD8 C0 87 242C          2542 MOV00    B     NORMN
                         2543 *
                         2544 *** START TEST 2 ***
                         2545 *
1BDC C0 87 240A                2546         B     BGNTST
                         2547 *
1BE0 C0 87 17EE                2548         B     DLSLOD
                         2549 *
1BE4 C2 01 1C5C                2550         LA    MOVTBL,XR1       POINT TO MOVE TABLE
1BE8 1C 00 1BFA 00             2551 MOV01    MVC   MOV25,0(1,XR1)   SETUP 'TO' DLS ADDRESS
1BED 1C 00 1BFC 01             2552         MVC   MOV26,1(1,XR1)     AND 'FROM' DLS ADDRESS
1BF2 C0 87 2A0B                2553         B     SVP
1BF6 A882                1BF7 2554         DC    XL2'A882'        SERVICE MODE
1BF8 0C88                1BF9 2555         DC    XL2'0C88'        'OC' -> C
                         1BFA 2556 MOV25   EQU   *
1BFA 908A                1BFB 2557         DC    XL2'908A'        '90' -> CR
                         1BFC 2558 MOV26   EQU   *
1BFC 018B                1BFD 2559         DC    XL2'018B'        '01' -> Y
1BFE 8882                1BFF 2560         DC    XL2'8882'        NOT SERVICE MODE
1C00 008F                1C01 2561         DC    XL2'008F'        RUN IOP
1C02 A882                1C03 2562         DC    XL2'A882'        SERVICE MODE
1C04 0085                1C05 2563         DC    XL2'0085'        D -> X-REG
1C06 002D                1C07 2564         DC    XL2'002D'        SENSE X-REG
                         2565 *
1C08 0C 00 1C1A 1BFA           2566         MVC   MOV30(1),MOV25   'TO' DLS ADDRESS
1C0E 3B E0 1C1A                2567         SBF   MOV30,X'E0'      DROP INSTRUCTION BITS
1C12 3D 01 2B62                2568         CLI   IOPIN,X'01'      D-REG AS EXPECTED (FROM) ?
1C16 F2 01 31                  2569         JNE   MOVER1           BR IF NO
                         2570 *
1C19 3C 10 2B6F          1C1A 2571 MOV30   EQU   *+1
1C1D C0 87 267E                2572         MVI   DLSAR,X'10'      'TO' DLS ADDRESS -> DLSAR
1C21 0C 01 1C30 26AD           2573         B     SDLS
1C27 0C 01 1C5B 26AD           2574         MVC   MOV32(2),SDLS02  DLS ADDRESS -> TEST INST
                               2575         MVC   MOVER3(2),SDLS02   ''      -> ERROR MSG
1C2D 3D 01 0000          1C30 2576 MOV32   EQU   *+3
1C31 F2 01 1F                  2577         CLI   *-*,X'01'        'TO' DLS DATA AS EXPECTED ?
                               2578         JNE   MOVER2           BR IF NO
1C34 7D FF 02                  2579 *
1C37 C0 81 1C42                2580         CLI   2(,XR1),X'FF'    END OF TABLE ?
                               2581         BE    MOV35            BR IF YES
1C3B D2 01 02                  2582 *
1C3E C0 87 1BE8                2583         LA    2(,XR1),XR1      ELSE BUMP POINTER
                               2584         B     MOV01              AND CONTINUE
1C42 C0 87 242C                2585 *
1C46 C0 87 0216          1C48 2586 MOV35   B     NORMN
                         1C4C 2587         B     LINK
1C4A C0 87 246A          1C4D 2588
1C4E 22                  1C4F 2589 MOVER1  B     ERRPRT
1C4F 2B36                1C50 2590         DC    XL1'22'          ERROR 41E2
1C51 2B62                1C52 2591         DC    AL2(I1)
                         1C53 2592         DC    AL2(IOPIN)
1C53 C0 87 246A                2593 *
1C57 32                  1C57 2594 MOVER2  B     ERRPRT
1C58 2B36                1C59 2595         DC    XL1'32'          ERROR 41E3
1C5A 0000                1C5B 2596         DC    AL2(I1)
                         1C5D 2597 MOVER3  DC    AL2(*-*)
                         1C5F 2598
1C5C 9001                1C5C 2599 MOVTBL  EQU   *
1C5E 8210                1C5D 2600         DC    XL2'9001'
                         1C5F 2601         DC    XL2'8210'
```

C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1C60 8302             1C61 2602          DC    XL2'8302'
   1C62 9110             1C63 2603          DC    XL2'9110'
   1C64 FF               1C64 2604          DC    XL1'FF'
                              2605
   1C65 1F               1C65 2606 RTN1F    DC    XL1'1F'          ROUTINE 1F NOT USED
   1C66 00               1C66 2607          DC    XL1'00'
   1C67 1C6D             1C68 2608          DC    AL2(RTN20)       NEXT ROUTINE ADDRESS
   1C69 C0 87 0216            2609          B     LINK
                              2610 *
```


C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              2612 ********************************************************************************
                              2613 *                                                                              *
                              2614 *         TEST ALU FUNCTIONS - AND, OR, EOR & ADD                              *
                              2615 *                                                                              *
                              2616 ********************************************************************************
                              2617
   1C6D 20               1C6D 2618 RTN20    DC    XL1'20'          ROUTINE 20
   1C6E 00               1C6E 2619          DC    XL1'00'
   1C6F 1CEE             1C70 2620          DC    AL2(RTN21)       NEXT ROUTINE ADDRESS
                              2621 *
   1C71 C0 87 2329            2622          B     BEGIN
                              2623 *
                              2624 *** START TEST 1 ***
                              2625 *
   1C75 C0 87 240A            2626          B     BGNTST
                              2627 *
   1C79 C2 01 1CD9            2628          LA    ALUTBL,XR1       POINT TO TEST TABLE
   1C7D 1C 00 1C88 00         2629 ALU01    MVC   ALU05,0(1,XR1)   SETUP 'FUNCTION' IN CR
                              2630 *
   1C82 C0 87 2A0B            2631          B     SVP
   1C86 A882             1C87 2632          DC    XL2'A882'        SERVICE MODE
                         1C88 2633 ALU05    EQU   *
   1C88 0088             1C89 2634          DC    XL2'0088'        'FUNCTION' -> C  ( 00 = AND,
                              2635 *                                                  01 = OR
                              2636 *                                                  02 = EOR
                              2637 *                                                  03 = ADD )
   1C8A FF8A             1C8B 2638          DC    XL2'FF8A'        'FF' -> CR FOR LATER USE
                              2639 *         TEST 'FUNCTION' WITH A = 00 AND B = 00
   1C8C 008B             1C8D 2640          DC    XL2'008B'        '00' -> Y ( '00' -> CRY )
   1C8E 008F             1C8F 2641          DC    XL2'008F'        CRY -> A & B, A-REG CLOCK
   1C90 018F             1C91 2642          DC    XL2'018F'          B-REG CLOCK
   1C92 0F8F             1C93 2643          DC    XL2'0F8F'        ALU -> D-REG
   1C94 0085             1C95 2644          DC    XL2'0085'        D -> X-REG
   1C96 004D             1C97 2645          DC    XL2'004D'        SENSE X-REG INTO
   1C98 1730             1C99 2646          DC    AL2(BRXREG)            LOC 'BRXREG'
                              2647 *         TEST 'FUNCTION' WITH A = 00 AND B = FF
   1C9A 218F             1C9B 2648          DC    XL2'218F'        CR ('FF') -> B-REG
   1C9C 0F8F             1C9D 2649          DC    XL2'0F8F'        ALU -> D-REG
   1C9E 0085             1C9F 2650          DC    XL2'0085'        D -> X-REG
   1CA0 004D             1CA1 2651          DC    XL2'004D'        SENSE X-REG INTO
   1CA2 1731             1CA3 2652          DC    AL2(BRXREG+1)          LOC 'BRXREG+1'
                              2653 *         TEST 'FUNCTION' WITH A = FF AND B = FF
   1CA4 208F             1CA5 2654          DC    XL2'208F'        CR ('FF') -> A-REG
   1CA6 0F8F             1CA7 2655          DC    XL2'0F8F'        ALU -> D-REG
   1CA8 0085             1CA9 2656          DC    XL2'0085'        D -> X-REG
   1CAA 004D             1CAB 2657          DC    XL2'004D'        SENSE X-REG INTO
   1CAC 1732             1CAD 2658          DC    AL2(BRXREG+2)          LOC 'BRXREG+2'
                              2659 *         TEST 'FUNCTION' WITH A = FF AND B = 00
   1CAE 008B             1CAF 2660          DC    XL2'008B'        '00' -> Y ( 00 -> CRY )
   1CB0 018F             1CB1 2661          DC    XL2'018F'        CRY -> B-REG
   1CB2 0F8F             1CB3 2662          DC    XL2'0F8F'        ALU -> D-REG
   1CB4 0085             1CB5 2663          DC    XL2'0085'        D -> X-REG
   1CB6 006D             1CB7 2664          DC    XL2'006D'        SENSE X-REG INTO
   1CB8 1733             1CB9 2665          DC    AL2(BRXREG+3)          LOC 'BRXREG+3'
                              2666 *
   1CBA 1D 03 1733 04         2667          CLC   BRXREG+3,4(4,XR1)      RESULTS AS EXPECTED ?
   1CBF F2 81 05              2668          JE    ALU09              BR IF YES
                              2669 *
   1CC2 C0 87 246A            2670          B     ERRPRT
   1CC6 00               1CC6 2671          DC    XL1'00'            ERROR 4200
                              2672 *
   1CC7 D2 01 05              2673 ALU09    LA    5(,XR1),XR1        BUMP TABLE POINTER
   1CCA 7D FF 00              2674          CLI   0(,XR1),X'FF'      END ?
   1CCD C0 01 1C7D            2675          BNE   ALU01              BR IF NO
                              2676 *
   1CD1 C0 87 242C            2677          B     NORMN
   1CD5 C0 87 0216            2678          B     LINK
                              2679 *
```

C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          2680 *        ALU TABLE - BYTE 0 = ALU FUNCTION (00 - AND, 01 - OR,
                          2681 *                                02 - EOR, 03 - ADD)
                          2682 *                    BYTES 1 - 4 = EXPECTED RESULTS OF EACH OP
                          2683 *
 1CD9 000000FF00          1CD9 2684 ALUTBL  EQU   *
 1CDE 0100FFFFFF          1CDD 2685         DC    XL5'000000FF00'
 1CE3 0200FF00FF          1CE2 2686         DC    XL5'0100FFFFFF'
 1CE8 0300FFFEFF          1CE7 2687         DC    XL5'0200FF00FF'
 1CED FF                  1CEC 2688         DC    XL5'0300FFFEFF'
                          1CED 2689         DC    XL1'FF'
                          2690
 1CEE 21                  1CEE 2691 RTN21   DC    XL1'21'          ROUTINE 21 NOT USED
 1CEF 00                  1CEF 2692         DC    XL1'00'
 1CF0 1CF6                1CF1 2693         DC    AL2(RTN22)       NEXT ROUTINE ADDRESS
 1CF2 C0 87 0216                2694       B     LINK
                          2695
 1CF6 22                  1CF6 2696 RTN22   DC    XL1'22'          ROUTINE 22 NOT USED
 1CF7 00                  1CF7 2697         DC    XL1'00'
 1CF8 1CFE                1CF9 2698         DC    AL2(RTN23)       NEXT ROUTINE ADDRESS
 1CFA C0 87 0216                2699       B     LINK
                          2700
 1CFE 23                  1CFE 2701 RTN23   DC    XL1'23'          ROUTINE 23 NOT USED
 1CFF 00                  1CFF 2702         DC    XL1'00'
 1D00 1D06                1D01 2703         DC    AL2(RTN24)       NEXT ROUTINE ADDRESS
 1D02 C0 87 0216                2704       B     LINK
                          2705
 1D06 24                  1D06 2706 RTN24   DC    XL1'24'          ROUTINE 24 NOT USED
 1D07 00                  1D07 2707         DC    XL1'00'
 1D08 1D0E                1D09 2708         DC    AL2(RTN25)       NEXT ROUTINE ADDRESS
 1D0A C0 87 0216                2709       B     LINK
                          2710
 1D0E 25                  1D0E 2711 RTN25   DC    XL1'25'          ROUTINE 25 NOT USED
 1D0F 00                  1D0F 2712         DC    XL1'00'
 1D10 1D16                1D11 2713         DC    AL2(RTN26)       NEXT ROUTINE ADDRESS
 1D12 C0 87 0216                2714       B     LINK
```


C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          2716 ********************************************************************************
                          2717 *                                                                              *
                          2718 *        NO-OP INSTRUCTIONS - EXECUTE NO-OPS ON ALL LEVELS ( TIME              *
                          2719 *                             SLICING )                                        *
                          2720 *              ERRORS: 4260 - ALL MIARS NOT AS EXPECTED                        *
                          2721 *                                                                              *
                          2722 ********************************************************************************
                          2723
 1D16 26                  1D16 2724 RTN26   DC    XL1'26'          ROUTINE 26
 1D17 00                  1D17 2725         DC    XL1'00'
 1D18 1E28                1D19 2726         DC    AL2(RTN27)       NEXT ROUTINE ADDRESS
                          2727 *
 1D1A C0 87 2329                2728       B     BEGIN
                          2729 *
 1D1E C0 87 2837                2730       B     LMBI             SETUP REMAINING MODE BUFFERS = 00
 1D22 889CFF              1D24 2731         DC    XL3'889CFF'
                          2732 *
 1D25 C0 87 2871                2733       B     LCSI
 1D29 0000                1D2A 2734         DC    XL2'0000'
 1D2B 080000              1D2D 2735         DC    XL3'080000'      NO-OP
 1D2E 080000              1D30 2736         DC    XL3'080000'
 1D31 080000              1D33 2737         DC    XL3'080000'
 1D34 080000              1D36 2738         DC    XL3'080000'
 1D37 080000              1D39 2739         DC    XL3'080000'
 1D3A 080000              1D3C 2740         DC    XL3'080000'
 1D3D 080000              1D3F 2741         DC    XL3'080000'
 1D40 080000              1D42 2742         DC    XL3'080000'
 1D43 080000              1D45 2743         DC    XL3'080000'
 1D46 100009FF            1D49 2744         DC    XL4'100009FF'    B    0009, HANG
                          2745 *
                          2746 *** START TEST 1 ***
                          2747 *
                          2748       B     BGNTST
 1D4A C0 87 240A
                          2749 *
                          2750       B     ALSSET
 1D4E C0 87 1D92
                          2751 *
                          2752       MVI   INDEX,X'01'      INITIAL INDEX
 1D52 3C 01 2B66          2753       B     IOPGO
 1D56 C0 87 29CF
                          2754 *
                          2755       B     SVP
 1D5A C0 87 2A08    1D5F  2756       DC    XL2'0882'        HALT IOP
 1D5E 0882          1D61  2757       DC    XL2'0063'        CHECK SENSE
 1D60 0063          1D63  2758       DC    AL2(BRXREG)        INTO LOC 'BRXREG'
 1D62 1730                2759 *
                          2760       B     ALSGET           READ ALS
 1D64 C0 87 1DDA          2761 *
                          2762       LA    ALSDIN,XR1       POINT TO INPUT AREA ( DISP PORTION
 1D68 C2 01 2C12          2763 NOOP05 CLI   0(,XR1),X'09'       OF MIARS, AS EXPECTED ?
 1D6C 7D 09 00                2764  JNE   NOOP09           BR IF NO
 1D6F F2 01 15            2765 *
                          2766       LA    4(,XR1),XR1      ELSE BUMP MIAR POINTER
 1D72 D2 01 04            2767       ST    BRMIAR,XR1       SAVE
 1D75 34 01 1732          2768       CLC   BRMIAR(2),ALSINX TESTED ALL 7 MIARS ?
 1D79 0D 01 1732 2B4B     2769       BNE   NOOP05           BR IF NO
 1D7F C0 01 1D6C          2770 *
                          2771       B     NORMN
 1D83 C0 87 242C          2772 *
                          2773 NOOP09 B     ERRPRT           ERROR 4260
 1D87 C0 87 246A    1D8B  2774       DC    XL1'01'
 1D8B 01            1D8D  2775       DC    AL2(BRXREG)
 1D8C 1730                2776 *
                          2777       B     LINK
 1D8E C0 87 0216          2778
                          2779 ********************************************************************************
                          2780 *
                          2781 *        ALSSET -
                          2782 *
                          2783 ********************************************************************************
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2784
  1D92 34 08 1DD9        2785 ALSSET   ST    ALSSEA+3,ARR
  1D96 34 01 1DD5        2786          ST    ALSSE9+3,XR1
                         2787 *
  1D9A 3C 00 2C11        2788          MVI   ALSD+31,X'00'
  1D9E 0C 1E 2C10 2C11   2789          MVC   ALSD+30(31),ALSD+31
  1DA4 3C 00 2BD1        2790          MVI   ALSB+31,X'00'
  1DA8 0C 1E 2BD0 2BD1   2791          MVC   ALSB+30(31),ALSB+31
                         2792 *                          INITIAL INDEX WORDS:
  1DAE 3C 03 2BB5        2793          MVI   ALSB+3,X'03'        LEVEL 0 (LINKS TO LVL 1)
  1DB2 3C 25 2BB9        2794          MVI   ALSB+7,X'25'              1 (LINKS TO LVL 2, ETC.)
  1DB6 3C 47 2BBD        2795          MVI   ALSB+11,X'47'             2
  1DBA 3C 69 2BC1        2796          MVI   ALSB+15,X'69'             3
  1DBE 3C 8B 2BC5        2797          MVI   ALSB+19,X'8B'             4
  1DC2 3C AD 2BC9        2798          MVI   ALSB+23,X'AD'             5
  1DC6 3C C1 2BCD        2799          MVI   ALSB+27,X'C1'             6 (LINKS TO LVL 0)
  1DCA C0 87 2720        2800          B     LALSB1
  1DCE C0 87 2756        2801          B     LALSD1
                         2802 *
  1DD2 C2 01 0000        2803 ALSSE9   LA    *-*,XR1
  1DD6 C0 87 0000        2804 ALSSEA   B     *-*
                         2805
                         2806 ********************************************************************
                         2807 *
                         2808 *        ALSGET -
                         2809 *
                         2810 ********************************************************************
                         2811
  1DDA 34 08 1E27        2812 ALSGET   ST    ALSGEA+3,ARR
  1DDE 34 01 1E23        2813          ST    ALSGE9+3,XR1
                         2814 *
  1DE2 C2 01 2BD2        2815          LA    ALSBIN,XR1
  1DE6 C2 02 2C12        2816          LA    ALSDIN,XR2
  1DEA 3C 00 1DF6        2817          MVI   ALSGE3,0
  1DEE 3C 00 1E00        2818          MVI   ALSGE5,0
                         2819 *
  1DF2 C0 87 27F2        2820 ALSGE2   B     SALSB
                   1DF6  2821 ALSGE3   EQU   *
  1DF6 00          1DF6  2822          DC    AL1(*-*)
                         2823 *
  1DF7 4C 00 00 2B62     2824          MVC   0(1,XR1),IOPIN
                         2825 *
  1DFC C0 87 2801        2826          B     SALSD
                   1E00  2827 ALSGE5   EQU   *
  1E00 00          1E00  2828          DC    AL1(*-*)
                         2829 *
  1E01 8C 00 00 2B62     2830          MVC   0(1,XR2),IOPIN
                         2831 *
  1E06 0E 00 1DF6 2B36   2832          ALC   ALSGE3(1),I1
  1E0C 0E 00 1E00 2B36   2833          ALC   ALSGE5(1),I1
  1E12 D2 01 01          2834          LA    1(,XR1),XR1
  1E15 E2 02 01          2835          LA    1(,XR2),XR2
  1E18 3D 1F 1DF6        2836          CLI   ALSGE3,31           DONE ?
  1E1C C0 01 1DF2        2837          BNE   ALSGE2
                         2838 *
  1E20 C2 01 0000        2839 ALSGE9   LA    *-*,XR1
  1E24 C0 87 0000        2840 ALSGEA   B     *-*
                         2841
  1E28 27          1E28  2842 RTN27    DC    XL1'27'             ROUTINE 27 NOT USED
  1E29 00          1E29  2843          DC    XL1'00'
  1E2A 1E30        1E2B  2844          DC    AL2(RTN28)          NEXT ROUTINE ADDRESS
  1E2C C0 87 0216        2845          B     LINK
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         2847 ********************************************************************
                         2848 *                                                                  *
                         2849 *        BU INSTRUCTIONS - EXECUTE BU INSTRUCTIONS ON ALL LEVELS   *
                         2850 *                                                                  *
                         2851 *              ERRORS: 4280 - MIAR NOT AS EXPECTED                 *
                         2852 *                      4281 - SIAR NOT AS EXPECTED                 *
                         2853 ********************************************************************
                         2854
  1E30 28          1E30  2855 RTN28    DC    XL1'28'             ROUTINE 28
  1E31 00          1E31  2856          DC    XL1'00'
  1E32 1E87        1E33  2857          DC    AL2(RTN29)          NEXT ROUTINE ADDRESS
                         2858 *
  1E34 C0 87 2329        2859          B     BEGIN
                         2860 *
  1E38 C0 87 2871        2861          B     LCSI
  1E3C 0000        1E3D  2862          DC    XL2'0000'
  1E3E 100081      1E40  2863          DC    XL3'100081'         BU   0001
  1E41 100082      1E43  2864          DC    XL3'100082'         BU   0002
  1E44 000083      1E46  2865          DC    XL3'000083'         BU   0003
  1E47 100084      1E49  2866          DC    XL3'100084'         BU   0004
  1E4A 000085      1E4C  2867          DC    XL3'000085'         BU   0005
  1E4D 000086      1E4F  2868          DC    XL3'000086'         BU   0006
  1E50 100087      1E52  2869          DC    XL3'100087'         BU   0007
  1E53 100088      1E55  2870          DC    XL3'100088'         BU   0008
  1E56 000089      1E58  2871          DC    XL3'000089'         BU   0009
  1E59 100009FF    1E5C  2872          DC    XL4'100009FF'       B    0009, HANG
                         2873 *
                         2874 *** START TEST 1 ***
                         2875 *
  1E5D C0 87 240A        2876          B     BGNTST
                         2877 *
  1E61 C0 87 1D92        2878          B     ALSSET              SETUP INDEXES FOR TIME SLICING
                         2879 *
  1E65 C0 87 2837        2880          B     LNBI                SET ALL MODE BUFFERS = 00
  1E69 8084888C9094989C  1E71 2881          DC    XL9'8084888C9094989CFF'
  1E71 FF                2881
                         2882 *
  1E72 3C 01 2866        2883          MVI   INDEX,X'01'         INITIAL INDEX
  1E76 C0 87 29CF        2884          B     IOPGO               RUN IOP
                         2885 *
  1E7A C0 87 1DDA        2886          B     ALSGET              READ ALS
                         2887 *
  1E7E C2 01 2C12        2888          LA    ALSDIN,XR1          POINT TO ALS DATA
  1E82 7B 80 00          2889 BR105    SBF   0(,XR1),X'80'       TURN OFF 'MODE SW' BIT
  1E85 7D 09 00          2890          CLI   0(,XR1),X'09'       MIAR AS EXPECTED ?
  1E88 F2 01 22          2891          JNE   BR110               BR IF NO
                         2892 *
  1E8B 7B 80 01          2893          SBF   1(,XR1),X'80'       TURN OFF 'MODE SW' BIT
  1E8E 7D 09 01          2894          CLI   1(,XR1),X'09'       SIAR AS EXPECTED ?
  1E91 F2 01 1E          2895          JNE   BR112               BR IF NO
                         2896 *
  1E94 D2 01 04          2897          LA    4(,XR1),XR1         BUMP TO NEXT LEVEL MIAR
  1E97 34 01 1732        2898          ST    BRMIAR,XR1          SAVE POINTER
  1E9B 0D 01 1732 2B48   2899          CLC   BRMIAR(2),ALSINX    DONE ?
  1EA1 C0 01 1E82        2900          BNE   BR105               BR IF NO
                         2901 *
  1EA5 C0 87 242C        2902          B     NORMN
  1EA9 C0 87 0216        2903          B     LINK
                         2904 *
                         2905 *     GET HERE IF SOME 'MIAR' NOT AS EXPECTED
                         2906 *
  1EAD C0 87 246A        2907 BR110    B     ERRPRT
  1EB1 00          1EB1  2908          DC    XL1'00'                 ERROR 4280
                         2909 *     GET HERE IF SOME 'SIAR' NOT AS EXPECTED
  1EB2 C0 87 246A        2910 BR112    B     ERRPRT
  1EB6 10          1EB6  2911          DC    XL1'10'
                         2912
  1EB7 29          1EB7  2913 RTN29    DC    XL1'29'             ROUTINE 29 NOT USED
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

    1EB8 00              1EB8 2914          DC    XL1'00'
    1EB9 1EBF            1EBA 2915          DC    AL2(RTN2A)          NEXT ROUTINE ADDRESS
    1EBB C0 87 0216           2916          B     LINK
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              2918 ********************************************************************************
                              2919 *                                                                              *
                              2920 *        LBI TEST - EXECUTE LBI INSTRUCTIONS ON ALL LEVELS ( TIME              *
                              2921 *                   SLICING )                                                  *
                              2922 *                                                                              *
                              2923 *              ERRORS: 42A0 - ONE OR MORE INSTRUCTIONS FAILED                  *
                              2924 *                      42A1 - ALL LBI INSTRUCTIONS FAILED                      *
                              2925 *                                                                              *
                              2926 ********************************************************************************
                              2927
    1EBF 2A              1EBF 2928 RTN2A    DC    XL1'2A'             ROUTINE 2A
    1EC0 00              1EC0 2929          DC    XL1'00'
    1EC1 1F89            1EC2 2930          DC    AL2(RTN2B)          NEXT ROUTINE ADDRESS
                              2931 *
    1EC3 C0 87 2329           2932          B     BEGIN
                              2933 *
    1EC7 C0 87 2871           2934          B     LCSI
    1ECB 0000            1ECC 2935          DC    XL2'0000'
    1ECD 1880FF          1ECF 2936          DC    XL3'1880FF'         LBI   0(ZONE 0),X'FF'
    1ED0 0890FF          1ED2 2937          DC    XL3'0890FF'         LBI   0(ZONE 1),X'FF'
    1ED3 000002FF        1ED6 2938          DC    XL4'000002FF'       B     0002, HANG
                              2939 *
                              294C *
                              2941                                     SETUP ZLS LOCAL ZONES 0 & 1 =
    1ED7 3C 08 2C32           2941          MVI   ZLS,X'08'      08 TO LOAD DLS 00(ZONE 0) & 20(ZONE 1)
    1EDB 3C 19 2C33           2942          MVI   ZLS+1,X'19'    19          04          24
    1EDF 3C 2A 2C34           2943          MVI   ZLS+2,X'2A'    2A          24          28
    1EE3 3C 3B 2C35           2944          MVI   ZLS+3,X'3B'    3B          0C          2C
    1EE7 3C 4C 2C36           2945          MVI   ZLS+4,X'4C'    4C          10          30
    1EEB 3C 5D 2C37           2946          MVI   ZLS+5,X'5D'    5D          14          34
    1EEF 3C 6E 2C38           2947          MVI   ZLS+6,X'6E'    6E          18          38
    1EF3 3C 00 286D           2948          MVI   ZLSAR,0
    1EF7 3C 08 2863           2949          MVI   LENGTH,8
    1EFB C0 87 26D2           2950          B     LZLS                LOAD ZLS
                              2951 *
    1EFF C0 87 2837           2952          B     LMBI                LOAD ALL MODE BUFFERS = TO 00
    1F03 8084888C9094989C 1F0B 2953          DC    XL9'8084888C9094989C'
    1F0B FF                   2953                FF'
                              2954 *
                              2955 *** START TEST 1 ***
                              2956 *
    1F0C C0 87 240A           2957          B     BGNTST
                              2958 *
    1F10 C0 87 1D92           2959          B     ALSSET              SETUP TIME SLICE INDEXES
                              2960 *
    1F14 C0 87 17EE           2961          B     DLSLOD              SETUP ALL LOCAL REGS = OWN ADDRESS
                              2962 *
    1F18 3C 00 128A           2963          MVI   CSSW,0              CLEAR 'FAILURE COUNTER'
    1F1C 3C 01 2866           2964          MVI   INDEX,X'01'         INITIAL INDEX
    1F20 C0 87 29CF           2965          B     IOPGO               RUN IOP
                              2966 *
    1F24 3C 40 2863           2967          MVI   LENGTH,64           SETUP TO GET ALL DLS
    1F28 0C 01 286F 2846      2968          MVC   DLSAR(2),ZERO
    1F2E C0 87 267E           2969          B     SDLS
                              2970 *
    1F32 C2 01 2CB2           2971          LA    DLSIN,XR1           POINT TO DLS INPUT AREA
    1F36 7D FF 00        LBI105 2972          CLI   0(,XR1),X'FF'       DLS AS EXPECTED ?
    1F39 F2 01 07             2973          JNE   LBI106              BR IF NO
                              2974 *
    1F3C 3A 02 128A           2975          SBN   CSSW,X'02'          ELSE SET 'LBI OK' SW
    1F40 F2 87 04             2976          J     LBI107
                              2977 *
    1F43 3A 01 128A      LBI106 2978          SBN   CSSW,1              SET 'LBI ERROR' SW
                              2979 *
    1F47 D2 01 04        LBI107 2980          LA    4(,XR1),XR1         BUMP POINTER
    1F4A 34 01 1732           2981          ST    BRMIAR,XR1          SAVE
    1F4E 0D 01 1732 2851      2982          CLC   BRMIAR(2),DLSINY    DONE ?
    1F54 C0 81 1F69           2983          BE    LBI109              BR IF YES
                              2984 *
```

C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   1F58 0D 01 1732 2B4F       2985          CLC   BRMIAR(2),DLSINX
   1F5E C0 01 1F36            2986          BNE   LBI105
   1F62 D2 01 04              2987          LA    4(,XR1),XR1
   1F65 C0 87 1F36            2988          B     LBI105
                              2989 *
   1F69 38 01 128A            2990 LBI109   TBN   CSSW,X'01'        ANY ERRORS ?
   1F6D F2 90 11              2991          JF    LBI115           BR IF NO
                              2992 *
   1F70 38 02 128A            2993          TBN   CSSW,X'02'        ANY SUCCESFUL ?
   1F74 F2 90 05              2994          JF    LBI110           BR IF NO
                              2995 *
   1F77 C0 87 246A            2996          B     ERRPRT
   1F7B 00                1F7B 2997          DC    XL1'00'          ERROR 42A0
                              2998 *
   1F7C C0 87 246A            2999 LBI110   B     ERRPRT
   1F80 10                1F80 3000          DC    XL1'10'          ERROR 42A1
                              3001 *
   1F81 C0 87 242C            3002 LBI115   B     NORMN
   1F85 C0 87 0216            3003          B     LINK
                              3004
   1F89 2B                1F89 3005 RTN2B   DC    XL1'2B'          ROUTINE 2B NOT USED
   1F8A 00                1F8A 3006          DC    XL1'00'
   1F8B 1F91              1F8C 3007          DC    AL2(RTN2C)       NEXT ROUTINE ADDRESS
   1F8D C0 87 0216            3008          B     LINK
```


C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                           3010 ********************************************************************************
                           3011 *                                                                              *
                           3012 *        ALU IMMEDIATE OPS - EXECUTE ALU OPS 'ANDI', 'ORI', 'EORI'             *
                           3013 *                            AND 'ADDI' THEN TEST BRANCH ABILITY.              *
                           3014 *                                                                              *
                           3015 *              ERRORS: 42C0 - BR ON CONDITION FOLLOWING ANDI FAILED            *
                           3016 *                      42C1 - BR ON CONDITION FOLLOWING ORI FAILED             *
                           3017 *                      42C2 - BR ON CONDITION FOLLOWING EORI FAILED            *
                           3018 *                      42C3 - BR ON CARRY FOLLOWING ADDI FAILED                *
                           3019 *                      42C4 - BZN FOLLOWING ADDI FAILED                        *
                           3020 *                      42C5 - BCN FOLLOWING ADDI FAILED                        *
                           3021 *                      42C6 - BNC OR BC FOLLOWING ADDI FAILED                  *
                           3022 *                      42CA - PROGRAM FAILED                                   *
                           3023 *                      42CB - 'TEST' TORI ALTERED LOCAL REGISTER               *
                           3024 *                      42CC - 'TEST' TEORI ALTERED LOCAL REGISTER              *
                           3025 *                      42CD - 'TEST' TADDI ALTERED LOCAL REGISTER              *
                           3026 *                                                                              *
                           3027 ********************************************************************************
                           3028
   1F91 2C                 1F91 3029 RTN2C   DC    XL1'2C'          ROUTINE 2C
   1F92 00                 1F92 3030         DC    XL1'00'
   1F93 209C               1F94 3031         DC    AL2(RTN2D)       NEXT ROUTINE ADDRESS
                           3032 *
   1F95 C0 87 2329             3033          B     BEGIN
                           3034 *
   1F99 C0 87 2871             3035          B     LCSI             THE FOLLOWING STRING WILL BE LOADED
                           3036 *                                   INTO CS TO TEST IMMEDIATE ALU OPS
   1F9D 0000               1F9E 3037         DC    XL2'0000'
   1F9F 188000             1FA1 3038         DC    XL3'188000'      LBI  0,0
                           3039 *            TEST 'ANDI' FOLLOWED BY BNZ & BZ TEST
   1FA2 08C0FF             1FA4 3040         DC    XL3'08C0FF'      ANDI 0,FF
   1FA5 110020             1FA7 3041         DC    XL3'110020'      BNZ  ERROR 0
   1FA8 190005             1FAA 3042         DC    XL3'190005'      BZ   0005
   1FAB 000020             1FAD 3043         DC    XL3'000020'      B    ERROR 0
                           3044 *            TEST 'ORI' FOLLOWED BY BNZ & BZ TEST
   1FAE 19C0FF             1FB0 3045         DC    XL3'19C0FF'      ORI  0,FF
   1FB1 190021             1FB3 3046         DC    XL3'190021'      BZ   ERROR 1
   1FB4 010009             1FB6 3047         DC    XL3'010009'      BNZ  0009
   1FB7 100021             1FB9 3048         DC    XL3'100021'      B    ERROR 1
                           3049 *            TEST 'EORI' FOLLOWED BY BNZ & BZ TEST
   1FBA 1AC0FF             1FBC 3050         DC    XL3'1AC0FF'      EORI 0,FF
   1FBD 010022             1FBF 3051         DC    XL3'010022'      BNZ  ERROR 2
   1FC0 09000D             1FC2 3052         DC    XL3'09000D'      BZ   000D
   1FC3 100022             1FC5 3053         DC    XL3'100022'      B    ERROR 2
                           3054 *            TEST 'ADDI' FOLLOWED BY BCN, BC, BZN & BNC TEST
   1FC6 0BC0FF             1FC8 3055         DC    XL3'0BC0FF'      ADDI 0,FF
   1FC9 030023             1FCB 3056         DC    XL3'030023'      BCN  ERROR 3
   1FCC 120023             1FCE 3057         DC    XL3'120023'      BC   ERROR 3
   1FCF 0B0012             1FD1 3058         DC    XL3'0B0012'      BZN  0012
   1FD2 100024             1FD4 3059         DC    XL3'100024'      B    ERROR 4
   1FD5 0BC0FF             1FD7 3060         DC    XL3'0BC0FF'      ADDI 0,FF
   1FD8 030015             1FDA 3061         DC    XL3'030015'      BCN  0015
   1FDB 000025             1FDD 3062         DC    XL3'000025'      B    ERROR 5
   1FDE 0A0026             1FE0 3063         DC    XL3'0A0026'      BNC  ERROR 6
   1FE1 020018             1FE3 3064         DC    XL3'020018'      BC   0018
   1FE4 000026             1FE6 3065         DC    XL3'000026'      B    ERROR 6
                           3066 *            INSURE THAT 'TEST' INSTRUCTIONS DON'T ALTER LOCAL REGS
   1FE7 188000             1FE9 3067         DC    XL3'188000'      LBI  0,0
   1FEA 088100             1FEC 3068         DC    XL3'088100'      LBI  1,0
   1FED 088200             1FEF 3069         DC    XL3'088200'      LBI  2,0
   1FF0 01C0FF             1FF2 3070         DC    XL3'01C0FF'      TORI 0,FF
   1FF3 12C1FF             1FF5 3071         DC    XL3'12C1FF'      TEORI 1,FF
   1FF6 03C2FF             1FF8 3072         DC    XL3'03C2FF'      TADDI 2,FF
   1FF9 080000             1FFB 3073         DC    XL3'080000'      NO-OP
   1FFC 00001F             1FFE 3074         DC    XL3'00001F'      B    001F, HANG  (NORMAL END)
   1FFF 000020             2001 3075         DC    XL3'000020'      ERROR HANG 0
   2002 100021             2004 3076         DC    XL3'100021'      ERROR HANG 1
   2005 100022             2007 3077         DC    XL3'100022'      ERROR HANG 2
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   2008 000023           200A 3078          DC    XL3'000023'      ERROR HANG 3
   2008 100024           200D 3079          DC    XL3'100024'      ERROR HANG 4
   200E 000025           2010 3080          DC    XL3'000025'      ERROR HANG 5
   2011 000026           2013 3081          DC    XL3'000026'      ERROR HANG 6
   2014 FF               2014 3082          DC    XL1'FF'
                             3083 *
                             3084 *** START TEST 1 ***
                             3085 *
   2015 C0 87 240A           3086          B     BGNTST
                             3087 *
   2019 C0 87 276D           3088          B     LALSD            INITIAL MIAR = 0000
   201D 00               201D 3089          DC    AL1(0)
   201E 00               201E 3090          DC    XL1'00'
                             3091 *
   201F C0 87 29CF           3092          B     IOPGO
                             3093 *
   2023 C0 87 2801           3094          B     SALSD            HALT IOP, GET MIAR D
   2027 00               2027 3095          DC    AL1(0)
                             3096 *
   2028 3D 26 2862           3097          CLI   IOPIN,X'26'      DID PGM RUN TO COMPLETION ?
   202C F2 84 59             3098          JH    IMM10            BR IF NO
                             3099 *
   202F 3D 1F 2862           3100          CLI   IOPIN,X'1F'
   2033 F2 82 52             3101          JL    IMM10            BR IF NO
   2036 F2 01 2B             3102          JNE   IMM05            BR IF 'ERROR' END
                             3103 *
   2039 3C 03 2863           3104          MVI   LENGTH,3         SETUP TO READ LOCAL
   203D DC 01 2B6F 2B46      3105          MVC   DLSAR(2),ZERO      REGISTERS 0,1 & 2
   2043 C0 87 267E           3106          B     SDLS             READ 'EM
                             3107 *
   2047 3D 00 2CB2           3108          CLI   DLSIN,0          WAS DLS 00 ALTERED BY 'TEST' INST. ?
   204B F2 01 3F             3109          JNE   IMM11            BR IF YES
                             3110 *
   204E 3D 00 2CB3           3111          CLI   DLSIN+1,0        WAS DLS 01 ALTERED BY 'TEST' INST. ?
   2052 F2 01 3D             3112          JNE   IMM12            BR IF YES
                             3113 *
   2055 3D 00 2CB4           3114          CLI   DLSIN+2,0        WAS DLS 02 ALTERED BY 'TEST' INST. ?
   2059 F2 01 3B             3115          JNE   IMM13            BR IF YES
                             3116 *
   205C C0 87 242C           3117          B     NORMN
   2060 C0 87 0216           3118          B     LINK
                             3119 *
   2064 DC 00 2087 2B62      3120 IMM05    MVC   IMM08(1),IOPIN   SETUP ERROR #
   206A C2 01 0000           3121          LA    0,XR1            SETUP SHIFT COUNT
   206E DE 00 2087 2087      3122 IMM06    ALC   IMM08(1),IMM08   SHIFT ERROR STOP
   2074 D2 01 01             3123          LA    1(,XR1),XR1      BUMP COUNT
   2077 34 01 1732           3124          ST    BRMIAR,XR1       SAVE
   207B 3D 04 1732           3125          CLI   BRMIAR,4         END OF SHIFT ?
   207F C0 01 206E           3126          BNE   IMM06            BR IF NO
                             3127 *
   2083 C0 87 246A           3128          B     ERRPRT
   2087 00               2087 3129 IMM08    DC    XL1'00'          ERROR 42C0 - 42C6
                             3130 *
   2088 C0 87 246A           3131 IMM10    B     ERRPRT
   208C A0               208C 3132          DC    XL1'A0'          ERROR 42CA
                             3133 *
   208D C0 87 246A           3134 IMM11    B     ERRPRT
   2091 B0               2091 3135          DC    XL1'B0'          ERROR 42CB
                             3136 *
   2092 C0 87 246A           3137 IMM12    B     ERRPRT
   2096 C0               2096 3138          DC    XL1'C0'          ERROR 42CC
                             3139 *
   2097 C0 87 246A           3140 IMM13    B     ERRPRT
   209B D0               209B 3141          DC    XL1'D0'          ERROR 42CD
                             3142
   209C 2D               209C 3143 RTN2D    DC    XL1'2D'           ROUTINE 2D NOT USED
   209D 00               209D 3144          DC    XL1'00'
   209E 20A4             209F 3145          DC    AL2(RTN2E)        NEXT ROUTINE ADDRESS
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   20A0 C0 87 0216           3146          B     LINK
```

C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         3148 ********************************************************************************
                         3149 *                                                                              *
                         3150 *        SINC/LINC TEST - EXECUTE 'SINC', 'SDEC' AND 'LINC'                    *
                         3151 *                         INSTRUCTIONS                                         *
                         3152 *        ERRORS: 42E0 - PROGRAM DIDN'T COMPLETE                                *
                         3153 *                42E1 - LINC FAILED                                            *
                         3154 *                42E2 - SINC OR SDEC FAILED                                    *
                         3155 *                42E3 - LINC 'MULTI' MODE FAILED                               *
                         3156 *                                                                              *
                         3157 ********************************************************************************
                         3158
  20A4 2E                20A4 3159 RTN2E    DC    XL1'2E'            ROUTINE 2E
  20A5 00                20A5 3160          DC    XL1'00'
  20A6 21C0              20A7 3161          DC    AL2(RTN2F)         NEXT ROUTINE ADDRESS
                         3162 *
  20A8 C0 87 2329              3163         B     BEGIN
                         3164 *
  20AC C0 87 2871              3165         B     LCSI               THE FOLLOWING DATA WILL BE LOADED
                         3166 *                                      INTO CS TO TEST THE ABOVE OPS
  20B0 0000              20B1 3167          DC    XL2'0000'
  20B2 088007            20B4 3168          DC    XL3'088007'  LBI  0,07
  20B5 188108            20B7 3169          DC    XL3'188108'  LBI  1,08
  20B8 0882FF            20BA 3170          DC    XL3'0882FF'  LBI  2,FF
  20BB 114081            20BD 3171          DC    XL3'114081'  SINC 1,0,1
  20BE 194182            20C0 3172          DC    XL3'194182'  SDEC 2,1,1
  20C1 0040C0            20C3 3173          DC    XL3'0040C0'  LINC 0,0,0
  20C4 100006            20C6 3174          DC    XL3'100006'  B    0006, HANG
  20C7 FF                20C7 3175          DC    XL1'FF'
                         3176 *
                         3177 *** START TEST 1 ***
                         3178 *
  20C8 C0 87 240A              3179         B     BGNTST
                         3180 *
  20CC C0 87 276D              3181         B     LALSD              INITIAL MIAR = 0000
  20D0 00                20D0 3182          DC    AL1(0)
  20D1 00                20D1 3183          DC    XL1'00'
                         3184 *
  20D2 C0 87 29CF              3185         B     IOPGO              RUN IOP
                         3186 *
  20D6 C0 87 2801              3187         B     SALSD              GET END MIAR
  20DA 00                20DA 3188          DC    AL1(0)
                         3189 *
  20DB 3D 06 2B62              3190         CLI   IOPIN,X'06'        AS EXPECTED ?
  20DF F2 81 05                3191         JE    SINC05             BR IF YES
                         3192 *
  20E2 C0 87 246A              3193         B     ERRPRT             ERROR 42E0
  20E6 00                20E6 3194          DC    XL1'00'
                         3195 *
                         3196 SINC05  MVI   LENGTH,3               SETUP TO RETRIEVE DLS 0 - 2
  20E7 3C 03 2B63              3197         MVC   DLSAR(2),ZERO
  20EB 0C 01 2B6F 2B46         3198         B     SDLS
  20F1 C0 87 267E              3199 *
  20F5 3D FF 2CB2              3200         CLI   DLSIN,X'FF'        DLS 00 AS EXPECTED ?
  20F9 F2 01 0E                3201         JNE   SINC09             BR IF NO
                         3202 *
  20FC 3D 01 2CB3              3203         CLI   DLSIN+1,X'01'      DLS 01 AS EXPECTED ?
  2100 F2 01 07                3204         JNE   SINC09             BR IF NO
                         3205 *
  2103 3D FF 2CB4              3206         CLI   DLSIN+2,X'FF'      DLS 02 AS EXPECTED ?
  2107 F2 81 05                3207         JE    SINC15             BR IF YES
                         3208 *
                         3209 SINC09  B     ERRPRT             ERROR 42E1
  210E                   210E 3210          DC    XL1'10'
                         3211 *
  210F 3C 07 2B71              3212 SINC15  MVI   CSAR,X'07'         CSAR = 0007
  2113 C0 87 28D1              3213 SINC16  B     LCSAR
                         3214 *
  2117 C0 87 2A08              3215         B     SVP
```


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```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

  211B A882              211C 3216          DC    XL2'A882'          SERVICE MODE
  211D 0E8E              211E 3217          DC    XL2'0E8E'          SERVICE ACCESS
  211F 006A              2120 3218          DC    XL2'006A'          GET 'CR'
  2121 2CF4              2122 3219          DC    AL2(CR)
                         3220 *
  2123 3D 08 2B71              3221         CLI   CSAR,X'08'         CS LOC '08' TESTED YET ?
  2127 F2 81 11                3222         JE    SINC19             BR IF YES
                         3223 *
  212A 3D 08 2CF4              3224         CLI   CR,X'08'           LOC 0007 AS EXPECTED ?
  212E F2 01 12                3225         JNE   SINC20             BR IF NO
                         3226 *
  2131 0E 00 2B71 2B36         3227         ALC   CSAR(1),I1         ELSE BUMP CSAR TO '0008'
  2137 C0 87 2113              3228         B     SINC16
                         3229 *
  213B 3D FF 2CF4              3230 SINC19  CLI   CR,X'FF'           LOC 0008 AS EXPECTED ?
  213F C0 81 242C              3231         BE    NORMN              BR IF YES
                         3232 *
  2143 C0 87 246A              3233 SINC20  B     ERRPRT
  2147 20                2147 3234          DC    XL1'20'            ERROR 42E2
                         3235 *
                         3236 *    EXECUTE 'LINC' INSTRUCTION IN MULTI-BYTE MODE
                         3237 *
                         3238         B     LCSI               LOAD DATA INTO CONTROL STORAGE
  2148 C0 87 2871        2148 3239          DC    XL2'0000'
  214C 0000              214D 3240          DC    XL3'088007'  LBI  0,07
  214E 088007            2150 3241          DC    XL3'1240C6'  LINC 6,0,2
  2151 1240C6            2153 3242          DC    XL3'000002'  BR   0002, HANG
  2154 000002            2156 3243          DC    XL1'FF'
  2157 FF                3244 *
                         3245         B     LCSI               LOAD DATA INTO CONTROL STORAGE
  2158 C0 87 2871        2158 3246          DC    XL2'0007'
  215C 0007              215A 3247          DC    XL3'100300'  DATA = 03
  215E 100300            2160 3248          DC    XL3'100500'  DATA = 05
  2161 100500            2163 3249          DC    XL1'FF'
  2164 FF                3250 *
                         3251         MVI   DLS+7,X'FF'        INITIALIZE DLS 07 = FF
  2165 3C FF 2C79              3252 *
                         3253         B     LALSB              DSADDR = 8XXX (MULTI MODE)
  2169 C0 87 2737        216D 3254          DC    AL1(2)
  216D 02                216E 3255          DC    XL1'80'
  216E 80                3256 *
                         3257 *** START TEST 2 ***
                         3258 *
  216F C0 87 240A              3259         B     BGNTST
                         3260 *
  2173 3C 07 2B6F              3261         MVI   DLSAR,7            DLS 07 = FF
  2177 C0 87 262C              3262         B     LDLS
                         3263 *
  217B C0 87 276D              3264         B     LALSD              DSADDR = 8000
  217F 02                217F 3265          DC    AL1(2)
  2180 00                2180 3266          DC    XL1'00'
                         3267 *
  2181 C0 87 276D              3268         B     LALSD              INITIAL MIAR = 0000
  2185 00                2185 3269          DC    AL1(0)
  2186 00                2186 3270          DC    XL1'00'
                         3271 *
  2187 C0 87 29CF              3272         B     IOPGO              RUN IOP
                         3273 *
  218B C0 87 2801              3274         B     SALSD              GET END MIAR
  218F 00                218F 3275          DC    AL1(0)
                         3276 *
  2190 3D 02 2B62              3277         CLI   IOPIN,X'02'        AS EXPECTED ?
  2194 F2 81 05                3278         JE    SINC30             BR IF YES
                         3279 *
  2197 C0 87 246A              3280         B     ERRPRT             ERROR 42E0
  219B 00                2198 3281          DC    XL1'00'
                         3282 *
  219C 3C 02 2B63              3283 SINC30  MVI   LENGTH,2           GET DLS 6 & 7
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          3284          MVI   DLSAR,6
                          3285          B     SDLS
                          3286 *
21A8 3D 03 2C88           3287          CLI   DLSIN+6,3       DLS 06 = 03 ?
21AC F2 01 08             3288          JNE   SINC35          BR IF NO
                          3289 *
21AF 3D 05 2C89           3290          CLI   DLSIN+7,5       DLS 07 = 05 ?
21B3 C0 81 242C           3291          BE    NORMN           BR IF YES
                          3292 *
21B7 C0 87 246A           3293 SINC35   B     ERRPRT
21BB 30                   3294          DC    XL1'30'         ERROR 42E3
                          3295 *
21BC C0 87 0216           3296          B     LINK
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          3298 ********************************************************************************
                          3299 *                                                                              *
                          3300 *       TBON/TBOF TEST - SET EACH BIT OF DLS 00 AND PERFORM TBON               *
                          3301 *                        OR TBOF AS REQUIRED (EXECUTE ON ALL LEVELS)           *
                          3302 *                                                                              *
                          3303 *             ERRORS: 42F0 - TBOF FAILED                                       *
                          3304 *                     42F1 - TBON FAILED                                       *
                          3305 *                                                                              *
                          3306 ********************************************************************************
                          3307
21C0 2F                   21C0 3308 RTN2F   DC    XL1'2F'             ROUTINE 2F
21C1 00                   21C1 3309         DC    XL1'00'
21C2 22E1                 21C3 3310         DC    AL2(ENDRTN)         NEXT ROUTINE ADDRESS
                          3311 *
21C4 C0 87 2329           3312              B     BEGIN
                          3313 *
                          3314 *            TEST 'TBOF'
                          3315 *
                          3316              B     LCSI                LOAD DATA INTO CONTROL STORAGE
21C8 C0 87 2871           21CD 3317         DC    XL2'0000'
21CC 0000                 3318 *            TEST BIT 0 OFF
21CE 08807F               21D0 3319         DC    XL3'08807F'   LBI   00,7F   TURN OFF BIT 0
21D1 184003               21D3 3320         DC    XL3'184003'   TBOF  0,00,03 BR IF BIT 0 OFF
21D4 10000B               21D6 3321         DC    XL3'10000B'   ELSE BR TO ERROR LOC
                          3322 *            TEST BIT 1 OFF
21D7 0880BF0940061000 21DF 3323             DC    XL9'0880BF094006100018'
21DF 18                   3323
                          3324 *
                          3325 *            TEST BIT 2 OFF
21E0 0880DF0A40091000 21E8 3326             DC    XL9'0880DF0A4009100018'
21E8 18                   3326
                          3327 *
                          3328 *            TEST BIT 3 ( ALL BITS ) OFF
21E9 18800018400C1000 21F1 3329             DC    XL9'18800018400C100018'
21F1 18                   3329
                          3330 *
                          3331 *            TEST BIT 4 OFF
21F2 0880F70C400F1000 21FA 3332             DC    XL9'0880F70C400F100018'
21FA 18                   3332
                          3333 *
                          3334 *            TEST BIT 5 OFF
21FB 0880FB1D40121000 2203 3335             DC    XL9'0880FB1D4012100018'
2203 18                   3335
                          3336 *
                          3337 *            TEST BIT 6 OFF
2204 0880FD0E40151000 220C 3338             DC    XL9'0880FD0E4015100018'
220C 18                   3338
                          3339 *
                          3340 *            TEST BIT 7 OFF
220D 0880FE0F40181000 2215 3341             DC    XL9'0880FE0F4018100018'
2215 18                   3341
                          3342 *
2216 1880FF               2218 3343         DC    XL3'1880FF'   LBI   00,FF
2219 184018               2218 3344         DC    XL3'184018'   TBOF  0,00,18  SHOULD NOT BR
221C 00001A               221E 3345         DC    XL3'00001A'   B     001A      OK, HANG
221F 10001B               2221 3346         DC    XL3'10001B'   B     001B      ERROR HANG
2222 FF                   2222 3347         DC    XL1'FF'
                          3348 *
2223 C0 87 2837           3349              B     LMBI
2227 889CFF               2229 3350         DC    XL3'889CFF'         REST OF MODE BUFFERS = 00
                          3351 *
                          3352 *** START TEST 1 ***
                          3353 *
222A C0 87 240A           3354              B     BGNTST
                          3355 *
222E C0 87 1D92           3356              B     ALSSET              SETUP ALS FOR TIME SLICING
2232 3C 01 2B66           3357              MVI   INDEX,X'01'         INITIAL INDEX = 03
                          3358 *
```

C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   2236 C0 87 29CF            3359          B     IOPGO              RUN IOP
                              3360 *
   223A C0 87 1DDA            3361          B     ALSGET             GET ALS
                              3362 *
   223E C2 01 2C12            3363          LA    ALSDIN,XR1         POINT TO ALSD READ
   2242 7D 1A 00              3364 TBON05   CLI   0(,XR1),X'1A'       MIARS AS EXPECTED ?
   2245 F2 01 15              3365          JNE   TBON10             BR IF NO
                              3366 *
   2248 D2 01 04              3367          LA    4(,XR1),XR1        ELSE BUMP POINTER
   224B 34 01 1732            3368          ST    BRMIAR,XR1         SAVE
   224F 0D 01 1732 2B4B       3369          CLC   BRMIAR(2),ALSINX   DONE ?
   2255 C0 01 2242            3370          BNE   TBON05             BR IF NO
                              3371 *
   2259 C0 87 242C            3372          B     NORMN
                              3373 *
   225D C0 87 246A            3374 TBON10   B     ERRPRT
   2261 00          2261      3375          DC    XL1'00'            ERROR 42F0
                              3376 *
                              3377 *        NOW TEST 'TBON'
                              3378 *
   2262 C0 87 2871            3379          B     LCSI               LOAD DATA INTO CONTROL STORAGE
   2266 0000        2267      3380          DC    XL2'0000'
                              3381 *        TEST BIT 0 ON
   2268 088080      226A      3382          DC    XL3'088080'  LBI  00,80   TURN ON  BIT 0
   226B 004003      226D      3383          DC    XL3'004003'  TBON 0,00,03 BR IF BIT 0 ON
   226E 100008      2270      3384          DC    XL3'100008'  ELSE BR TO ERROR LOC
                              3385 *        TEST BIT 1 ON
   2271 0880401140061000 2279 3386          DC    XL9'0880401140061000 1B'
   2279 1B                    3386
                              3387 *
                              3388 *        TEST BIT 2 ON
   227A 0880201240091000 2282 3389          DC    XL9'0880201240091000 1B'
   2282 1B                    3389
                              3390 *
                              3391 *        TEST BIT 3 ( ANY BIT ) ON
   2283 0880100340 0C1000 228B 3392         DC    XL9'0880100340 0C1000 1B'
   228B 1B                    3392
                              3393 *
                              3394 *        TEST BIT 4 ON
   228C 0880081440 0F1000 2294 3395         DC    XL9'0880081440 0F1000 1B'
   2294 1B                    3395
                              3396 *
                              3397 *        TEST BIT 5 ON
   2295 0880040540121000 229D 3398          DC    XL9'0880040540121000 1B'
   229D 1B                    3398
                              3399 *
                              3400 *        TEST BIT 6 ON
   229E 0880021640151000 22A6 3401          DC    XL9'0880021640151000 1B'
   22A6 1B                    3401
                              3402 *
                              3403 *        TEST BIT 7 ON
   22A7 0880011740181000 22AF 3404          DC    XL9'0880011740181000 1B'
   22AF 1B                    3404
                              3405 *
   22B0 188000      22B2      3406          DC    XL3'188000'  LBI  00,00
   22B3 00401B      22B5      3407          DC    XL3'00401B'  TBON 0,00,1B  SHOULD NOT BR
   22B6 00001A      22B8      3408          DC    XL3'00001A'  B    001A     OK, HANG
   22B9 10001B      22BB      3409          DC    XL3'10001B'  B    001B     ERROR HANG
   22BC FF          22BC      3410          DC    XL1'FF'
                              3411 *
                              3412 *** START TEST 2 ***
                              3413 *
   22BD C0 87 24CA            3414          B     BGNTST
                              3415 *
   22C1 C0 87 276D            3416          B     LALSD
   22C5 00          22C5      3417          DC    AL1(MIARO)
   22C6 00          22C6      3418          DC    XL1'00'
                              3419 *
```


C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
   22C7 C0 87 29CF            3420          B     IOPGO              RUN IOP
                              3421 *
   22CB C0 87 2801            3422          B     SALSD              GET LAST MIAR
   22CF 00          22CF      3423          DC    AL1(MIARO)
                              3424 *
   22D0 3D 1A 2B62            3425          CLI   IOPIN,X'1A'        TBON  OK ?
   22D4 C0 81 242C            3426          BE    NORMN              BR IF YES
                              3427 *
   22D8 C0 87 246A            3428          B     ERRPRT
   22DC 10          22DC      3429          DC    XL1'10'            ERROR 42F1
   22DD C0 87 0216            3430          B     LINK
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              3432 ********************************************************************************
                              3433 *                                                                              *
                              3434 *        ENDRTN - LAST ROUTINE - RESTORES MICROCODE IF 3340 IPL                *
                              3435 *                                                                              *
                              3436 ********************************************************************************
                              3437
   22E1 30                22E1 3438 ENDRTN  DC    XL1'30'            ROUTINE NUMBER
   22E2 00                22E2 3439         DC    XL1'00'
   22E3 FFFF              22E4 3440 FFFF    DC    XL2'FFFF'          LAST ROUTINE
                              3441 *
   22E5 0D 00 0232 0A00       3442         CLC   UTAB(1),PID-1      RELOAD 3340 MICROCODE
   22EB C0 81 6C02            3443         BE    LDR+2                IF 3340 IS IPL DEVICE
                              3444 *
   22EF C0 87 0216            3445         B     LINK               TERMINATE SECTION
                              3446 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              3448 ********************************************************************************
                              3449 *                                                                              *
                              3450 *  'BEGIN'          COMMON ROUTINE INITIALIZATION                              *
                              3451 *                                                                              *
                              3452 *            COME HERE AT THE START OF EVERY ROUTINE TO SETUP THE               *
                              3453 *            MICROPROCESSOR.                                                   *
                              3454 *                                                                              *
                              3455 ********************************************************************************
                              3456 *         ENTER HERE FROM 'IOP' TESTS
   22F3 34 08 2409            3457 BGNIOP   ST    BEGINX+3,ARR       SAVE RETURN ADDRESS
                              3458 *
   22F7 38 10 2B52            3459         TBN   IND,LPSW           BRANCH IF NOT
   22FB F2 90 0A              3460         JF    BGNIO                SECTION RESTART
                              3461 *
   22FE C0 87 021A            3462         B     PRINT              PRINT MESSAGE
   2302 46                2302 3463         DC    XL1'46'              'SECTION RE-STARTED'
   2303 12                2303 3464         DC    AL1(MSG06N-MSG06+1)
   2304 2B35              2305 3465         DC    AL2(MSG06N)
   2306 C100              2307 3466         DC    AL2(HLT00)
                              3467 *
   2308 38 01 0A19            3468 BGNIO    TBN   COM,AMOPSW         BRANCH IF AMOP WAS
   230C C0 10 2588            3469         BT    AMOPLK               ABNORMALLY TERMINATED
                              3470 *
   2310 0D 00 0232 0A00       3471         CLC   UTAB(1),PID-1      BRANCH IF 3340
   2316 C0 81 253D            3472         BE    MPL                  IS IPL DEVICE
                              3473 *
   231A 0C FF 2CF8 2CF9       3474         MVC   CLR-1(256),CLR     CLEAR ALL RESERVED STG AREAS
   2320 0C FF 2C51 2C52       3475         MVC   IND+255(256),IND+256
                              3476 *
   2326 F2 87 D5              3477         J     BEGIN1
                              3478
                              3479 *         ENTER HERE FROM 'ATTACHMENT' TESTS
   2329 34 08 2409            3480 BEGIN    ST    BEGINX+3,ARR       SAVE RETURN ADDRESS
                              3481 *
   232D 38 10 2B52            3482         TBN   IND,LPSW           BRANCH IF NOT
   2331 F2 90 0A              3483         JF    BEGINO               SECTION RESTART
                              3484 *
   2334 C0 87 021A            3485         B     PRINT              PRINT MESSAGE
   2338 46                2338 3486         DC    XL1'46'              'SECTION RE-STARTED'
   2339 12                2339 3487         DC    AL1(MSG06N-MSG06+1)
   233A 2B35              233B 3488         DC    AL2(MSG06N)
   233C C100              233D 3489         DC    AL2(HLT00)
                              3490 *
   233E 38 01 0A19            3491 BEGINO   TBN   COM,AMOPSW         BRANCH IF AMOP WAS
   2342 C0 10 2588            3492         BT    AMOPLK               ABNORMALLY TERMINATED
                              3493 *
   2346 0D 00 0232 0A00       3494         CLC   UTAB(1),PID-1      BRANCH IF 3340
   234C C0 81 253D            3495         BE    MPL                  IS IPL DEVICE
                              3496 *
   2350 0C FF 2CF8 2CF9       3497         MVC   CLR-1(256),CLR     CLEAR ALL RESERVED STG AREAS
   2356 0C FF 2C51 2C52       3498         MVC   IND+255(256),IND+256
                              3499 *
   235C 3C 80 2B7F            3500         MVI   FTR+EXT,X'80'      MICROPROGRAM RESET
   2360 3C 0D 2B69            3501         MVI   EXTAR,FTR          RESET EXTERNAL REGS
   2364 C0 87 25F8            3502         B     LEXT
   2368 3C 00 2B7F            3503         MVI   FTR+EXT,0          DROP 'RESET' BIT
   236C C0 87 25F8            3504         B     LEXT
   2370 3C 0F 2B69            3505         MVI   EXTAR,SCN
   2374 C0 87 25F8            3506         B     LEXT
   2378 3C 03 2B69            3507         MVI   EXTAR,DST          RESET EXTERNAL REGS
   237C C0 87 25F8            3508         B     LEXT
   2380 3C 13 2B69            3509         MVI   EXTAR,DXC
   2384 C0 87 25F8            3510         B     LEXT
   2388 3C 05 2B69            3511         MVI   EXTAR,FTG          RESET EXTERNAL REGS
   238C C0 87 25F8            3512         B     LEXT
   2390 3C 80 2B79            3513         MVI   FHF+EXT,X'80'      TURN OFF 'SYSTEM RESET'
   2394 3C 07 2B69            3514         MVI   EXTAR,FHF
   2398 C0 87 25F8            3515         B     LEXT
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          3516          B     CLKRST              RESET IOP CLOCK AND INITIALIZE INDEX
                          3517 *
                          3518          B     LMBI                SET ALL MODE BUFFER POSITIONS
                     23A4 3519          DC    XL1'80'  PTR 000    PROG 0 TO '00'
                     23A5 3520          DC    XL1'84'      001    PROG 1 TO '00'
                     23A6 3521          DC    XL1'8A'      010    PROG 2 TO '10' (FILE PROG)
                     23A7 3522          DC    XL1'8C'      011    SET REST OF THE MODE
                     23A8 3523          DC    XL1'90'      100       BUFFER TO ZEROS.
                     23A9 3524          DC    XL1'94'      101
                     23AA 3525          DC    XL1'98'      110    PROG 7 TO '10' (CHAN PROG)
                     23AB 3526          DC    XL1'9E'      111    PROG 7 TO '10' (CHAN PROG)
                     23AC 3527          DC    XL1'9E'      111
                     23AD 3528          DC    XL1'FF'  TERMINATOR
                          3529 *
                          3530 *         INITIALIZE ALS (BLOCK)
                          3531          B     LALSB1              INITIALIZE ALS (B) TO ALL 0'S
                          3532 *         INITIALIZE ALS (DISPLACEMENT)
  23AE C0 87 2720         3533          MVI   ALSD+09,X'14'       MAIN ROUTINE INDEX
  23B2 3C 14 2BFB         3534          MVI   ALSD+11,X'F4'       CHNL PROGRAM INDEX
  23B6 3C F4 2BFD         3535          MVI   ALSD+13,X'54'       FILE PROGRAM INDEXES
  23BA 3C 54 2BFF         3536          MVI   ALSD+15,X'54'
  23BE 3C 54 2C01         3537          B     LALSD1
  23C2 C0 87 2756         3538 *
                          3539          MVI   ZLSAR,0             INITIALIZE ZONE
  23C6 3C 00 286D         3540          MVI   LENGTH,32             LOCAL STORAGE (ZLS)
  23CA 3C 20 2863         3541          B     LZLS
  23CE C0 87 26D2         3542 *
                          3543          MVI   LENGTH,64           INITIALIZE DATA
  23D2 3C 40 2863         3544          B     LDLS                  LOCAL STORAGE (DLS)
  23D6 C0 87 262C         3545 *
                          3546          B     LXOPI               RUN IOP ONE CYCLE
  23DA C0 87 2933         3547          DC    XL4'080000FF'
  23DE 080000FF      23E1 3548 *
                          3549          B     LCSI                INITIALIZE CONTROL STORAGE
  23E2 C0 87 2871         3550          DC    XL2'0000'             CONTROL STORAGE ADDRESS
  23E6 0000          23E7 3551          DC    XL3'03A100'             M
  23E8 03A100        23EA 3552          DC    XL3'040000'              I     P
  23EB 040000        23ED 3553          DC    XL3'040000'               C     R
  23EE 040000        23F0 3554          DC    XL3'040000'                R     O
  23F1 040000        23F3 3555          DC    XL3'040000'                 O     G
  23F4 040000        23F6 3556          DC    XL3'040000'                       R
  23F7 040000        23F9 3557          DC    XL3'040000'                        A
  23FA 040000        23FC 3558          DC    XL1'FF'                             M
  23FD FF            23FD 3559 *
                          3560 BEGIN1   MVI   LPCNT,X'0A'          INITIALIZE LOOP COUNTER
  23FE 3C 0A 2CF6         3561 *
                          3562          B     TEST                CHECK FOR USER INTERVENTION
  2402 C0 87 0212         3563 *
                          3564 BEGINX   B     *-*
  2406 C0 87 0000         3565 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          3567 *********************************************************************
                          3568 *                                                                   *
                          3569 *   'BGNTST'          BEGIN TEST LOOP                             *
                          3570 *                                                                   *
                          3571 *              COME HERE AT THE START OF EVERY TEST TO SETUP 'TEST   *
                          3572 *              LOOP' ADDRESS                                        *
                          3573 *                                                                   *
                          3574 *********************************************************************
                          3575
  240A 34 08 2426         3576 BGNTST   ST    LOOPX+3,ARR         SAVE RETURN ADDRESS
                          3577 *
  240E 3A 80 2B52         3578          SBN   IND,TSTSW           SET TEST STARTED INDICATOR
  2412 F3 C4 7E           3579          SIO   X'7E',X'C4'         RESET/DISABLE 3340 INTERRUPTS
                          3580 *
  2415 30 00 2B54         3581          SNS   SWS,0       * AMOP *  SENSE DATA SWS
  2419 3D 81 2B53         3582          CLI   LINKID,X'81' * LINK *   AND GO TO AMOP IF
  241D C0 81 2588         3583          BE    AMOPLK      * '81' *    SWS 1 & 2 CONTAIN '81'
                          3584 *
                          3585 *        ENTER HERE IF 'LOOPING' A TEST
  2421 F3 C4 80           3586 LOOP     SIO   X'80',X'C4'         ENABLE 3340 INTERRUPTS
  2424 3C 01 2B63         3587          MVI   LENGTH,1            INITIALIZE 'LENGTH' DEFAULT
                          3588 *
  2428 C0 87 0000         3589 LOOPX    B     *-*                 RETURN TO START OF TEST
                          3590 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         3592 ************************************************************************
                         3593 *                                                                      *
                         3594 *   'NORMN'          NORMAL END OF TEST                               *
                         3595 *                                                                      *
                         3596 *              COME HERE AT END OF A TEST TO LOOP TEST OR CONTINUE      *
                         3597 *              ROUTINE. EITHER THIS SUBROUTINE OR 'ERRPRT' MUST BE      *
                         3598 *              CALLED TO EFFECT TEST EXIT.                             *
                         3599 *                                                                      *
                         3600 ************************************************************************
                         3601
  242C 34 08 2469        3602 NORMN    ST    NORMX+3,ARR          SAVE RETURN ADDRESS
                         3603 *
  2430 38 80 2B52        3604 NORM01   TBN   IND,TSTSW            RETURN IF NO
  2434 F2 90 2F          3605         JF    NORMX                  TEST IS IN PROGRESS
                         3606 *
  2437 38 10 2B52        3607         TBN   IND,LPSW             LOOP TEST IF
  243B C0 10 2421        3608         BT    LOOP                   LOOP INDICATOR IS ON
                         3609 *
  243F 3A 40 2B52        3610         SBN   IND,NORMSW           SET NORMAL END INDICATOR
  2443 3C 53 250A        3611         MVI   HLTID,HLT53          SETUP HALT CODE 53
                         3612 *
  2447 0F 00 2CF6 2B36   3613         SLC   LPCNT(1),I1          LOOP TEST UNTIL LOOP
  244D C0 01 2421        3614         BNZ   LOOP                   COUNT IS EXHAUSTED
                         3615 *
  2451 38 20 2B52        3616         TBN   IND,ERRSW            GO TO PRINT ERROR MESSAGE
  2455 F2 10 A9          3617         JT    ERRP                   IF ANY ERROR WAS DETECTED
                         3618 *
  2458 3B FF 2B52        3619         SBF   IND,X'FF'            RESET ALL PROGRAM INDICATORS
  245C 3C 0A 2CF6        3620         MVI   LPCNT,X'0A'          SETUP LOOP COUNT FOR NEXT TEST
                         3621 *
  2460 F3 C4 02          3622         SIO   X'02',X'C4'          RESET 'ENABLE INTERRUPTS'
  2463 F3 C4 7C          3623         SIO   X'7C',X'C4'          RESET PENDING INTERRUPTS
                         3624 *
  2466 C0 87 0000        3625 NORMX    B     *-*                  RETURN TO TEST ROUTINE
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         3627 ************************************************************************
                         3628 *                                                                      *
                         3629 *       'ERRPRT' BUILD AND PRINT ERROR MESSAGE                         *
                         3630 *                                                                      *
                         3631 *              HALT '51' IF ALL 10 TRIES FAILED(SET 'ERRSW' IF         *
                         3632 *                        FIRST TRY FAILS)                              *
                         3633 *              HALT '52' IF ANY PREVIOUS TRY(S) SUCCESFUL              *
                         3634 *              HALT '53' IF FIRST TRY = ERROR BUT ALL RETRIES          *
                         3635 *                        SUCCESFUL                                     *
                         3636 *                                                                      *
                         3637 ************************************************************************
                         3638
  246A 34 08 2498        3639 ERRPRT   ST    ERRP01,ARR           SAVE PARAMETER STRING ADDR
  246E 34 01 24DB        3640         ST    ERRPX1+3,XR1         SAVE INDEX REGISTER 1
                         3641 *
  2472 38 10 2B52        3642 ERRP00   TBN   IND,LPSW             LOOP TEST IF
  2476 C0 10 2421        3643         BT    LOOP                   LOOP INDICATOR IS ON
                         3644 *
  247A 0C 1C 2AB5 2AB6   3645         MVC   MSGN(MSGN-MSG),MSGN+1  CLEAR ERROR MSG AREA
                         3646 *
  2480 C0 87 021E        3647         B     UNPACK                 MOVE LAST
  2484 01                3648         DC    IL1'1'                   DIGIT OF
  2485 0A01              3649         DC    AL2(PID)                   PROGRAM ID
  2487 2A99              3650         DC    AL2(MSG+1)                   TO ERROR MSG
                         3651 *
  2489 C0 87 021E        3652         B     UNPACK                 MOVE
  248D 01                3653         DC    IL1'1'                   ROUTINE
  248E 0A03              3654         DC    AL2(RTN)                   NUMBER TO
  2490 2A9A              3655         DC    AL2(MSG+2)                   ERROR MESSAGE
                         3656 *
  2492 C0 87 021E        3657         B     UNPACK                 CONVERT
  2496 01                3658         DC    IL1'1'                   ERROR NUMBER
  2497                   3659 ERRP01   DS    AL2                      AND PARAMETER
  2499 2B58              3660         DC    AL2(WORK2)                 COUNT TO EBCDIC
                         3661 *
  249B 0C 00 2A9B 2B57   3662         MVC   MSG+3(1),WORK2-1       MOVE ERR CODE TO ERR MSG
                         3663 *
  24A1 C2 01 2A9E        3664         LA    MSG+6,XR1              SETUP POINTER TO VARIABLE
  24A5 34 01 24C6        3665         ST    ERRP04,XR1               DATA AREA IN ERROR MESSAGE
                         3666 *
  24A9 35 01 2498        3667         L     ERRP01,XR1             SET POINTER TO PARAMETER LIST
                         3668 *
  24AD 07 00 2B58 2B3D   3669 ERRP02   SZ    WORK2(1),D1(1)         DECREMENT VAR DATA BYTE CNT
  24B3 F2 82 1B          3670         JM    ERRP05                 BRANCH IF END OF VAR DATA
                         3671 *
  24B6 D2 01 02          3672         LA    2(,XR1),XR1            ADVANCE PARAMETER POINTER
  24B9 1C 01 24C4 00     3673         MVC   ERRP03(2),0(,XR1)      GET VARIABLE DATA ADDRESS
                         3674 *
  24BE C0 87 021E        3675         B     UNPACK                 MOVE ONE BYTE
  24C2 01                3676         DC    IL1'1'                   OF VARIABLE DATA
  24C3                   3677 ERRP03   DS    AL2                        TO ERROR MESSAGE
  24C5                   3678 ERRP04   DS    AL2
                         3679 *
  24C7 0E 01 24C6 2B3A   3680         ALC   ERRP04(2),I3           ADVANCE ERROR MSG POINTER
  24CD C0 87 24AD        3681         B     ERRP02                 GO TO GET NEXT ERR MSG BYTE
                         3682 *
  24D1 D2 01 01          3683 ERRP05   LA    1(,XR1),XR1            SETUP RETURN
  24D4 34 01 24E3        3684         ST    ERRPX+3,XR1              ADDRESS
                         3685 *
  24D8 C2 01 0000        3686 ERRPX1   LA    *-*,XR1                RESTORE INDEX REG 1
                         3687 *
  24DC 38 80 2B52        3688         TBN   IND,TSTSW              RETURN IF NO
  24E0 C0 90 0000        3689 ERRPX    BF    *-*                      TEST IS IN PROGRESS
                         3690 *
  24E4 3C 52 250A        3691         MVI   HLTID,HLT52            SETUP HALT CODE 52
                         3692 *
  24E8 38 40 2B52        3693         TBN   IND,NORMSW             BRANCH IF SOME TRY HAD
  24EC F2 10 12          3694         JT    ERRP                     BEEN SUCCESFUL
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          3695 *
 24EF 3A 20 2B52          3696          SBN   IND,ERRSW          SET 'ERROR DETECTED' INDICATOR
                          3697 *
 24F3 0F 00 2CF6 2B36     3698          SLC   LPCNT(1),I1        LOOP TEST UNTIL LOOP
 24F9 C0 01 2421          3699          BNZ   LOOP                 COUNT IS EXHAUSTED
                          3700 *
 24FD 3C 51 250A          3701          MVI   HLTID,HLT51        SETUP HALT CODE 51 (ALL TRIES
                          3702 *                                             FAILED)
 2501 C0 87 021A          3703 ERRP     B     PRINT              PRINT
 2505 C1                  2505 3704     DC    XL1'C1'              ERROR
 2506 01                  2506 3705     DC    AL1(1)                 MESSAGE
 2507 2AB6                2508 3706     DC    AL2(MSGN+1)              HEADING
 2509 C100                250A 3707 HLTID  DC    XL2'C100'                LINE
                          3708 *
 2508 C0 87 021A          3709          B     PRINT              PRINT
 250F 81                  250F 3710     DC    XL1'81'              VARIABLE DATA
 2510 1C                  2510 3711     DC    AL1(MSG01N-MSG01+1)    HEADING LINE
 2511 2AD2                2512 3712     DC    AL2(MSG01N)
                          3713 *
 2513 C0 87 021A          3714          B     PRINT              PRINT
 2517 86                  2517 3715     DC    XL1'86'              VARIABLE
 2518 1E                  2518 3716     DC    AL1(MSGN-MSG+1)        DATA LINE
 2519 2AB5                251A 3717     DC    AL2(MSGN)
                          3718 *
 251B 0C 01 2530 250A     3719          MVC   ERRHLT(2),HLTID    SETUP ERROR HALT CODE
                          3720 *
 2521 F3 C4 02            3721          SIO   X'02',X'C4'        RESET 'ENABLE INTERRUPTS'
 2524 F3 C4 7C            3722          SIO   X'7C',X'C4'        RESET PENDING INTERRUPTS
                          3723 *
 2527 3A 10 2B52          3724          SBN   IND,LPSW           LOOP FAILING TEST
                          3725 *
 2528 C0 87 0222          3726          B     HALT               ERROR HALT
 252F                     2530 3727 ERRHLT DS    XL2
                          3728 *
 2531 C0 87 021A          3729          B     PRINT              PRINT
 2535 06                  2535 3730     DC    XL1'06'              'LOOPING
 2536 1A                  2536 3731     DC    AL1(MSG02N-MSG02+1)    FAILING
 2538 2AEC                2538 3732     DC    AL2(MSG02N)              TEST'
                          3733 *
 2539 C0 87 2421          3734          B     LOOP               LOOP UNTIL OPERATOR INTERVENES
                          3735 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          3737 ********************************************************************************
                          3738 *                                                                              *
                          3739 *        LINKAGE TO ATTACHMENT MICROCODE LOADER (SECTION C17)                  *
                          3740 *                                                                              *
                          3741 ********************************************************************************
                          3742
 253D 34 08 2587          3743 MPL      ST    MPLX+3,ARR         SAVE RETURN ADDRESS
 2541 34 01 257F          3744          ST    MPLX1+3,XR1        SAVE INDEX REG 1
 2545 34 02 2583          3745          ST    MPLX2+3,XR2        SAVE INDEX REG 2
                          3746 *
 2549 0D 01 0A1C 2573     3747          CLC   LDRID(2),C17       BRANCH IF LOADER (C17)
 254F C0 01 255D          3748          BNE   LDRLD                HAS NOT YET BEEN LOADED
                          3749 *
 2553 0D 01 6C01 2573     3750          CLC   LDR+1(2),C17       BRANCH IF LOADER IS
 2559 C0 81 2574          3751          BE    LDRGO                STILL IN MAIN STORAGE
                          3752 *
 255D C0 87 021A          3753 LDRLD    B     PRINT              PRINT MESSAGE
 2561 46                  2561 3754     DC    XL1'46'              'LOADING SECTION C17'
 2562 13                  2562 3755     DC    AL1(MSG05N-MSG05+1)
 2563 2B23                2564 3756     DC    AL2(MSG05N)
 2565 C100                2566 3757     DC    AL2(HLT00)
                          3758 *
 2567 0C 18 0A39 0A18     3759          MVC   SVPFC(25),COM-1    SAVE SECTION PREFACE
                          3760 *
 256D C0 87 022A          3761          B     LOAD               LOAD SECTION C17
 2571 04                  2571 3762     DC    XL1'04'
 2572 0C17                2573 3763 C17 DC    XL2'0C17'
                          3764 *
 2574 3A 10 0A19          3765 LDRGO    SBN   COM,FAOFLG         GO TO LOADER TO
 2578 C0 87 6C02          3766          B     LDR+2                LOAD SECTION FA0
                          3767 *
 257C C2 01 0000          3768 MPLX1    LA    *-*,XR1            RESTORE
 2580 C2 02 0000          3769 MPLX2    LA    *-*,XR2              INDEX REGS
                          3770 *
 2584 C0 87 0000          3771 MPLX     B     *-*                RETURN TO CALLING ROUTINE
                          3772 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          3774 ************************************************************************
                          3775 *                                                                      *
                          3776 *       'AMOPLK' GET HERE TO LOAD AND EXECUTE AMOP (C19) IF REQUIRED   *
                          3777 *                                                                      *
                          3778 ************************************************************************
                          3779
  2588 34 08 25E7         3780 AMOPLK   ST    AMOPX+3,ARR          SAVE RETURN POINTER
                          3781 *
  258C 38 01 020D         3782          TBN   S&YTE5,SSW2F         RETURN TO CALLING ROUTINE IF
  2590 F2 90 51           3783          JF    AMOPX                  SSW '2F' NOT ON
                          3784 *
  2593 34 01 25E3         3785          ST    AMOPS1+3,XR1         SAVE INDEX REG 1
  2597 34 02 25DF         3786          ST    AMOPS2+3,XR2         SAVE INDEX REG 2
                          3787 *
  259B 0C 18 0A39 0A18    3788          MVC   SVPFC(25),COM-1      SAVE SECTION PREFACE
                          3789 *
  25A1 0D 01 0A1E 25CD    3790          CLC   AMOPID(2),C19        GO TO LOAD SECTION C19
  25A7 F2 01 09           3791          JNE   AMOPLD                 IF NOT ALREADY IN CORE
                          3792 *
  25AA 0D 01 4001 25CD    3793          CLC   AMOP+1(2),C19        GO TO EXECUTE C19
  25B0 F2 81 25           3794          JE    AMOPGO                 IF ALREADY IN CORE
                          3795 *
  25B3 0D 00 0232 0A00    3796 AMOPLD   CLC   UTAB(1),PID-1        RETURN TO CALLING ROUTINE
  25B9 C0 81 25DC         3797          BE    AMOPS2                 IF 3340 IS IPL DEVICE
                          3798 *
  25BD C0 87 021A         3799          B      PRINT               PRINT -
  25C1 46           25C1  3800          DC     XL1'46'               'LOADING SECTION C19'
  25C2 13           25C2  3801          DC     AL1(MSG03N-MSG03+1)
  25C3 2AFF         25C4  3802          DC    AL2(MSG03N)
  25C5 C100         25C6  3803          DC    AL2(HLT00)
                          3804 *
  25C7 C0 87 022A         3805          B     LOAD                 LOAD SECTION C19
  25CB 04           25CB  3806          DC    XL1'04'
  25CC 0C19         25CD  3807 C19       DC    XL2'0C19'
                          3808 *
  25CE C0 87 021A         3809          B     PRINT                PRINT -
  25D2 46           25D2  3810          DC    XL1'46'                'SECTION C19 READY'
  25D3 11           25D3  3811          DC    AL1(MSG04N-MSG04+1)
  25D4 2810         25D5  3812          DC    AL2(MSG04N)
  25D6 C100         25D7  3813          DC    AL2(HLT00)
                          3814 *
  25D8 C0 87 4002         3815 AMOPGO   B     AMOP+2               EXECUTE AMOP
                          3816 *
  25DC C2 02 0000         3817 AMOPS2   LA    *-*,XR2              RELOAD XR2
  25E0 C2 01 0000         3818 AMOPS1   LA    *-*,XR1              RELOAD XR1
  25E4 C0 87 0000         3819 AMOPX    B     *-*                  RETURN
                          3820 *
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          3822 ************************************************************************
                          3823 *                                                                      *
                          3824 *          SVP INTERFACE CONTROL SUBROUTINES                           *
                          3825 *                                                                      *
                          3826 ************************************************************************
                          3827 *              LOAD FHF REGISTER
                          3828 *
  25E8 34 08 25F7         3829 LFHF     ST    LFHFX+3,ARR          SAVE RETURN ADDRESS
                          3830 *
  25EC 3C 07 2B69         3831          MVI   EXTAR,FHF            SETUP EXTERNAL REG ADDRESS
                          3832 *
  25F0 C0 87 25F8         3833          B     LEXT                 LOAD EXTERNAL REGISTER
                          3834 *
  25F4 C0 87 0000         3835 LFHFX    B     *-*                  RETURN TO CALLING ROUTINE
                          3836 *
                          3837 *--------------------------------------------------------------------
                          3838 *              LOAD ANY EXTERNAL REGISTER
                          3839 *
  25F8 34 08 262B         3840 LEXT     ST    LEXTX+3,ARR          SAVE RETURN ADDRESS
  25FC 34 01 2627         3841          ST    LEXTX1+3,XR1         SAVE INDEX REGISTER 1
                          3842 *
  2600 C0 87 28F5         3843          B     LEXTAR               LOAD EXTERNAL ADDRESS REGS
                          3844 *
  2604 C2 01 2B72         3845          LA    EXT,XR1              LOCATE VALUE TO BE
  2608 36 01 2B69         3846          A     EXTAR,XR1              LOADED INTO EXTERNAL REG
                          3847 *
  260C 34 01 261B         3848          ST    LEXTO1,XR1           MOVE DATA ADDR TO SVP STRING
                          3849 *
  2610 C0 87 2A0B         3850          B     SVP                  EXECUTE SVP CONTROL STRING
  2614 A0C2         2615  3851          DC    XL2'A0C2'            SET K2 - SERVICE MODE
  2616 2CF2         2617  3852          DC    AL2(KREG)
  2618 00CB         2619  3853          DC    XL2'00CB'            EXT REG DATA --> OP REG Y
  261A              261B  3854 LEXTO1   DS    AL2
  261C 028F         261D  3855          DC    XL2'028F'            OP REG Y --> A REG --> DREG
  261E 028D         261F  3856          DC    XL2'028D'            D REG --> EXTERNAL REG
  2620 00E2         2621  3857          DC    XL2'00E2'            RESET SERVICE MODE
  2622 2CF2         2623  3858          DC    AL2(KREG)
                          3859 *
  2624 C2 01 0000         3860 LEXTX1   LA    *-*,XR1              RESTORE INDEX REGISTER 1
  2628 C0 87 0000         3861 LEXTX    B     *-*                  RETURN TO CALLING ROUTINE
                          3862 *
                          3863 *--------------------------------------------------------------------
                          3864 *              LOAD DATA LOCAL STORAGE
                          3865 *
  262C 34 08 267D         3866 LDLS     ST    LDLSX+3,ARR          SAVE RETURN ADDRESS
  2630 34 01 2679         3867          ST    LDLSX1+3,XR1         SAVE INDEX REGISTER 1
                          3868 *
  2634 C0 87 29F7         3869          B     HIOP                 HALT MICROPROCESSOR
                          3870 *
  2638 C2 01 2C72         3871 LDLSO1   LA    DLS,XR1              LOCATE VALUE TO BE
  263C 36 01 2B6F         3872          A     DLSAR,XR1              LOADED INTO DLS
                          3873 *
  2640 34 01 2653         3874          ST    LDLSO2,XR1           MOVE DATA ADDR TO SVP STRING
                          3875 *
  2644 C0 87 2A0B         3876          B     SVP                  EXECUTE SVP CONTROL STRING
  2648 A0C2         2649  3877          DC    XL2'A0C2'            SET K2 - SERVICE MODE AND KO
  264A 2CF2         264B  3878          DC    AL2(KREG)                    CK STOP O'RIDE
  264C 00CA         264D  3879          DC    XL2'00CA'            DLS ADDR --> OP REG CR
  264E 2B6F         264F  3880          DC    AL2(DLSAR)
  2650 00CB         2651  3881          DC    XL2'00CB'            DLS DATA --> OP REG Y
  2652              2653  3882 LDLSO2   DS    AL2
  2654 008C         2655  3883          DC    XL2'008C'            R2-R7 --> DLSAR
  2656 028F         2657  3884          DC    XL2'028F'            OP REG Y --> A REG --> DREG
  2658 018D         2659  3885          DC    XL2'018D'            D REG --> DLS
  265A 00E2         265B  3886          DC    XL2'00E2'            RESET SERVICE MODE
  265C 2CF2         265D  3887          DC    AL2(KREG)
                          3888 *
  265E 3D 01 2B63         3889          CLI   LENGTH,1             EXIT IF ALL NECESSARY
```

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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   2662 C0 04 2676           3890          BNH   LDLSX1                  LOCATIONS HAVE BEEN LOADED
                             3891 *
   2666 0F 00 2B63 2B36      3892          SLC   LENGTH(1),I1            DECREMENT DATA LENGTH BYTE
   266C 0E 00 2B6F 2B36      3893          ALC   DLSAR(1),I1              INCREMENT ADDRESS POINTER
   2672 C0 87 2638           3894          B     LDLS01                  GO TO LOAD NEXT LOCATION
                             3895 *
   2676 C2 01 0000           3896 LDLSX1   LA    *-*,XR1                 RESTORE INDEX REGISTER 1
   267A C0 87 0000           3897 LDLSX    B     *-*                     RETURN TO CALLING ROUTINE
                             3898 *
                             3899 *-------------------------------------------------------------
                             3900 *              SENSE DATA LOCAL STORAGE
                             3901 *
   267E 34 08 26D1           3902 SDLS     ST    SDLSX+3,ARR             SAVE RETURN ADDRESS
   2682 34 01 26CD           3903          ST    SDLSX1+3,XR1            SAVE INDEX REGISTER 1
                             3904 *
   2686 C0 87 29F7           3905          B     HIOP                    HALT MICROPROCESSOR
                             3906 *
   268A C2 01 2CB2           3907 SDLS01   LA    DLSIN,XR1               LOCATE ADDRESS TO BE
   268E 36 01 286F           3908          A     DLSAR,XR1                 LOADED FROM DLS
   2692 34 01 26AD           3909          ST    SDLS02,XR1              MOVE DATA ADDR TO SVP STRING
                             3910 *
   2696 C0 87 2A0B           3911          B     SVP                     EXECUTE SVP CONTROL STRING
   269A A8C2           269B 3912          DC    XL2'A8C2'               SET K2 - SERVICE MODE, K0 - CK
   269C 2CF2           269D 3913          DC    AL2(KREG)               STP O'RIDE & K4 - STOP IOP
   269E 00CA           269F 3914          DC    XL2'00CA'               DLS ADDR --> OP REG CR
   26A0 2B6F           26A1 3915          DC    AL2(DLSAR)
   26A2 008C           26A3 3916          DC    XL2'008C'               R2 - R7 -> DLSAR
   26A4 088F           26A5 3917          DC    XL2'088F'               DLS -> A-REG
   26A6 038F           26A7 3918          DC    XL2'038F'               A-REG -> D-REG
   26A8 0085           26A9 3919          DC    XL2'0085'               D-REG -> X-REG
   26AA 004D           26AB 3920          DC    XL2'004D'               READ X-REG
   26AC 0000           26AD 3921 SDLS02   DC    AL2(*-*)                  INTO DLS AREA
   26AE 00E2           26AF 3922          DC    XL2'00E2'               RESET SERVICE MODE
   26B0 2CF2           26B1 3923          DC    AL2(KREG)
                             3924 *
   26B2 3D 01 2B63           3925          CLI   LENGTH,1                EXIT IF ALL NECESSARY
   26B6 C0 04 26CA           3926          BNH   SDLSX1                    LOCATIONS HAVE BEEN LOADED
                             3927 *
   26BA 0F 00 2B63 2B36      3928          SLC   LENGTH(1),I1            DECREMENT DATA LENGTH BYTE
   26C0 0E 00 2B6F 2B36      3929          ALC   DLSAR(1),I1              INCREMENT ADDRESS POINTER
   26C6 C0 87 268A           3930          B     SDLS01                  GO TO LOAD NEXT LOCATION
                             3931 *
   26CA C2 01 0000           3932 SDLSX1   LA    *-*,XR1                 RESTORE INDEX REGISTER 1
   26CE C0 87 0000           3933 SDLSX    B     *-*                     RETURN TO CALLING ROUTINE
                             3934 *
                             3935 *-------------------------------------------------------------
                             3936 *              LOAD ZONE LOCAL STORAGE
                             3937 *
   26D2 34 08 271F           3938 LZLS     ST    LZLSX+3,ARR             SAVE RETURN ADDRESS
   26D6 34 01 271B           3939          ST    LZLSX1+3,XR1            SAVE INDEX REGISTER 1
                             3940 *
   26DA C2 01 2C32           3941          LA    ZLS,XR1                 LOCATE VALUE TO BE
   26DE 36 01 2B6D           3942          A     ZLSAR,XR1                 LOADED INTO ZLS
   26E2 3A 80 2B6D           3943          SBN   ZLSAR,X'80'             SETUP INSTR. REQUIREMENT
                             3944 *
   26E6 3C 03 2CF3           3945 LZLS01   MVI   C,X'03'                 BUILD
   26EA 0C 00 2CF4 2B6D      3946          MVC   CR,ZLSAR(1)               SZI (STORE ZLS IMMEDIATE)
   26F0 1C 00 2CF5 00        3947          MVC   Y,0(1,XR1)                  INSTRUCTION
                             3948 *
   26F5 C0 87 2965           3949          B     LOP                     LOAD OP REG
   26F9 C0 87 2989           3950          B     XOP                     EXECUTE MICROINSTRUCTION
                             3951 *
   26FD 3D 01 2B63           3952          CLI   LENGTH,1                EXIT IF ALL NECESSARY
   2701 C0 04 2718           3953          BNH   LZLSX1                    LOCATIONS HAVE BEEN LOADED
                             3954 *
   2705 0F 00 2B63 2B36      3955          SLC   LENGTH(1),I1            DECREMENT DATA LENGTH BYTE
   270B 0E 00 2B6D 2B36      3956          ALC   ZLSAR(1),I1              INCREMENT ADDRESS POINTER
   2711 D2 01 01             3957          LA    1(,XR1),XR1             BUMP DATA POINTER
```



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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   2714 C0 87 26E6           3958          B     LZLS01                  GO TO LOAD NEXT LOCATION
                             3959 *
   2718 C2 01 0000           3960 LZLSX1   LA    *-*,XR1                 RESTORE INDEX REGISTER 1
   271C C0 87 0000           3961 LZLSX    B     *-*                     RETURN TO CALLING ROUTINE
                             3962 *
                             3963 *-------------------------------------------------------------
                             3964 *              LOAD ADDRESS LOCAL STORE (ALSB)
                             3965 *
                             3966 *         ENTER HERE TO SETUP ALL 32 ALSB LOCATIONS
   2720 34 08 27F1           3967 LALSB1   ST    LALSX+3,ARR               SAVE RETURN ADDRESS
   2724 34 01 27ED           3968          ST    LALSX1+3,XR1              SAVE INDEX REGISTER 1
                             3969 *
   2728 3C 20 2B63           3970          MVI   LENGTH,32                 SET MAX LENGTH
   272C 3C 80 2B6B           3971          MVI   ALSAR,X'80'               INIT ALS LOCATION 00
   2730 C2 01 2B82           3972          LA    ALSB,XR1                  SET POINTER TO ALSB DATA
   2734 F2 87 52             3973          J     LALS01                    GO TO LOAD ALS
                             3974 *
                             3975 *         ENTER HERE TO SETUP SOME NUMBER OF ALSB LOCATIONS ('LENGTH')
                             3976 *           MUST BE INITIALIZED PRIOR TO ENTRY, DEFAULT IS ONE LOC.
                             3977 *
   2737 34 08 27F1           3978 LALSB    ST    LALSX+3,ARR               SAVE RETURN ADDRESS
   2738 34 01 27ED           3979          ST    LALSX1+3,XR1              SAVE INDEX REG 1
                             3980 *
   273F 3A 04 2B52           3981          SBN   IND,SWA                   SET 'BLOCK' SWITCH
   2743 35 01 27F1           3982          L     LALSX+3,XR1               POINT TO PARMS
   2747 1C 00 2B6B 00        3983 LALS82   MVC   ALSAR,0(1,XR1)            MOVE ALS ADDRESS
   274C 3A 80 2B6B           3984          SBN   ALSAR,X'80'               SETUP SABI INSTRUCTION
   2750 D2 01 01             3985          LA    1(,XR1),XR1               POINT TO ALS DATA
   2753 F2 87 33             3986          J     LALS01                    CONTINUE
                             3987 *
                             3988 *-------------------------------------------------------------
                             3989 *              LOAD ADDRESS LOCAL STORE (ALSD)
                             3990 *
                             3991 *         ENTER HERE TO SETUP ALL 32 ALSD LOCATIONS
   2756 34 08 27F1           3992 LALSD1   ST    LALSX+3,ARR               SAVE RETURN ADDRESS
   275A 34 01 27ED           3993          ST    LALSX1+3,XR1              SAVE INDEX REGISTER 1
                             3994 *
   275E 3C 20 2B63           3995          MVI   LENGTH,32                 SET MAX LENGTH
   2762 3C A0 2B6B           3996          MVI   ALSAR,X'A0'               INITIALIZE ALS LOCATION 00
   2766 C2 01 2BF2           3997          LA    ALSD,XR1                  SET POINTER TO ALSD DATA
   276A F2 87 1C             3998          J     LALS01                    CONTINUE
                             3999 *
                             4000 *         ENTER HERE TO SETUP SOME NUMBER OF ALSD LOCATIONS
                             4001 *
   276D 34 08 27F1           4002 LALSD    ST    LALSX+3,ARR               SAVE RETURN ADDRESS
   2771 34 01 27ED           4003          ST    LALSX1+3,XR1              SAVE INDEX REG 1
                             4004 *
   2775 3A 02 2B52           4005          SBN   IND,SWB                   SET 'DISP'  SWITCH
   2779 35 01 27F1           4006          L     LALSX+3,XR1               POINT TO PARMS
   277D 1C 00 2B6B 00        4007 LALSD2   MVC   ALSAR,0(1,XR1)            MOVE ALS ADDRESS
   2782 3A A0 2B6B           4008          SBN   ALSAR,X'A0'               SETUP SADI INSTRUCTION
   2786 D2 01 01             4009          LA    1(,XR1),XR1               POINT TO ALS DATA
                             4010 *
   2789 3C 02 2CF3           4011 LALS01   MVI   C,X'02'                   COMPLETE THE
   278D 0C 00 2CF4 2B6B      4012          MVC   CR,ALSAR(1)                 SABI / SADI
   2793 1C 00 2CF5 00        4013          MVC   Y,0(1,XR1)                    INSTRUCTION
                             4014 *
   2798 3A 80 2CF2           4015          SBN   KREG,X'80'              'INHIBIT CK STOP' DURING LOAD
   279C C0 87 2965           4016          B     LOP                     LOAD THE OP REG AND
   27A0 C0 87 2989           4017          B     XOP                       EXECUTE THE MICRO-INSTRUCTION
                             4018 *
   27A4 39 06 2B52           4019          TBF   IND,SWA+SWB             ARE WE IN 'ALL' LOCATION MODE?
   27A8 C0 10 2783           4020          BT    LALS02                  BR IF YES
                             4021 *
   27AC D2 01 01             4022          LA    1(,XR1),XR1             ELSE ADVANCE PARM POINTER
   27AF 34 01 27F1           4023          ST    LALSX+3,XR1               TO RETURN ADDRESS
                             4024 *
   2783 3D 01 2B63           4025 LALS02   CLI   LENGTH,1                EXIT IF ALL NECESSARY
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   27B7 C0 04 27DE           4026          BNH   LALSX2                  LOCATIONS HAVE BEEN LOADED
                             4027 *
   27B8 0F 00 2B63 2B36      4028          SLC   LENGTH(1),I1           DECREMENT DATA BYTE COUNT
   27C1 0E 00 2B6B 2B36      4029          ALC   ALSAR(1),I1             ADVANCE ALS ADDRESS
   27C7 D2 01 01             4030          LA    1(,XR1),XR1             ADVANCE DATA POINTER
   27CA 39 06 2B52           4031          TBF   IND,SWA+SWB             ARE WE IN 'ALL' LOCATION MODE
   27CE C0 10 2789           4032          BT    LALS01                    BR IF YES
                             4033 *
   27D2 38 04 2B52           4034          TBN   IND,SWA                 ELSE ARE WE IN 'BLOCK' MODE?
   27D6 C0 10 2747           4035          BT    LALSB2                    BR IF YES
   27DA C0 87 277D           4036          B     LALSD2                  ELSE RETURN TO 'DISP' MODE
                             4037 *
   27DE 38 80 2CF2           4038 LALSX2   SBF   KREG,X'80'              RESET 'INHIBIT CK STOP'
   27E2 3C 01 2B63           4039          MVI   LENGTH,1                RESTORE COUNT = ONE
   27E6 3B 06 2B52           4040          SBF   IND,SWA+SWB             RESET 'BLOCK/DISP' MODE SWS
   27EA C2 01 0000           4041 LALSX1   LA    *-*,XR1                 RESTORE INDEX REGISTER 1
   27EE C0 87 0000           4042 LALSX    B     *-*                     RETURN TO CALLING ROUTINE
                             4043 *
                             4044 *-------------------------------------------------------------
                             4045 *              SENSE ALSB OR ALSD INTO LOCATION 'IOPIN'
                             4046 *
   27F2 34 08 2836           4047 SALSB    ST    SALSX+3,ARR             SAVE RETURN
   27F6 34 01 2832           4048          ST    SALSX1+3,XR1            SAVE INDEX REG 1
                             4049 *
   27FA 3C 0E 282A           4050          MVI   RDALSB,X'0E'            SETUP 'SENSE ALSB'
   27FE F2 87 0C             4051          J     SALS01
                             4052 *
   2801 34 08 2836           4053 SALSD    ST    SALSX+3,ARR
   2805 34 01 2832           4054          ST    SALSX1+3,XR1
                             4055 *
   2809 3C 0A 282A           4056          MVI   RDALSB,X'0A'            SETUP 'SENSE ALSD'
                             4057 *
   280D 35 01 2836           4058 SALS01   L     SALSX+3,XR1             SETUP PARM POINTER
   2811 1C 00 2CF4 00        4059          MVC   CR,0(1,XR1)             MOVE ALS ADDRS INTO STRING
   2816 D2 01 01             4060          LA    1(,XR1),XR1             BUMP RETURN ADDRESS
   2819 34 01 2836           4061          ST    SALSX+3,XR1               AND PUT INTO RETURN
                             4062 *
   281D C0 87 2965           4063          B     LOP                     GO SETUP 'CR' REG
   2821 C0 87 2A0B           4064          B     SVP                     GO SENSE ALSB OR ALSD
   2825 B8C2           2826  4065          DC    XL2'B8C2'               K0, K2, K3 (ALS DISPLAY)
   2827 2CF2           2828  4066          DC    AL2(KREG)
   2829 000E           282A  4067 RDALSB   DC    XL2'000E'               '0E' = ALSB, '0A' = ALSD
   2828 00E2           282C  4068          DC    XL2'00E2'               RESTORE K REG
   282D 2CF2           282E  4069          DC    AL2(KREG)
                             4070 *
   282F C2 01 0000           4071 SALSX1   LA    *-*,XR1                 RESTORE INDEX REG 1
   2833 C0 87 0000           4072 SALSX    B     *-*                     RETURN
                             4073 *-------------------------------------------------------------
                             4074 *              LOAD MODE BUFFER (IMMEDIATE = 00)
                             4075 *
   2837 34 08 2870           4076 LMBI     ST    LMBIX+3,ARR             SAVE RETURN ADDRESS
   283B 34 01 286C           4077          ST    LMBIX1+3,XR1            SAVE INDEX REGISTER 1
                             4078 *
   283F 35 01 2870           4079          L     LMBIX+3,XR1             POINT TO PARAMETER LIST
                             4080 *
   2843 3C 06 2CF3           4081 LMBI01   MVI   C,X'06'                 BUILD
   2847 1C 00 2CF4 00        4082          MVC   CR,0(1,XR1)               SMODE
   284C 3C 80 2CF5           4083          MVI   Y,X'80'                     INSTRUCTION
                             4084 *
   2850 C0 87 2965           4085          B     LOP                     LOAD THE OP REG AND
   2854 C0 87 2989           4086          B     XOP                       EXECUTE THE MICROINSTRUCTION
                             4087 *
   2858 D2 01 01             4088          LA    1(,XR1),XR1             ADVANCE PARAMETER POINTER
   285B 7D FF 00             4089          CLI   0(,XR1),X'FF'           LOOP IF NOT YET END OF
   285E C0 01 2843           4090          BNE   LMBI01                    PARAMETER STRING
                             4091 *
   2862 D2 01 01             4092          LA    1(,XR1),XR1             BUMP TO RETURN ADDRESS
   2865 34 01 2870           4093          ST    LMBIX+3,XR1               AND SETUP BRANCH INST
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                             4094 *
   2869 C2 01 0000           4095 LMBIX1   LA    *-*,XR1                 RESTORE INDEX REGISTER 1
   286D C0 87 0000           4096 LMBIX    B     *-*                     RETURN TO CALLING ROUTINE
                             4097 *
                             4098 *-------------------------------------------------------------
                             4099 *              LOAD CONTROL STORAGE (IMMEDIATE)
                             4100 *
   2871 34 08 28B0           4101 LCSI     ST    LCSIX+3,ARR             SAVE RETURN ADDRESS
   2875 34 01 28AC           4102          ST    LCSIX1+3,XR1            SAVE INDEX REGISTER 1
                             4103 *
   2879 35 01 28B0           4104          L     LCSIX+3,XR1             POINT TO PARAMETER STRING
   287D 1C 01 2B71 01        4105          MVC   CSAR(2),1(,XR1)         SETUP CONTROL STG ADDRESS
   2882 D2 01 01 02          4106          LA    2(,XR1),XR1             ADVANCE POINTER
                             4107 *
   2885 1C 02 2CF5 02        4108 LCSI01   MVC   OPREG(3),2(,XR1)        MOVE MICROWORD TO OP REG AREA
                             4109 *
   288A C0 87 28B1           4110          B     LCS                     LOAD WORD INTO CONTROL STG
                             4111 *
   288E D2 01 03             4112          LA    3(,XR1),XR1             ADVANCE POINTER
   2891 7D FF 00             4113          CLI   0(,XR1),X'FF'           EXIT IF END
   2894 C0 81 28A2           4114          BE    LCSI02                    OF PARAMETER STRING
                             4115 *
   2898 0E 00 2B71 2B36      4116          ALC   CSAR(1),I1              ADVANCE CONTROL STG ADDRESS
   289E C0 87 2885           4117          B     LCSI01                  GO TO LOAD NEXT WORD
                             4118 *
   28A2 D2 01 01             4119 LCSI02   LA    1(,XR1),XR1             SETUP RETURN
   28A5 34 01 28B0           4120          ST    LCSIX+3,XR1               ADDRESS
                             4121 *
   28A9 C2 01 0000           4122 LCSIX1   LA    *-*,XR1                 RESTORE INDEX REGISTER 1
   28AD C0 87 0000           4123 LCSIX    B     *-*                     RETURN TO CALLING ROUTINE
                             4124 *
                             4125 *-------------------------------------------------------------
                             4126 *              LOAD CONTROL STORAGE
                             4127 *
   28B1 34 08 28D0           4128 LCS      ST    LCSX+3,ARR              SAVE RETURN ADDRESS
                             4129 *
   28B5 C0 87 28D1           4130          B     LCSAR                   LOAD CONTROL STG ADDR REG
   28B9 C0 87 2965           4131          B     LOP                     LOAD MICROWORD INTO OP REG
                             4132 *
   28BD C0 87 2A0B           4133          B     SVP                     EXECUTE SVP CONTROL STRING
   28C1 A0C2           28C2  4134          DC    XL2'A0C2'               SET K2 (SERVICE MODE) AND
   28C3 2CF2           28C4  4135          DC    AL2(KREG)                   K0 (CK STOP OVERRIDE)
   28C5 AE8E           28C6  4136          DC    XL2'AE8E'               WRITE CONTROL STORAGE LEFT
   28C7 CE8E           28C8  4137          DC    XL2'CE8E'               WRITE CONTROL STORAGE RIGHT
   28C9 00E2           28CA  4138          DC    XL2'00E2'               RESET K2
   28CB 2CF2           28CC  4139          DC    AL2(KREG)
                             4140 *
   28CD C0 87 0000           4141 LCSX     B     *-*                     RETURN TO CALLING ROUTINE
                             4142 *
                             4143 *-------------------------------------------------------------
                             4144 *              LOAD CONTROL STORE ADDRESS REGISTER (CSAR)
                             4145 *
   28D1 34 08 28F4           4146 LCSAR    ST    LCSARX+3,ARR            SAVE RETURN ADDRESS
                             4147 *
   28D5 C0 87 29F7           4148          B     HIOP                  STOP IOP EXECUTION
                             4149 *
   28D9 C0 87 2A0B           4150          B     SVP                     EXECUTE SVP CONTRCL STRING
   28DD A0C2           28DE  4151          DC    XL2'A0C2'               SET K2 (SERVICE MODE) AND
   28DF 2CF2           28E0  4152          DC    AL2(KREG)                   K0 (CK STOP OVERRIDE)
   28E1 00CA           28E2  4153          DC    XL2'00CA'               CSAR B VALUE --> OP REG CR
   28E3 2B70           28E4  4154          DC    AL2(CSAR-1)
   28E5 00CB           28E6  4155          DC    XL2'00CB'               CSAR D VALUE --> OP REG Y
   28E7 2B71           28E8  4156          DC    AL2(CSAR)
   28E9 028F           28EA  4157          DC    XL2'028F'               OP REG Y --> A REG --> D REG
   28EB 088D           28EC  4158          DC    XL2'088D'               R2-R7 & D REG --> CSAR
   28ED 00E2           28EE  4159          DC    XL2'00E2'               RESET K2
   28EF 2CF2           28F0  4160          DC    AL2(KREG)
                             4161 *
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

   28F1 C0 87 0000            4162 LCSARX   B     *-*                  RETURN TO CALLING ROUTINE
                              4163 *
                              4164 *-------------------------------------------------------------
                              4165 *            LOAD EXTERNAL ADDRESS REGISTERS
                              4166 *
   28F5 34 08 291A            4167 LEXTAR   ST    LXTARX+3,ARR         SAVE RETURN ADDRESS
                              4168 *
   28F9 C0 87 29F7            4169          B     HIOP                 HALT MICROPROCESSOR
                              4170 *
   28FD C0 87 2A0B            4171          B     SVP                  EXECUTE SVP CONTROL STRING
   2901 A0C2            2902 4172          DC    XL2'A0C2'            SET K2 (SERVICE MODE) AND
   2903 2CF2            2904 4173          DC    AL2(KREG)                KO (CK STOP OVERRIDE)
   2905 0088            2906 4174          DC    XL2'0088'            X'00' --> OP REG C
   2907 00CA            2908 4175          DC    XL2'00CA'            EXT ZONE VALUE --> OP REG CR
   2909 2B67            290A 4176          DC    AL2(EXTZN)
   2908 018C            290C 4177          DC    XL2'018C'            R4-R7 --> EXT ZONE REG
   290D 20CA            290E 4178          DC    XL2'20CA'            EXT ADDR VALUE --> OP REG CR
   290F 2869            2910 4179          DC    AL2(EXTAR)
   2911 008C            2912 4180          DC    XL2'008C'            R3-R7 --> EXT ADDR REG (EXTAR)
   2913 00E2            2914 4181          DC    XL2'00E2'            RESET SERVICE MODE
   2915 2CF2            2916 4182          DC    AL2(KREG)
                              4183 *
   2917 C0 87 0000            4184 LXTARX   B     *-*                  RETURN TO CALLING ROUTINE
                              4185 *
                              4186 *-------------------------------------------------------------
                              4187 *            SENSE D-REG
                              4188 *
   291B 34 08 2932            4189 SDREG    ST    SDREGX+3,ARR         SAVE RETURN ADDRESS
                              4190 *
   291F C0 87 29F7            4191          B     HIOP
                              4192 *
   2923 C0 87 2A0B            4193          B     SVP                  EXECUTE SVP CONTROL STRING
   2927 20C2            2928 4194          DC    XL2'20C2'            SET K2 (SERVICE MODE)
   2929 2CF2            292A 4195          DC    AL2(KREG)
   292B 0085            292C 4196          DC    XL2'0085'            D-REG -> X-REG
   292D 002D            292E 4197          DC    XL2'002D'            READ X-REG
                              4198 *
   292F C0 87 0000            4199 SDREGX   B     *-*                  RETURN TO CALLING ROUTINE
                              4200 *
                              4201 *-------------------------------------------------------------
                              4202 *            LOAD OP REG AND EXECUTE MICRO-INSTRUCTION (IMMEDIATE)
                              4203 *
   2933 34 08 2964            4204 LXOPI    ST    LXOPIX+3,ARR         SAVE RETURN ADDRESS
   2937 34 01 2960            4205          ST    LXOPI1+3,XR1         SAVE INDEX REGISTER 1
                              4206 *
   293B 35 01 2964            4207          L     LXOPIX+3,XR1         POINT TO PARAMETER LIST
                              4208 *
   293F 1C 02 2CF5 02         4209 LXOPIA   MVC   OPREG(3),2(,XR1)      MOVE PARAMETER TO OP FIELD
                              4210 *
   2944 C0 87 2965            4211          B     LOP                  LOAD OP REG AND
   2948 C0 87 29C3            4212          B     IOPRUN                 EXECUTE MICROINSTRUCTION
                              4213 *
   294C D2 01 01 03           4214          LA    3(,XR1),XR1          ADVANCE PARAMETER POINTER
                              4215 *
   294F 7D FF 00              4216          CLI   0(,XR1),X'FF'        BRANCH IF MORE MICRO-
   2952 C0 01 293F            4217          BNE   LXOPIA                 INSTRUCTIONS TO BE PROCESSED
                              4218 *
   2956 D2 01 01 01           4219          LA    1(,XR1),XR1          SETUP ADDRESS FOR
   2959 34 01 2964            4220          ST    LXOPIX+3,XR1           RETURN TO CALLING ROUTINE
                              4221 *
   295D C2 01 0000            4222 LXOPI1   LA    *-*,XR1              RESTORE INDEX REGISTER 1
   2961 C0 87 0000            4223 LXOPIX   B     *-*                  RETURN TO CALLING ROUTINE
                              4224 *
                              4225 *-------------------------------------------------------------
                              4226 *            LOAD OP REGISTER
                              4227 *
   2965 34 08 2988            4228 LOP      ST    LOPX+3,ARR           SAVE RETURN ADDRESS
                              4229 *
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   2969 C0 87 29F7            4230          B     HIOP                 HALT MICROPROCESSOR
                              4231 *
   296D C0 87 2A0B            4232          B     SVP                  EXECUTE SVP CONTROL STRING
   2971 A0C2            2972 4233          DC    XL2'A0C2'            SET K2 (SERVICE MODE) AND
   2973 2CF2            2974 4234          DC    AL2(KREG)                KO (CK STOP OVERRIDE)
   2975 00C8            2976 4235          DC    XL2'00C8'            C FIELD --> OP REG C
   2977 2CF3            2978 4236          DC    AL2(C)
   2979 00CA            297A 4237          DC    XL2'00CA'            CR FIELD --> OP REG CR
   297B 2CF4            297C 4238          DC    AL2(CR)
   297D 00CB            297E 4239          DC    XL2'00CB'            Y FIELD --> OP REG Y
   297F 2CF5            2980 4240          DC    AL2(Y)
   2981 00E2            2982 4241          DC    XL2'00E2'            RESET SERVICE MODE
   2983 2CF2            2984 4242          DC    AL2(KREG)
                              4243 *
   2985 C0 87 0000            4244 LOPX     B     *-*                  RETURN TO CALLING ROUTINE
                              4245 *
                              4246 *-------------------------------------------------------------
                              4247 *            EXECUTE MICRO-INSTRUCTION FROM OP REG
                              4248 *
   2989 34 08 2998            4249 XOP      ST    XOPX+3,ARR           SAVE RETURN ADDRESS
                              4250 *
   298D C0 87 2A0B            4251          B     SVP                  EXECUTE SVP CONTROL STRING
   2991 8882            2992 4252          DC    XL2'8882'            KO (CK STOP OVERRIDE) AND
                              4253 *                                     K4 (STOP AFTER ONE CYCLE)
   2993 00AF            2994 4254          DC    XL2'00AF'            START IOP  'PROCESS'  CYCLE
                              4255 *
   2995 C0 87 0000            4256 XOPX     B     *-*                  RETURN TO CALLING ROUTINE
                              4257 *
                              4258 *-------------------------------------------------------------
                              4259 *            RESET IOP CLOCK AND INITIALIZE INDEX REGISTER
                              4260 *
   2999 34 08 29C2            4261 CLKRST   ST    CLKRSX+3,ARR         SAVE RETURN ADDRESS
   299D 3C 14 2B66            4262          MVI   INDEX,X'14'          INITIAL INDEX ( PTR 000 )
                              4263 *
   29A1 C0 87 29F7            4264          B     HIOP                 HALT MICROPROCESSOR
                              4265 *
   29A5 C0 87 2A0B            4266          B     SVP                  EXECUTE SVP CONTROL STRING
   29A9 10C2            29AA 4267          DC    XL2'10C2'            SET K3 (CLOCK RESET)
   29AB 2CF2            29AC 4268          DC    AL2(KREG)
   29AD 00C2            29AE 4269          DC    XL2'00C2'            RESET K3
   29AF 2CF2            29B0 4270          DC    AL2(KREG)
   29B1 A0C2            29B2 4271          DC    XL2'A0C2'            SET K2 (SERVICE MODE) AND
   29B3 2CF2            29B4 4272          DC    AL2(KREG)                KO (CK STOP OVERRIDE)
   29B5 00CB            29B6 4273          DC    XL2'00CB'            INDEX VALUE --> OPREG Y
   29B7 2B66            29B8 4274          DC    AL2(INDEX)
   29B9 028F            29BA 4275          DC    XL2'028F'            OP REG Y --> A REG --> D REG
   29BB 8B8E            29BC 4276          DC    XL2'8B8E'            D REG --> INDEX REG
   29BD 08AE            29BE 4277          DC    XL2'08AE'            SERVICE ACCESS CYCLE
                              4278 *
   29BF C0 87 0000            4279 CLKRSX   B     *-*                  RETURN TO CALLING ROUTINE
                              4280 *
                              4281 *-------------------------------------------------------------
                              4282 *            START MICRO-PROGRAM EXECUTION
                              4283 *
                              4284 *       ENTER 'IOPRUN' TO START IOP ( 1 PROCESS/ACCESS CYCLE ONLY )
                              4285 *         ENTER 'IOPGO' TO SETUP INDEX PRIOR TO 'START/RUN'
                              4286 *
   29C3 34 08 29F6            4287 IOPRUN   ST    IOPGOX+3,ARR         SAVE RETURN ADDRESS
   29C7 3A 08 2CF2            4288          SBN   KREG,X'08'           SET 'HALT' CONTROL BIT
   29CB C0 87 29E9            4289          B     IOPGO2               GO 'START IOP'
                              4290 *
   29CF 34 08 29F6            4291 IOPGO    ST    IOPGOX+3,ARR         SAVE RETURN ADDRESS
                              4292 *
   29D3 C0 87 2A0B            4293          B     SVP                  EXECUTE SVP CONTROL STRING
   29D7 A0C2            29D8 4294          DC    XL2'A0C2'            SET K2 (SERVICE MODE) AND
   29D9 2CF2            29DA 4295          DC    AL2(KREG)                KO (CK STOP OVERRIDE)
   29DB 00CB            29DC 4296          DC    XL2'00CB'            INDEX VALUE --> OPREG Y
   29DD 2B66            29DE 4297          DC    AL2(INDEX)
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    29DF 028F            29E0 4298          DC    XL2'028F'          OP REG Y --> A REG --> D REG
    29E1 8B8E            29E2 4299          DC    XL2'8B8E'          D REG --> INDEX REG
    29E3 08AE            29E4 4300          DC    XL2'08AE'          SERVICE ACCESS CYCLE
                              4301 *
    29E5 3B 08 2CF2           4302          SBF   KREG,X'08'         RESET 'HALT' CONTROL BIT
                              4303 *
    29E9 C0 87 2A08           4304 IOPGO2   B     SVP                EXECUTE SVP CONTROL STRING
    29ED 00C2            29EE 4305          DC    XL2'00C2'          SET K-REG
    29EF 2CF2            29F0 4306          DC    AL2(KREG)
    29F1 00AE            29F2 4307          DC    XL2'00AE'          START IOP  PROCESS/ACCESS CYCLE
                              4308 *
    29F3 C0 87 0000           4309 IOPGOX   B     *-*                RETURN TO CALLING ROUTINE
                              4310 *
                              4311 *------------------------------------------------------------------
                              4312 *                HALT MICROPROCESSOR
                              4313 *
    29F7 34 08 2A0A           4314 HIOP     ST    HIOPX+3,ARR        SAVE RETURN ADDRESS
                              4315 *
    29FB 3A 08 2CF2           4316          SBN   KREG,X'08'         SET HALT BIT IN K REG VALUE
                              4317 *
    29FF C0 87 2A08           4318          B     SVP                EXECUTE SVP CONTROL STRING
    2A03 00E2            2A04 4319          DC    XL2'00E2'          LOAD K REG
    2A05 2CF2            2A06 4320          DC    AL2(KREG)
                              4321 *
    2A07 C0 87 0000           4322 HIOPX    B     *-*                RETURN TO CALLING ROUTINE
                              4323 *
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ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              4325 *------------------------------------------------------------------
                              4326 *              COMMON SVP INTERFACE CONTROL SUBROUTINE
                              4327 *
                              4328 *        CONTROL (BITS 0-3 OF 2ND BYTE, EACH WORD)
                              4329 *                BIT 0 - ON = SVP 'CONTROL' COMMAND
                              4330 *                       OFF = SVP 'SENSE' COMMAND
                              4331 *                BIT 1 - ON = 'EXTENDED' DATA FIELD
                              4332 *                BIT 2 - ON = 'END' OF STRING
                              4333 *
                              4334 *------------------------------------------------------------------
                              4335
    2A08 34 08 2A97           4336 SVP      ST    SVPX+3,ARR              SAVE RETURN ADDRESS
    2A0F 34 01 2A93           4337          ST    SVPX1+3,XR1             SAVE INDEX REGISTER 1
                              4338 *
    2A13 30 00 2B54           4339          SNS   SWS,0        * AMOP *   SENSE DATA SWS
    2A17 3D 82 2B53           4340          CLI   LINKID,X'82' * LINK *     AND GO TO AMOP IF
    2A1B C0 81 2588           4341          BE    AMOPLK       * '82' *       SWS 1 & 2 CONTAIN '82'
                              4342 *
    2A1F 35 01 2A97           4343          L     SVPX+3,XR1              POINT TO SVP STRING
                              4344 *
    2A23 1C 00 2B56 01        4345 SVP01    MVC   WORK1,1(1,XR1)          SAVE SVP ROUTINE CONTROL BITS
                              4346 *
    2A28 1C 01 2B60 01        4347          MVC   IOPOUT(2),1(,XR1)       SETUP SVP LINK
    2A2D 3B F0 2B60           4348          SBF   IOPOUT,X'F0'              CONTROL BYTES
                              4349 *
    2A31 D2 01 02             4350          LA    2(,XR1),XR1             ADVANCE CONTROL STRING POINTER
                              4351 *
    2A34 38 80 2B56           4352          TBN   WORK1,X'80'             BRANCH IF
    2A38 F2 90 20             4353          JF    SVPSNS                    SVP SENSE OPERATION
                              4354 *
    2A3B 38 40 2B56           4355          TBN   WORK1,X'40'             BRANCH IF SVP DATA IS
    2A3F F2 90 12             4356          JF    SVPCTL                    CONTAINED IN CONTROL STRING
                              4357 *
    2A42 1C 01 2A4C 01        4358          MVC   *+10(2),1(,XR1)         SETUP
    2A47 0C 00 2A4E 0000      4359          MVC   *+7(1),*-*                SVP
    2A4D 3A 00 2B5F           4360          SBN   IOPOUT-1,*-*                DATA
                              4361 *
    2A51 D2 01 02             4362          LA    2(,XR1),XR1             ADVANCE CONTROL STRING POINTER
                              4363 *
    2A54 31 C5 2B60           4364 SVPCTL   LIO   IOPOUT,X'C5'            DIAGNOSTIC LIO-1 (SVP CONTROL)
    2A58 F2 87 1D             4365          J     SVP02
                              4366 *
    2A5B 31 C7 2B60           4367 SVPSNS   LIO   IOPOUT,X'C7'            DIAGNOSTIC LIO-2 (SNS SETUP)
    2A5F 30 C7 2B62           4368          SNS   IOPIN,X'C7'             DIAGNOSTIC SENSE
                              4369 *
    2A63 38 40 2B56           4370          TBN   WORK1,X'40'          BRANCH IF NO DATA MOVE REQUIRED
    2A67 F2 90 0E             4371          JF    SVP02
                              4372 *
    2A6A 1C 01 2A72 01        4373          MVC   *+08(2),1(,XR1)      MOVE SENSED DATA FROM
    2A6F 0C 00 0000 2B62      4374          MVC   *-*(1),IOPIN           IOPIN TO ADDRESS IN CONTROL STRG
                              4375 *
    2A75 D2 01 02             4376          LA    2(,XR1),XR1          ADVANCE CONTROL STRING POINTER
                              4377 *
    2A78 38 20 2B56           4378 SVP02    TBN   WORK1,X'20'             BRANCH IF NOT
    2A7C C0 90 2A23           4379          BF    SVP01                     YET END OF CONTROL STRING
                              4380 *
    2A80 34 01 2A97           4381          ST    SVPX+3,XR1              SETUP RETURN ADDRESS
                              4382 *
    2A84 30 00 2B54           4383          SNS   SWS,0        * AMOP *   SENSE DATA SWS
    2A88 3D 83 2B53           4384          CLI   LINKID,X'83' * LINK *     AND GO TO AMOP IF
    2A8C C0 81 2588           4385          BE    AMOPLK       * '83' *       SWS 1 & 2 CONTAIN '83'
                              4386 *
    2A90 C2 01 0000           4387 SVPX1    LA    *-*,XR1                 RESTORE INDEX REG 1
    2A94 C0 87 0000           4388 SVPX     B     *-*                     RETURN TO TEST RTN OR SUBRTN
                              4389 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              4391 ********************************************************************************
                              4392 *                                                                              *
                              4393 *                              PRINT MESSAGES                                  *
                              4394 *                                                                              *
                              4395 ********************************************************************************
                              4396
                         2A98 4397 MSG      EQU   *                          VARIABLE MESSAGE AREA
  2A98                   2AB5 4398 MSGN     DS    CL30
  2AB6 40                2AB6 4399          DC    CL1' '
                              4400 *
                         2AB7 4401 MSG01    EQU   *
  2AB7 C5D9D94040E5F140  2AD2 4402 MSG01N   DC    CL28'ERR  V1 V2 V3 V4 V5 V6 V7 V8'
  2ABF E5F240E5F340E5F4       4402
  2AC7 40E5F540E5F640E5       4402
  2ACF F740E5F8               4402
                              4403 *
                         2AD3 4404 MSG02    EQU   *
  2AD3 4040405C5C5C40E3  2AEC 4405 MSG02N   DC    CL26'   *** TEST IS LOOPING ***'
  2ADB C5E2E340C9E240D3       4405
  2AE3 D6D6D7C9D5C7405C       4405
  2AEB 5C5C                   4405
                              4406 *
                         2AED 4407 MSG03    EQU   *
  2AED D3D6C1C4C9D5C740  2AFF 4408 MSG03N   DC    CL19'LOADING SECTION C19'
  2AF5 E2C5C3E3C9D6D540       4408
  2AFD C3F1F9                 4408
                              4409 *
                         2B00 4410 MSG04    EQU   *
  2B00 E2C5C3E3C9D6D540  2B10 4411 MSG04N   DC    CL17'SECTION C19 READY'
  2B09 C3F1F940D9C5C1C4       4411
  2B10 E8                     4411
                              4412 *
                         2B11 4413 MSG05    EQU   *
  2B11 D3D6C1C4C9D5C740  2B23 4414 MSG05N   DC    CL19'LOADING SECTION C17'
  2B19 E2C5C3E3C9D6D540       4414
  2B21 C3F1F7                 4414
                              4415 *
                         2B24 4416 MSG06    EQU   *
  2B24 E2C5C3E3C9D6D540  2B35 4417 MSG06N   DC    CL18'SECTION RE-STARTED'
  2B2C D9C560E2E3C1D9E3       4417
  2B34 C5C4                   4417
                              4418 *
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                              4420 ********************************************************************************
                              4421 *                                                                              *
                              4422 *                              PROGRAM CONSTANTS                               *
                              4423 *                                                                              *
                              4424 ********************************************************************************
                              4425
  2B36 01                2B36 4426 I1       DC    IL1'1'
  2B37 0002              2B38 4427 I2       DC    IL2'2'
  2B39 0003              2B3A 4428 I3       DC    IL2'3'
  2B3B 04                2B3B 4429 I4       DC    IL1'4'
  2B3C 20                2B3C 4430 I32      DC    IL1'32'
                              4431 *
  2B3D F1                2B3D 4432 D1       DC    CL1'1'
  2B3E F2                2B3E 4433 D2       DC    CL1'2'
                              4434 *
  2B3F 1234              2B40 4435 X1234    DC    XL2'1234'
  2B41 048C              2B42 4436 X048C    DC    XL2'048C'
  2B43 22                2B43 4437 X22      DC    XL1'22'
  2B44 EF                2B44 4438 XEF      DC    XL1'EF'
                              4439 *
  2B45 0000              2B46 4440 ZERO     DC    XL2'00'
  2B47 11                2B47 4441 ELEVEN   DC    XL1'11'
  2B48 2BF2              2B49 4442 AALSD    DC    AL2(ALSD)
  2B4A 2C2E              2B4B 4443 ALSINX   DC    AL2(ALSDIN+28)
  2B4C 2CB2              2B4D 4444 ADLSIN   DC    AL2(DLSIN)
  2B4E 2CCE              2B4F 4445 DLSINX   DC    AL2(DLSIN+28)
  2B50 2CEE              2B51 4446 DLSINY   DC    AL2(DLSIN+60)
                              4447 *
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          4449 ********************************************************************************
                          4450 *                                                                              *
                          4451 *                        RESERVED STORAGE AREAS                                *
                          4452 * ******* DO ** NOT ** ALTER THE RELATIVE POSITION OF THESE TABLES ****
                          4453 ********************************************************************************
                          4454
  2B52 00                 2B52 4455 IND      DC    XL1'00'          PROGRAM INDICATORS
                          4456 *
  2B53                    2B54 4457 SWS      DS    XL2              DATA SWITCH SENSE AREA
                          2B53 4458 LINKID   EQU   SWS-1          DATA SWS 1 & 2 CONTAIN LINK ID
                          4459 *
  2B55                    2B56 4460 WORK1    DS    XL2  USED BY COMMON   COMMON
  2B57                    2B58 4461 WORK2    DS    XL2    SUBROUTINES      PROGRAM
                          4462 *                                               WORK
  2B59                    2B5A 4463 WORK3    DS    XL2  FOR USE BY TEST          AREAS
  2B5B                    2B5C 4464 WORK4    DS    XL2    ROUTINES
  2B5D                    2B5E 4465 WORK5    DS    XL2      ''
                          4466 *
  2B5F                    2B60 4467 IOPOUT   DS    XL2              COMMON IOP OUTPUT AREA
  2B61                    2B62 4468 IOPIN    DS    XL2              COMMON IOP INPUT AREA
                          4469 *                                       'IOPIN'
  2B63                    2B63 4470 LENGTH   DS    XL1              DATA LENGTH - MULTIBYTE LOADS
                          4471 *
                          2B65 4472 ACR      EQU   *+1              ADDRESS COMPARE STOP VALUE
  2B64                    2B64 4473 ACRB     DS    XL1
  2B65                    2B65 4474 ACRD     DS    XL1
                          4475 *
  2B66                    2B66 4476 INDEX    DS    XL1              INITIAL ALS INDEX VALUE
  2B67                    2B67 4477 EXTZN    DS    XL1              EXTERNAL ZONE VALUE
  2B68                    2B69 4478 EXTAR    DS    XL2              EXTERNAL REGISTER ADDRESS
  2B6A                    2B6B 4479 ALSAR    DS    XL2              ADDR LOCAL STORE ADDRESS
  2B6C                    2B6D 4480 ZLSAR    DS    XL2              ZONE LOCAL STORE ADDRESS
  2B6E                    2B6F 4481 DLSAR    DS    XL2              DATA LOCAL STORE ADDRESS
  2B70                    2B71 4482 CSAR     DS    XL2              CONTROL STORAGE ADDRESS
                          4483 *
                          2B72 4484 EXT      EQU   *
  2B72                    2B91 4485          DS    XL32             EXTERNAL REGISTER LOAD AREA
                          4486 *
                          2B92 4487 EXTIN    EQU   *
  2B92                    2BB1 4488          DS    XL32             EXTERNAL REGISTER SENSE AREA
                          4489 *
                          2BB2 4490 ALSB     EQU   *
  2BB2                    2BD1 4491          DS    XL32             ADDR LOCAL STORE (B) LOAD AREA
                          4492 *
                          2BD2 4493 ALSBIN   EQU   *
  2BD2                    2BF1 4494          DS    XL32             ADDR LOCAL STORE (B) SENSE AREA
                          4495 *
                          2BF2 4496 ALSD     EQU   *
  2BF2                    2C11 4497          DS    XL32             ADDR LOCAL STORE (D) LOAD AREA
                          4498 *
                          2C12 4499 ALSDIN   EQU   *
  2C12                    2C31 4500          DS    XL32             ADDR LOCAL STORE (D) SENSE AREA
                          4501 *
                          2C32 4502 ZLS      EQU   *
  2C32                    2C51 4503          DS    XL32             ZONE LOCAL STORE LOAD AREA
                          4504 *
                          2C52 4505 ZLSIN    EQU   *
  2C52                    2C71 4506          DS    XL32             ZONE LOCAL STORE SENSE AREA
                          4507 *
                          2C72 4508 DLS      EQU   *
  2C72                    2CB1 4509          DS    XL64             DATA LOCAL STORE LOAD AREA
                          4510 *
                          2CB2 4511 DLSIN    EQU   *
  2CB2                    2CF1 4512          DS    XL64             DATA LOCAL STORE SENSE AREA
                          4513 *
  2CF2                    2CF2 4514 KREG     DS    XL1              K REGISTER LOAD AREA
                          4515 *
                          2CF5 4516 OPREG    EQU   *+2              OP REGISTER LOAD AREA
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                          2CF3 4517 C        DS    XL1
                          2CF4 4518 CR       DS    XL1
                          2CF5 4519 Y        DS    XL1              TEST LOOP COUNTER
                               4520 *
  2CF6                    2CF6 4521 LPCNT    DS    XL1              3340 SENSE BYTES 0 & 1
                               4522 *
  2CF7                    2CF8 4523 SNSBYT   DS    XL2              USED TO CLEAR RESERVED STG AREA
                               4524 *
  2CF9 00                 2CF9 4525 CLR      DC    XL1'00'
```

```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                         4527 ********************************************************************************
                         4528 *                                                                              *
                         4529 *                          SYMBOL DEFINITIONS                                  *
                         4530 *                                                                              *
                         4531 ********************************************************************************
                         4532 *
                         4533 *              LOCAL STORE REGISTERS
                         4534 *
                    0001 4535 XR1      EQU   X'01'             INDEX REGISTER 1
                    0002 4536 XR2      EQU   X'02'             INDEX REGISTER 2
                         4537 *
                    0004 4538 PSR      EQU   X'04'             PROGRAM STATUS REGISTER
                         4539 *
                    0040 4540 PMR      EQU   X'40'             CURRENT LEVEL PROGRAM MODE REGISTER
                         4541 *
                    0008 4542 ARR      EQU   X'08'             CURRENT LEVEL ADDRESS RECALL REG
                    0040 4543 PARR     EQU   X'40'             PROGRAM LEVEL ADDRESS RECALL REG
                         4544 *
                    0010 4545 IAR      EQU   X'10'             CURRENT LEVEL INSTRUCTION ADDR REG
                    0020 4546 PIAR     EQU   X'20'             PROGRAM LEVEL INSTRUCTION ADDR REG
                         4547 *
                         4548 *-------------------------------------------------------------------------------
                         4549 *              SECTION SENSE SWITCHES
                         4550 *
                    0001 4551 SSW2F    EQU   X'01'             EXIT TO AMOP IF IN STG
                         4552 *
                         4553 *-------------------------------------------------------------------------------
                         4554 *              MESSAGE / HALT IDENTIFIERS
                         4555 *
                    0051 4556 HLT51    EQU   X'51'             SOLID ERROR DETECTED
                    0052 4557 HLT52    EQU   X'52'             INTERMITTANT ERROR DETECTED
                    0053 4558 HLT53    EQU   X'53'             ERROR OCCURRED ONLY ONCE
                    C100 4559 HLT00    EQU   X'C100'           DUMMY HALT FOR 'PRINT' CALL
                         4560 *
                         4561 *-------------------------------------------------------------------------------
                         4562 *              3340 COMMUNICATION AREA (COM) INDICATORS
                         4563 *
                    0080 4564 ADRSTP   EQU   X'80'             MICRO-PROCESSOR ADDR STOP SET
                    0010 4565 FA0FLG   EQU   X'10'             LOAD SECTION FA0 ONLY
                    0001 4566 AMOPSW   EQU   X'01'             AMOP IN EXECUTION INDICATOR
                         4567 *
                         4568 *-------------------------------------------------------------------------------
                         4569 *              PROGRAM INDICATORS
                         4570 *
                    0080 4571 TSTSW    EQU   X'80'             TEST STARTED
                    0040 4572 NORMSW   EQU   X'40'             TEST ENDED NORMALLY
                    0020 4573 ERRSW    EQU   X'20'             TEST ENDED WITH ERROR CONDITION
                    0010 4574 LPSW     EQU   X'10'             TEST LOOP IN PROGRESS
                         4575 *        EQU   X'08'
                    0004 4576 SWA      EQU   X'04'              GENERAL      ( MUST BE RESET
                    0002 4577 SWB      EQU   X'02'                PURPOSE          BY USER)
                    0001 4578 SWC      EQU   X'01'                  PROGRAM INDICATORS
                         4579 *
                         4580 *-------------------------------------------------------------------------------
                         4581 *              IOP EXTERNAL REGISTER ADDRESSES
                         4582 *
                    0001 4583 CCH      EQU   X'01'             CHANNEL COUNTER HIGH
                    0002 4584 FBI      EQU   X'02'
                    0003 4585 DST      EQU   X'03'
                    0005 4586 FTG      EQU   X'05'
                    0006 4587 FTO      EQU   X'06'
                    0007 4588 FMF      EQU   X'07'
                    0009 4589 ADS      EQU   X'09'
                    000A 4590 FBIOA    EQU   X'0A'
                    000B 4591 MES      EQU   X'0B'
                    000D 4592 FTR      EQU   X'0D'
                    000E 4593 FBO      EQU   X'0E'
                    000F 4594 SCM      EQU   X'0F'
```



```
ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT

                    0011 4595 CCL      EQU   X'11'
                    0013 4596 DXC      EQU   X'13'
                    0015 4597 FTI      EQU   X'15'
                    0016 4598 FCT      EQU   X'16'
                    0017 4599 SB1      EQU   X'17'
                    0019 4600 B00      EQU   X'19'
                    0018 4601 CO2      EQU   X'1B'
                    001F 4602 SB0      EQU   X'1F'
                    0000 4603 MIAR0    EQU   X'00'             ALS ADDR FOR MIAR FOR PROG 000
                    0004 4604 MIAR1    EQU   X'04'             ALS ADDR FOR MIAR FOR PROG 001
                    001E 4605 DS1      EQU   X'1E'             ALS ADDR FOR DS ADDR OF PROG 7 (CHNL)
                    000A 4606 DS2      EQU   X'0A'             ALS ADDR FOR DS ADDR OF PROG 2 (FILE)
                    0008 4607 DS3      EQU   X'0B'             ALS ADDR FOR CHNL TRAP INDEX
                         4608 *
                         4609 *-------------------------------------------------------------------------------
                         4610 *              DCP SECTION REFERENCE TABLE
                         4611 *
                    0200 4612 SMOD     EQU   X'0200'           SYSTEM MODEL
                         4613 *
                    0202 4614 SIZE     EQU   X'0202'           MAIN STORAGE SIZE
                    0204 4615 CPU      EQU   X'0204'           CPU OPTIONAL FEATURES
                         4616 *
                    020D 4617 SBYTE5   EQU   X'020D'           SECTION SENSE SWITCHES  28-2F
                         4618 *
                    0212 4619 TEST     EQU   X'0212'           TEST CONSOLE SWITCHES
                    0216 4620 LINK     EQU   X'0216'           LINK TO NEXT ROUTINE OR SECTION
                    021A 4621 PRINT    EQU   X'021A'           PRINT A MESSAGE
                    021E 4622 UNPACK   EQU   X'021E'           UNPACK DATA - HEX TO EBCDIC
                    0222 4623 HALT     EQU   X'0222'           HALT AND DISPLAY HALT IDENTIFIER
                    0226 4624 PACK     EQU   X'0226'           PACK DATA - EBCDIC TO HEX
                    022A 4625 LOAD     EQU   X'022A'           LOAD NEXT SECTION OR RECORD
                    022E 4626 EXIT     EQU   X'022E'           SECTION TERMINATE MESSAGE
                         4627 *
                    0232 4628 UTAB     EQU   X'0232'           DCP UNIT DEFINITION TABLE ENTRIES
                         4629 *
                         4630 *-------------------------------------------------------------------------------
                         4631 *              OTHER REFERENCES EXTERNAL TO THIS SECTION
                         4632 *
                    0800 4633 LPIMAG   EQU   X'0800'           5203 PRINT IMAGE FIELD
                    0878 4634 CHNFLG   EQU   X'0878'           CHAIN IMAGE FLAG
                    0879 4635 CRTFLG   EQU   X'0879'           3277 MICROCODE FLAG
                    087C 4636 LPDATA   EQU   X'087C'           5203 PRINT DATA FIELD
                         4637 *
                    4000 4638 AMOP     EQU   X'4000'           ADAPTER MANUAL OPERATIONS PROGRAM
                         4639 *
                    6C00 4640 LDR      EQU   X'6C00'           3340 MICROCODE LOADER FOR MOD 12
                         4641
                         4641
                         4642 ********************************************************************************
                         4643 *                                                                              *
                         4644 *          PATCH AREA FOLLOWS ( END OF CODE )                                  *
                         4645 *                                                                              *
                         4646 ********************************************************************************
                    2CFA 4647 PATCH    EQU   *
                         4648 *
                    FFFF 4649          END
```

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
AALSD	A	002	2B49	4442	
ACR	A	001	2B65	4472	
ACRB	A	001	2B64	4473	
ACRD	A	001	2B65	4474	
ADLSIN	A	002	2B4D	4444	1900
ADRSTP	C	001	0080	4564	
ADS	C	001	0009	4589	
ALSAR	A	002	2B6B	4479	3971* 3983* 3984* 3996* 4007* 4008* 4012 4029*
ALSB	A	001	2BB2	4490	0821* 0822 0822* 0830 1221* 1222 1222* 1225* 1226* 1227* 1228* 2790* 2791 2791* 2793* 2794* 2795* 2796* 2797* 2798* 2799* 3972
ALSBIN	A	001	2BD2	4493	0180* 0188 0197 0683* 0735* 0736* 0740* 0741* 0796 0797 0801 0802 1306* 1335 1338 1341 1344 1347 1352 1358 1364 1367* 1369 1372* 1374 1391* 1401 1407 1409 1412 1430* 1440 1448 1450 1453 1463 1465 1488 1493 1497 1503 1508 2815
ALSD	A	001	2B52	4496	0824* 0825 0825* 0839 1223* 1224 1224* 1232* 1233* 2788* 2789 2789* 3533* 3534* 3535* 3536* 3997 4442
ALSDIN	A	001	2C12	4499	2762 2816 2888 3363 4443
ALSERA	A	004	14F4	1510	1410 1413
ALSERB	A	004	14F9	1513	1451 1454
ALSERC	A	004	14FE	1516	1466
ALSER1	A	004	0F6D	0791	0674 0692
ALSER2	A	004	0F72	0794	0706 0768
ALSER3	A	004	0F78	0799	0707 0769
ALSER4	A	004	0F84	0804	
ALSER5	A	004	14C7	1485	1353
ALSER6	A	004	14D0	1490	1359
ALSER7	A	004	14D9	1495	1365
ALSER8	A	004	14E2	1500	1370
ALSER9	A	004	14EB	1505	1375
ALSEXP	A	001	1503	1536	1305* 1310 1349 1355 1487 1492
ALSGEA	A	004	1E24	2840	2812*
ALSGET	A	004	1DDA	2812	2760 2886 3361
ALSGE2	A	004	1DF2	2820	2837
ALSGE3	A	001	1DF6	2821	2817* 2832* 2836
ALSGE5	A	001	1E00	2827	2818* 2833*
ALSGE9	A	004	1E20	2839	2813*
ALSINX	A	002	2B4B	4443	2768 2899 3369
ALSLOC	A	004	0FE7	0849	0820* 0829*
ALSLOD	A	004	0FA8	0828	0723 1296
ALSLOE	A	004	0FEB	0850	0819* 0828*
ALSLOF	A	004	0F89	0819	0783
ALSLO4	A	001	0FB9	0832	0831* 0835* 0836 0840* 0843
ALSLO5	A	003	0FB8	0833	0841 0844
ALSLO8	A	004	0FD7	0843	0837
ALSLO9	A	004	0FDF	0846	0826
ALSSEA	A	004	1DD6	2804	2785*
ALSSET	A	004	1D92	2785	2750 2878 2959 3356
ALSSE9	A	004	1DD2	2803	2786*
ALSSW	A	001	0F6C	0789	0658* 0682* 0700* 0702 0705 0711* 0734* 0739* 0764 0767
ALSTBL	A	003	1506	1538	1297
ALSOA	A	001	0EBD	0727	0659* 0720* 0735 0740 0747 0750* 0758 0761* 0773 0780*
ALSOD	A	004	0EDF	0739	0732
ALSO5	A	004	0E63	0685	0680
ALSO6	A	004	0E88	0702	0698
ALSO7	A	004	0E99	0709	0703
ALSO8	A	004	0EB7	0725	0721* 0731 0748 0751 0753 0756* 0759 0762 0782* 0785
ALSO9	A	001	0EBB	0726	0719* 0743 0746* 0757* 0781*
ALS10	A	004	0EEF	0743	0729 0737
ALS15	A	006	0F0E	0753	0744
ALS20	A	004	0F31	0764	0754
ALS21	A	004	0F42	0771	0765
ALS30	A	004	1341	1301	1381
ALS32	A	004	1377	1316	1311
ALS33	A	001	1378	1317	1302* 1303*
ALS35	A	001	1383	1326	1304* 1361
ALS36	A	004	13C1	1361	1356

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ALS36A	A	001	13D6	1368	1308* 1502
ALS36B	A	001	13E2	1373	1309* 1312* 1507
ALS37	A	005	13C8	1364	1350
ALS40	A	004	13D1	1367	1362
ALS50	A	006	13FF	1391	1417
ALS55	A	001	140B	1395	1390* 1415* 1416
ALS60	A	004	1449	1428	1478 1482
ALS61	A	006	144D	1430	
ALS62	A	002	145A	1434	1423* 1470 1473 1476* 1480*
ALS63	A	001	1487	1458	1424* 1477* 1481*
ALS64	A	004	14BB	1480	1474
ALUTBL	A	001	1CD9	2684	2628
ALU01	A	005	1C7D	2629	2675
ALU05	A	001	1C88	2633	2629*
ALU09	A	003	1CC7	2673	2668
AMOP	C	001	4000	4638	3793 3815
AMOPGO	A	004	25D8	3815	3794
AMOPID	A	002	0A1E	0030	3790
AMOPLD	A	006	2583	3796	3791
AMOPLK	A	004	2588	3780	3460 3492 3583 4341 4385
AMOPSW	C	001	0001	4566	3468 3491
AMOPS1	A	004	25E0	3818	3785*
AMOPS2	A	004	25DC	3817	3786* 3797
AMOPX	A	004	25E4	3819	3780* 3783
ARR	C	001	0008	4542	0819 0828 0970 0977 1001 1797 1948 1955 2785 2812 3457 3480 3576 3602 3639 3743 3780 3829 3840 3866 3902 3938 3967 3978 3992 4002 4047 4053 4076 4101 4128 4146 4167 4189 4204 4228 4249 4261 4287 4291 4314 4336
BEGIN	A	004	2329	3480	0869 1037 1204 1589 1879 2012 2287 2488 2622 2728 2859 2932 3033 3163 3312
BEGINX	A	004	2406	3564	3457* 3480*
BEGIN0	A	004	233E	3491	3483
BEGIN1	A	004	23FE	3560	3477
BGNIOP	A	004	22F3	3457	0053 0106 0174 0256 0426 0509 0656 1294 1676
BGNIO	A	004	2308	3468	3460
BGNTST	A	004	240A	3576	0057 0063 0113 0178 0260 0381 0432 0457 0516 0555 0663 0715 0778 0876 0897 0933 1046 1219 1301 1388 1428 1601 1683 1711 1745 1883 2018 2135 2211 2291 2494 2546 2626 2748 2876 2957 3086 3179 3259 3354 3414
BOO	C	001	0019	4600	1734 1844 2048 2057 2067 2086 2151 2175 2225 2232 2244 2301
BRACC	A	001	1735	1851	2305 2332 2338 2344
BRCHK	A	001	1736	1852	1758 1823 2050 2061 2071 2089 2161 2179 2230 2235 2249 2303 2308 2334 2341
BREG05	A	004	0CF0	0447	0442
BREG09	A	004	0D2C	0480	0466
BRMIAR	A	002	1732	1849	1697 1700 1704 1731 1761 1829 1831 2767* 2768 2898* 2899 2981* 2982 2985 3124* 3125 3368* 3369
BRSIAR	A	002	1734	1850	1738 1764 1836 1838
BRXREG	A	001	1730	1848	1694 1725 1821 2044 2079 2329 2350 2646 2652 2658 2665 2667 2758 2775
BR05	A	006	1626	1704	1698
BR09	A	006	1670	1738	1729
BR10	A	004	1679	1741	1736
BR105	A	003	1EE2	2889	2900
BR110	A	004	1EAD	2907	2891
BR112	A	004	1EB2	2910	2895
BR20	A	004	16DE	1797	1692 1723 1756
BR21	A	001	16F0	1807	1687*
BR22	A	001	16F2	1809	1688* 1715*
BR23	A	001	16F4	1811	1689* 1716*
BR24	A	001	16F6	1813	1690* 1749*
BR30	A	004	172C	1846	1797*
BR40	A	004	16B6	1771	1695 1726
BR41	A	004	16BB	1774	1701
BR41A	A	004	16C0	1777	1702

C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
BR41B	A	004	16C5	1780	1705
BR42	A	004	16CA	1783	1732 1739
BR43	A	004	16CF	1786	1735
BR44	A	004	16D4	1789	1759
BR45	A	004	16D9	1792	1762 1765
C	A	001	2CF3	4517	0278 0305 0364 0373 1086 1092 3945* 4011* 4081* 4236
CCH	C	001	0001	4583	
CCL	C	001	0011	4595	
CHNFLG	C	001	0878	4634	
CLKRST	A	004	2999	4261	3516
CLKRSX	A	004	29BF	4279	4261*
CLR	A	001	2CF9	4525	3474 3474* 3497 3497*
COM	A	001	0A19	0026	3468 3491 3759 3765* 3788
CO2	C	001	0018	4601	
CPAT	A	001	0B96	0271	0262* 0291 0294* 0298 0301* 0305 0333* 0339* 0345* 0361 0370
CPU	C	001	0204	4615	
CR	A	001	2CF4	4518	0280 0309 0365 0374 1088 1095 3219 3224 3230 3946* 4012* 4059* 4082* 4238
CRPAT	A	001	0B98	0273	0263* 0295* 0302* 0309 0334* 0340* 0346* 0362 0371
CRTFLG	C	001	0879	4635	
CRYSW	A	001	0CBF	0400	0265* 0267* 0308* 0312* 0316* 0317 0320 0323 0326 0332* 0338* 0344* 0350 0353 0356
CRY01	A	004	0B8C	0267	0336 0342 0348
CRY02	A	004	0BB6	0291	0286
CRY03	A	004	0BC9	0298	0292
CRY04	A	006	0BDC	0305	0299
CRY05	A	006	0BE9	0309	0306
CRY06	A	006	0BF6	0313	0310
CRY07	A	004	0C03	0317	0314
CRY11	A	004	0C26	0332	0321
CRY12	A	004	0C3A	0338	0324
CRY13	A	004	0C4E	0344	0327
CRY14	A	004	0C62	0350	0318
CRY15	A	004	0C88	0368	0351 0354 0357
CRY19	A	004	0C99	0381	0330
CRY22	A	004	0CB6	0395	0391
CSAR	A	002	2B71	4482	3212* 3221 3227* 4105* 4116* 4154 4156
CSDTC	A	001	118B	1074	1052* 1092 1103 1128* 1160
CSDTCR	A	001	118D	1076	1054* 1095 1104 1115 1126*
CSDTY	A	001	118F	1078	1055* 1098 1127*
CSSW	A	001	128A	1180	1049* 1107* 1110 1113* 1118* 1140 1149 1163* 1172* 1175* 1597* 1620* 1628 1633 1639* 2020* 2060* 2064* 2069* 2073* 2077* 2081* 2083 2102 2105 2108 2111 2137* 2167* 2173* 2177* 2181* 2183 2189 2192 2355* 2963* 2975* 2978* 2990 2993
CSSW4	A	001	128B	1185	1047* 1048* 1101* 1102* 1103* 1160 1166 1169
CS00	A	004	115D	1052	1124 1138
CS01	A	004	1173	1061	1129
CS03	A	001	1179	1063	1050* 1101 1134 1137* 1166
CS03A	A	004	11E1	1110	1105
CS04	A	004	11EC	1115	1108 1111 1164 1173 1176
CS05	A	004	120A	1126	1116
CS06	A	004	121A	1131	1120
CS09	A	004	1233	1140	1135
CS14	A	004	1242	1148	1141
CS15	A	004	1252	1155	1150
CS30	A	006	1257	1160	1093 1096 1099
CS30A	A	006	1268	1166	1161
CS30B	A	004	1282	1175	1167 1170
C17	A	002	2573	3763	3747 3750
C19	A	002	25CD	3807	3790 3793
DLS	A	001	2C72	4508	1892 1903 1916 1950* 1951 1951* 1957 2380* 3251* 3871
DLSAR	A	002	2B6F	4481	1889* 1966* 2371* 2381* 2402* 2529* 2572* 2968* 3105* 3197* 3261* 3284* 3872 3880 3893* 3908 3915 3929*
DLSCNT	A	001	17D8	1935	1885* 1910 1921* 1924
DLSER1	A	004	17AA	1916	1895
DLSER3	A	004	17CF	1930	1911 1925

C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
DLSIN	A	001	2CB2	4511	1893 2374 2456 2532 2538 2971 3108 3111 3114 3200 3203 3206 3287 3290 3907 4444 4445 4446
DLSINX	A	002	2B4F	4445	2985
DLSINY	A	002	2B51	4446	2982
DLSLOC	A	004	1820	1970	1949* 1956*
DLSLOD	A	004	17EE	1955	1886 2131 2295 2490 2548 2961
DLSLOE	A	004	1824	1971	1948* 1955*
DLSLOF	A	004	17D9	1948	1906
DLSLO4	A	001	17FF	1959	1958* 1962* 1963
DLSLO5	A	003	17FE	1960	1964
DLSLO9	A	006	1812	1966	1953
DLS03	A	004	1758	1888	1908
DLS05	A	004	1771	1894	1901
DLS06	A	003	1778	1897	1922
DLS20	A	004	179B	1910	1904
DLS25	A	004	17C3	1924	1917
DLS30	A	002	17D5	1932	1919*
DLS31	A	002	17D7	1933	1920*
DREGTB	A	001	0DFE	0614	0557
DREG01	A	005	0DAF	0558	0576
DREG02	A	001	0D8F	0564	0558*
DREG03	A	001	0DC1	0566	0559*
DREG06	A	004	0DE0	0582	0572
DREG21	A	004	0D69	0525	0547
DREG22	A	001	0D71	0528	0520* 0538 0542*
DREG23	A	001	0D7A	0534	0521* 0543*
DREG24	A	004	0DA3	0549	0539
DREG25	A	004	0DE5	0589	0536
DREG26	A	001	0DED	0592	0518* 0541*
DREG27	A	001	0DF9	0598	0519* 0544*
DREG28	A	002	0DFB	0599	0523* 0546*
DST	C	001	0003	4585	3507
DS1	C	001	001E	4605	
DS2	C	001	000A	4606	
DS3	C	001	000B	4607	
DXC	C	001	0013	4596	3509
D1	A	001	2B3D	4432	3669
D2	A	001	2B3E	4433	
ELEVEN	A	001	2B47	4441	0138 1476 1477
ENDRTN	A	001	22E1	3438	3310
ERRHLT	A	002	2530	3727	3719*
ERRP	A	004	2501	3703	3617 3694
ERRPRT	A	004	246A	3639	0075 0078 0132 0150 0214 0219 0224 0288 0359 0368 0395 0444 0450 0484 0582 0597 0791 0794 0799 0804 0941 0946 0951 0956 1152 1155 1248 1485 1490 1495 1500 1505 1510 1513 1516 1643 1771 1774 1777 1780 1783 1786 1789 1792 1927 1930 2114 2117 2120 2123 2126 2198 2201 2204 2241 2246 2424 2427 2430 2433 2436 2439 2442 2445 2448 2453 2458 2524 2535 2589 2594 2670 2773 2907 2910 2996 2999 3128 3131 3134 3137 3140 3193 3209 3233 3280 3293 3374 3428
ERRPX	A	004	24E0	3689	3684*
ERRPX1	A	004	24D8	3686	3640*
ERRP00	A	004	2472	3642	
ERRP01	A	002	2498	3659	3639* 3667
ERRP02	A	006	24AD	3669	3681
ERRP03	A	002	24C4	3677	3673*
ERRP04	A	002	24C6	3678	3665* 3680*
ERRP05	A	003	24D1	3683	3670
ERRSW	C	001	0020	4573	3616 3696
EXIT	C	001	022E	4626	
EXT	A	001	2B72	4484	3500* 3503* 3513* 3845
EXTAR	A	002	2B69	4478	3501* 3505* 3507* 3509* 3511* 3514* 3831* 3846 4179
EXTIN	A	001	2B92	4487	
EXTZN	A	001	2B67	4477	4176
FAOID	A	002	0A20	0031	
FAOFLG	C	001	0010	4565	3765

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
FBI	C	001	0002	4584	
FBI0A	C	001	000A	4590	
FBO	C	001	000E	4593	
FCT	C	001	0016	4598	
FFFF	A	002	22E4	3440	0066 0069 0080 0081 0522 0599 1306
FHF	C	001	0007	4588	3513* 3514 3831
FTG	C	001	0005	4586	3511
FTI	C	001	0015	4597	
FTO	C	001	0006	4587	
FTR	C	001	000D	4592	3500* 3501 3503*
HALT	C	001	0222	4623	3726
HES	C	001	000B	4591	
HIOP	A	004	29F7	4314	3869 3905 4148 4169 4191 4230 4264
HIOPX	A	004	2A07	4322	4314*
HLTID	A	002	250A	3707	3611* 3691* 3701* 3719
HLT00	C	001	C100	4559	3466 3489 3757 3803 3813
HLT51	C	001	0051	4556	3701
HLT52	C	001	0052	4557	3691
HLT53	C	001	0053	4558	3611
IAR	C	001	0010	4545	
IMM05	A	006	2064	3120	3102
IMM06	A	006	206E	3122	3126
IMM08	A	0C1	2087	3129	3120* 3122 3122*
IMM10	A	004	2088	3131	3098 3101
IMM11	A	004	208D	3134	3109
IMM12	A	004	2092	3137	3112
IMM13	A	004	2097	3140	3115
IND	A	001	2852	4455	3459 3475 3475* 3482 3498 3498* 3578* 3604 3607 3610* 3616 3619*
					3642 3688 3693 3696* 3724* 3981* 4005* 4019 4031 4034 4040*
INDEX	A	001	2B66	4476	1238* 2752* 2883* 2964* 3357* 4262* 4274 4297
IOPGO	A	004	29CF	4291	1240 2753 2884 2965 3092 3185 3272 3359 3420
IOPGOX	A	004	29F3	4309	4287* 4291*
IOPGO2	A	004	29E9	4304	4289
IOPIN	A	002	2B62	4468	0129 0193* 0194 0207* 0208 0217 0222 0285 0390 0447 0465 0477
					0535 0571 0600 0667* 0673 0679 0683 0685* 0691 0697 0728 0736
					0741 0878* 0885 0890 0906 0913 0944 0949 0954 1245 1307* 1498
					1617 2075 2165 2171 2347 2368 2399 2405 2451 2521 2527 2568
					2592 2824 2830 3097 3100 3120 3190 3277 3425 4368* 4374
IOPOUT	A	002	2B60	4467	4347* 4348* 4360* 4364 4367
IOPRUN	A	004	29C3	4287	4212
I1	A	001	2B36	4426	0746 0750 0835 0919 0923 0984 1625 1921 1962 2591 2596 2832
					2833 3227 3613 3698 3892 3893 3928 3929 3955 3956 4028 4029
					4116
I2	A	002	2B38	4427	1391
I3	A	002	2B3A	4428	1430 3680
I32	A	001	2B3C	4430	1137 1415 1624
I4	A	001	2B3B	4429	
KREG	A	001	2CF2	4514	3852 3858 3878 3887 3913 3923 4015* 4038* 4066 4069 4135 4139
					4152 4160 4173 4182 4195 4234 4242 4268 4270 4272 4288* 4295
					4302* 4306 4316* 4320
KREG03	A	004	0B26	0194	0216
KREG05	A	004	0B42	0208	0221
KREG06	A	004	0B51	0214	0195
KREG08	A	004	085A	0219	0209
KREG09	A	004	0B63	0224	0198
LALSB	A	004	2737	3978	0668 3253
LALSB1	A	004	2720	3967	0846 1234 2800 3531
LALSB2	A	005	2747	3983	4035
LALSD	A	004	276D	4002	0686 1717 1720 1750 1753 3088 3181 3264 3268 3416
LALSD1	A	004	2756	3992	0847 1235 2801 3537
LALSD2	A	005	277D	4007	4036
LALSX	A	004	27EE	4042	3967* 3978* 3982 3992* 4002* 4006 4023*
LALSX1	A	004	27EA	4041	3968* 3979* 3993* 4003*
LALSX2	A	004	27DE	4038	4026
LALSO1	A	004	2789	4011	3973 3986 3998 4032
LALSO2	A	004	2783	4025	4020

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
LBI05	A	001	1BB1	2520	2526 2537
LBI10	A	004	1BC0	2529	2522
LBI105	A	003	1F36	2972	2986 2988
LBI106	A	004	1F43	2978	2973
LBI107	A	003	1F47	2980	2976
LBI109	A	004	1F69	2990	2983
LBI110	A	004	1F7C	2999	2994
LBI115	A	004	1F81	3002	2991
LCS	A	004	28B1	4128	4110
LCSAR	A	004	28D1	4146	3213 4130
LCSARX	A	004	28F1	4162	4146*
LCSI	A	004	2871	4101	1212 2733 2861 2934 3035 3165 3238 3245 3316 3379 3549
LCSIX	A	004	28AD	4123	4101* 4104 4120*
LCSIX1	A	004	28A9	4122	4102*
LCSI01	A	005	2885	4108	4117
LCSI02	A	003	28A2	4119	4114
LCSL	A	001	1191	1080	1039* 1102 1119 1122* 1131* 1169
LCSR	A	001	1193	1082	1040* 1123* 1132*
LCSX	A	004	28CD	4141	4128*
LDLS	A	004	262C	3866	1968 2382 3262 3544
LDLSX	A	004	267A	3897	3866*
LDLSX1	A	004	2676	3896	3867* 3890
LDLS01	A	004	2638	3871	3894
LDLS02	A	002	2653	3882	3874*
LDR	C	001	6C00	4640	3443 3750 3766
LDRGO	A	004	2574	3765	3751
LDRID	A	002	0A1C	0029	3747
LDRLD	A	004	255D	3753	3748
LENGTH	A	001	2B63	4470	0989* 1888* 1967* 2949* 2967* 3104* 3196* 3283* 3540* 3543* 3587* 3889
					3892* 3925 3928* 3952 3955* 3970* 3995* 4025 4028* 4039*
LEXT	A	004	25F8	3840	3502 3504 3506 3508 3510 3512 3515 3833
LEXTAR	A	004	28F5	4167	3843
LEXTX	A	004	2628	3861	3840*
LEXTX1	A	004	2624	3860	3841*
LEXT01	A	002	261B	3854	3848*
LFHF	A	004	25E8	3829	
LFHFX	A	004	25F4	3835	3829*
LINK	C	001	0216	4620	0073 0088 0146 0158 0212 0230 0398 0410 0487 0492 0579 0626
					0631 0636 0774 0929 1144 1266 1471 1634 1768 1857 1862 1914
					1976 2239 2254 2421 2464 2587 2609 2678 2694 2699 2704 2709
					2714 2777 2845 2903 2916 3003 3008 3118 3146 3296 3430 3445
LINKID	A	002	2B53	4458	3582 4340 4384
LIO03	A	004	0A71	0075	0058
LIO06	A	004	0A76	0078	0070
LLKERA	A	004	1B62	2453	2406
LLKERB	A	004	1B68	2458	2345
LLKER1	A	004	1B31	2424	2306
LLKER2	A	004	1B36	2427	2309
LLKER3	A	004	1B3B	2430	2339
LLKER4	A	004	1B40	2433	2342
LLKER5	A	004	1B45	2436	2348
LLKER6	A	004	1B4A	2439	2351
LLKER7	A	004	1B4F	2442	2369
LLKER8	A	004	1B54	2445	2375
LLKER9	A	004	1B59	2448	2400
LLK20	A	004	1ADE	2386	2418
LLK21	A	001	1AF7	2398	2384* 2408 2411* 2450 2455
LLK22	A	001	1B06	2404	2385* 2412*
LLK25	A	004	1B29	2420	2409
LMBI	A	004	2837	4076	0871 1041 1209 1316 1591 1636 1678 2730 2880 2952 3349 3518
LMBIX	A	004	286D	4096	4076* 4079 4093*
LMBIX1	A	004	2869	4095	4077*
LMBI01	A	004	2843	4081	4090
LOAD	C	001	022A	4625	3761 3805
LOOP	A	003	2421	3586	3608 3614 3643 3699 3734
LOOPX	A	004	2428	3589	3576*

C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
LOP	A	004	2965	4228	3949 4016 4063 4085 4131 4211
LOPX	A	004	2985	4244	4228*
LPCNT	A	001	2CF6	4521	0596* 1148* 1728 3560* 3613* 3620* 3698*
LPDATA	C	001	087C	4636	
LPIMAG	C	001	0800	4633	
LPSW	C	001	0010	4574	3459 3482 3607 3642 3724
LXOP1	A	004	2933	4204	3546
LXOPIA	A	005	293F	4209	4217
LXOPIX	A	004	2961	4223	4204* 4207 4220*
LXOPII	A	004	295D	4222	4205*
LXTARX	A	004	2917	4184	4167*
LZLS	A	004	26D2	3938	0881 0990 2950 3541
LZLSX	A	004	271C	3961	3938*
LZLSX1	A	004	2718	3960	3939* 3953
LZLSO1	A	004	26E6	3945	3958
MIAR0	C	001	0000	4603	3417 3423
MIAR1	C	001	0004	4604	
MOVER1	A	004	1C4A	2569	2569
MOVER2	A	004	1C53	2594	2578
MOVER3	A	002	1C5B	2597	2575*
MOVTBL	A	001	1C5C	2599	2550
MOV00	A	004	1BD8	2542	2533
MOV01	A	005	1BE8	2551	2584
MOV25	A	001	1BFA	2556	2551* 2566
MOV26	A	001	1BFC	2558	2552*
MOV30	A	001	1C1A	2571	2566* 2567*
MOV32	A	001	1C30	2576	2574*
MOV35	A	004	1C42	2586	2581
MPL	A	004	253D	3743	3472 3495
MPLX	A	004	2584	3771	3743*
MPLX1	A	004	257C	3768	3744*
MPLX2	A	004	2580	3769	3745*
MSG	A	001	2A98	4397	3645 3650 3655 3662* 3664 3716
MSGN	A	030	2A85	4398	3645 3645 3645* 3706 3716 3717
MSG01	A	001	2AB7	4401	3711
MSG01N	A	028	2AD2	4402	3711 3712
MSG02	A	001	2AD3	4404	3731
MSG02N	A	026	2AEC	4405	3731 3732
MSG03	A	001	2AED	4407	3801
MSG03N	A	019	2AFF	4408	3801 3802
MSG04	A	001	2B00	4410	3811
MSG04N	A	017	2B10	4411	3811 3812
MSG05	A	001	2B11	4413	3755
MSG05N	A	019	2B23	4414	3755 3756
MSG06	A	001	2B24	4416	3464 3487
MSG06N	A	018	2B35	4417	3464 3465 3487 3488
NOOP05	A	003	1D6C	2763	2769
NOOP09	A	004	1D87	2773	2764
NORMN	A	004	242C	3602	0059 0072 0145 0211 0329 0393 0448 0478 0549 0578 0709 0771
					0893 0926 1143 1265 1377 1419 1468 1631 1707 1741 1767 1913
					2092 2186 2238 2420 2542 2586 2677 2771 2902 3002 3117 3231
					3291 3372 3426
NORMSW	C	001	0040	4572	3610 3693
NORMX	A	004	2466	3625	3602* 3605
NORM01	A	004	2430	3604	
OPREG	A	001	2CF5	4516	0116* 0123 0126 0153 0437 0441 1056* 1057 1057* 4108* 4209*
PACK	C	001	0226	4624	
PARR	C	001	0040	4543	
PATCH	A	001	2CFA	4647	
PFC	A	002	0A07	0019	
PIAR	C	001	0020	4546	
PID	A	002	0A01	0015	3442 3471 3494 3649 3796
PMR	C	001	0040	4540	
PRINT	C	001	021A	4621	3462 3485 3703 3709 3714 3729 3753 3799 3809
PSR	C	001	0004	4538	
RDALSB	A	002	282A	4067	4050* 4056*

C141 3340 ATTACHMENT TESTS (PART 1) MODEL 12

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
RTN	A	001	0A03	0017	3654
RTN0A	A	001	0D3D	0489	0424
RTN0B	A	001	0D45	0505	0491
RTN0C	A	001	0E0B	0623	0507
RTN0D	A	001	0E13	0628	0625
RTN0E	A	001	0E1B	0633	0630
RTN0F	A	001	0E23	0652	0635
RTN01	A	001	0A3A	0049	0019
RTN02	A	001	0A83	0085	0051
RTN03	A	001	0A8B	0102	0087
RTN04	A	001	0AF8	0155	0104
RTN05	A	001	0B00	0170	0157
RTN06	A	001	0B68	0227	0172
RTN07	A	001	0B70	0252	0229
RTN08	A	001	0CC0	0407	0254
RTN09	A	001	0CC8	0422	0409
RTN1A	A	001	1830	2008	1975
RTN1B	A	001	1A0B	2251	2010
RTN1C	A	001	1A13	2283	2253
RTN1D	A	001	1B70	2461	2285
RTN1E	A	001	1B78	2484	2463
RTN1F	A	001	1C65	2606	2486
RTN10	A	001	0FEF	0865	0654
RTN11	A	001	1131	1033	0867
RTN12	A	001	128E	1200	1035
RTN13	A	001	1331	1290	1202
RTN14	A	001	1559	1585	1292
RTN15	A	001	15E4	1672	1587
RTN16	A	001	1737	1854	1674
RTN17	A	001	173F	1859	1856
RTN18	A	001	1747	1875	1861
RTN19	A	001	1828	1973	1877
RTN2A	A	001	1EBF	2928	2915
RTN2B	A	001	1F89	3005	2930
RTN2C	A	001	1F91	3029	3007
RTN2D	A	001	209C	3143	3031
RTN2E	A	001	20A4	3159	3145
RTN2F	A	001	21C0	3308	3161
RTN20	A	001	1C6D	2618	2608
RTN21	A	001	1CEE	2691	2620
RTN22	A	001	1CF6	2696	2693
RTN23	A	001	1CFE	2701	2698
RTN24	A	001	1D06	2706	2703
RTN25	A	001	1D0E	2711	2708
RTN26	A	001	1D16	2724	2713
RTN27	A	001	1E28	2842	2726
RTN28	A	001	1E30	2855	2844
RTN29	A	001	1EB7	2913	2857
SALSB	A	004	27F2	4047	0676 0725 0787 2163 2820
SALSBA	A	002	0F69	0787	0721 0782
SALSD	A	004	2801	4053	0694 0788 1242 2169 2826 3094 3187 3274 3422
SALSDA	A	002	0F6B	0788	0731 0753 0756
SALSX	A	004	2833	4072	4047* 4053* 4058 4061*
SALSX1	A	004	282F	4071	4048* 4054*
SALS01	A	004	280D	4058	4051
SBYTE5	C	001	020D	4617	3782
SB0	C	001	001F	4602	
SB1	C	001	0017	4599	
SCN	C	001	000F	4594	3505
SDLS	A	004	267E	3902	1890 2372 2403 2530 2573 2969 3106 3198 3285
SDLSX	A	004	26CE	3933	3902*
SDLSX1	A	004	26CA	3932	3903* 3926
SDLS01	A	004	268A	3907	3930
SDLS02	A	002	26AD	3921	2574 2575 3909*
SDREG	A	004	2818	4189	0672 0690 0883
SDREGX	A	004	292F	4199	4189*

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
SINC05	A	004	20E7	3196	3191
SINC09	A	004	210A	3209	3201 3204
SINC15	A	004	210F	3212	3207
SINC16	A	004	2113	3213	3228
SINC19	A	004	213B	3230	3222
SINC20	A	004	2143	3233	3225
SINC30	A	004	219C	3283	3278
SINC35	A	004	21B7	3293	3288
SIZE	C	001	0202	4614	
SLKERA	A	004	19F9	2241	2233
SLKERB	A	004	1A02	2246	2236
SLKER1	A	004	190C	2114	2106
SLKER2	A	004	1911	2117	2103 2109
SLKER3	A	004	1916	2120	2112
SLKER4	A	004	19AE	2198	2193
SLKER5	A	004	19B3	2201	2190
SLKER6	A	004	19B8	2204	2196
SLKER7	A	004	191B	2123	2087
SLKER8	A	004	1920	2126	2090
SLK00	A	004	1840	2020	2098
SLK01	A	001	1862	2038	2016* 2054 2094 2097*
SLK02	A	004	188E	2061	2058
SLK04	A	004	189C	2067	2055
SLK05	A	004	18A7	2071	2068
SLK06	A	004	18B2	2075	2062 2065 2072
SLK07	A	004	18BD	2079	2076
SLK07A	A	004	18C8	2083	2080
SLK08	A	004	18F0	2102	2084
SLK20	A	004	1925	2131	2095
SLK25	A	004	1969	2169	2166
SLK26	A	004	1979	2175	2172
SLK27	A	004	1984	2179	2176
SLK28	A	004	198F	2183	2180
SLK30	A	004	199D	2189	2184
SLK50	A	004	19BD	2211	2187
SLK55	A	001	19CB	2217	2243 2248
SMOD	C	001	0200	4612	
SNSBYT	A	002	2CF8	4523	
SSW2F	C	001	0001	4551	3782
START	A	001	0000	0006	
SVP	A	004	2A08	4336	0108 0117 0184 0202 0268 0383 0433 0458 0470 0480 0525 0562 0589 0909 1008 1061 1324 1393 1432 1456 1607 1799 2021 2138 2213 2296 2313 2356 2386 2413 2498 2553 2631 2755 3215 3850 3876 3911 4064 4133 4150 4171 4193 4232 4251 4266 4293 4304 4318
SVPCTL	A	004	2A54	4364	4356
SVPEC	A	025	0A39	0033	3759* 3788*
SVPSNS	A	004	2A5B	4367	4353
SVPX	A	004	2A94	4388	4336* 4343 4381*
SVPX1	A	004	2A90	4387	4337*
SVPO1	A	005	2A23	4345	4379
SVPO2	A	004	2A78	4378	4365 4371
SWA	C	001	0004	4576	3981 4019 4031 4034 4040
SWB	C	001	0002	4577	4005 4019 4031 4040
SWC	C	001	0001	4578	
SWS	A	002	2B54	4457	3581* 4339* 4383* 4458
TBON05	A	003	2242	3364	3370
TBON10	A	004	225D	3374	3365
TEST	C	001	0212	4619	3562
TRAP04	A	004	12DA	1232	1259 1263
TRAP05	A	001	12EB	1237	1229* 1251 1254 1258* 1262*
TRAP06	A	001	1302	1249	1230* 1257* 1261*
TRAP07	A	004	1303	1251	1246
TRAP08	A	004	131D	1261	1255
TRAP10	A	004	1329	1265	1252
TSTSW	C	001	0080	4571	3578 3604 3688

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
UDT0	A	003	0A0C	0022	
UDT1	A	003	0A0F	0023	
UNPACK	C	001	021E	4622	3647 3652 3657 3675
UTAB	C	001	0232	4628	3442 3471 3494 3796
WORK1	A	002	2B56	4460	0065* 0068* 0069 0082 0083 4345* 4352 4355 4370 4378
WORK2	A	002	2B58	4461	3660 3662 3669*
WORK3	A	002	2B5A	4463	1899* 1900
WORK4	A	002	2B5C	4464	
WORK5	A	002	2B5E	4465	
XEF	A	001	2B44	4438	
XOP	A	004	2989	4249	3950 4017 4086
XOPX	A	004	2995	4256	4249*
XREG04	A	004	0AA1	0116	0140 0143
XREG05	A	001	0AAD	G120	0115* 0126 0135 0138* 0139 0142* 0152
XREG07	A	004	0ACA	0135	0130
XREG08	A	004	0AE7	0145	0136
XREG09	A	004	0AEF	0150	0127
XR1	C	001	0001	4535	0522* 0523 0545* 0546 0557* 0558 0559 0574 0574* 0575 0820 0829 0830* 0833 0834 0834* 0839* 0849* 0971 0978 0979* 0982 0983 0983* 0992* 1002 1003* 1004 1005 1005* 1006 1016* 1297* 1302 1304 1305 1308 1309 1352 1358 1364 1379 1379* 1380 1892* 1894 1897 1897* 1899 1919 1949 1956 1957* 1960 1961 1961* 1970* 2550* 2551 2552 2580 2583 2583* 2628* 2629 2667 2673 2673* 2674 2762* 2763 2766 2766* 2767 2786 2803* 2813 2815* 2824 2834 2834* 2839* 2888* 2889 2890 2893 2894 2897 2897* 2898 2971* 2972 2980 2980* 2981 2987 2987* 3121* 3123 3123* 3124 3363* 3364 3367 3367* 3368 3640 3664* 3665 3667* 3672 3672* 3673 3683 3683* 3684 3686* 3744 3768* 3785 3818* 3841 3845* 3846* 3848 3860* 3867 3871* 3872* 3874 3896* 3903 3907* 3908* 3909 3932* 3939 3941* 3942* 3947 3957 3957* 3960* 3968 3972* 3979 3982* 3982 3985 3985* 3993 3997* 4003 4006* 4007 4009 4009* 4013 4022 4022* 4023 4030 4030* 4041* 4048 4054 4058* 4059 4060 4060* 4061 4071* 4077 4079* 4082 4088 4088* 4089 4092 4092* 4093 4095* 4102 4104* 4105 4106 4106* 4108 4112 4112* 4113 4119 4119* 4120 4122* 4205 4207* 4209 4214 4214* 4216 4219 4219* 4220 4222* 4337 4343* 4345 4347 4350 4350* 4358 4362 4362* 4373 4376 4376* 4381 4387*
XR2	C	001	0002	4536	1893* 1894 1898 1898* 1920 2816* 2830 2835 2835* 3745 3769* 3786 3817*
X048C	A	002	2B42	4436	1731 1738 1761 1764
X1234	A	002	2B40	4435	1697 1700 1704
X22	A	001	2B43	4437	
Y	A	001	2CF5	4519	0282 0313 0366 0375 1090 1098 3947* 4013* 4083* 4240
YPAT	A	001	089A	0275	0264* 0296* 0303* 0313 0335* 0341* 0347* 0363 0372
ZERO	A	002	2B46	4440	0065 0545 0879 0988 1047 1889 1966 2968 3105 3197
ZLS	A	001	2C32	4502	0880* 0972* 0973 0973* 0979 2941* 2942* 2943* 2944* 2945* 2946* 2947* 3941
ZLSAR	A	002	2B6D	4480	0879* 0988* 2948* 3539* 3942 3943* 3946 3956*
ZLSER1	A	004	1094	0941	0886
ZLSER2	A	004	109D	0946	0891
ZLSER3	A	004	10A6	0951	0907
ZLSER4	A	004	10AF	0956	0914
ZLSER9	A	004	15DF	1643	1629
ZLSIN	A	001	2C52	4505	
ZLSLOC	A	004	10FB	0992	0971* 0978*
ZLSLOD	A	004	10C9	0977	0900 1594
ZLSLOE	A	004	10FF	0993	0970* 0977*
ZLSLOF	A	004	10B4	0970	0936
ZLSLO4	A	001	10DA	0981	0980* 0984* 0985
ZLSLO5	A	003	10D9	0982	0986
ZLSLO9	A	006	10ED	0988	0975
ZLSSNS	A	004	1103	1001	0888 0903
ZLSOA	A	001	1044	0905	0899* 0920 0923* 0928 0935* 0953
ZLSO3	A	001	1018	0984	0943 0948
ZLSO7	A	004	103A	0902	0938
ZLSO8	A	004	103E	0903	0921 0924
ZLSO9	A	001	1042	0904	0902* 0916 0919*

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ZLS20	A	004	1078	0926	0917
ZLS50	A	001	1121	1010	1004*
ZLS51	A	004	1129	1016	1002*
ZLS52	A	004	112D	1017	1001* 1003 1006*
ZLS61	A	004	1573	1601	1641
ZLS61A	A	001	157C	1604	1596* 1640*
ZLS62	A	004	157F	1607	1626
ZLS63	A	001	1585	1609	1603* 1621 1624*
ZLS65	A	001	1592	1616	1605* 1625*
ZLS68	A	004	159C	1621	1618
ZLS70	A	004	15B3	1628	1622

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

OBJECT CARD LISTING

THE CHARACTER • INDICATES A BLANK COLUMN AND THE CHARACTERS D̄ Ē H̄ INDICATE NUMERIC SHIFT.

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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

 GBK GBD   PN 42  47604 EC 827827  3340 ATTACHMENT   TESTS - MODEL 12  84aa84aa                  C1410000
TCOY|OMD  &  BT,  ""aE  A &                                                                     7-4C1410001
T  YR                                                                                           LEYC1410002
T+-Z4 & H-aBGH?|   /2&HO*HH**BGIB3   /2&HC D,NS_F<*&  S9CCDH5Q( K_OH>L  2 &7 /2&%OH*BE%B  GIFY "SOC1410003
T+-D? <BGIFYMH><  S9B_NH5QB  D.OH*  BE-< B?T /2.3OH*  DB:SSOH*UBT3"BD4  a3S35OH*DBOBI  4   S&  O9-C1410004
T+-,DLK35 B<( B3  5BD72 LD8 K_Sa/   EOH*UE- ' &D_aYD  OC- H,K_G+| H,*B  &BDDa &D_OH*HY*B  GIBO EHYC1410005
T+-%VOH*BE%BGIFY  KBD4%'&& BOC /OH  OA& .E<BGH?| /2&  H|  ,4%BGH-_"--B  D D4,4W=B H& .L%  BH6H JYMC1410006
T+-_-|$O,Q?HAIC7  'H'.2-K" /2Y.HHH   /  _+OH,QT6AH6.  2 JG /2&%OH*BE%B  GIFYBB2*,Q%BGIFY  KB4< *.4C1410007
T+->$H6. /2JDH Q   B7C /OHDAO <O<B  GH?| /2&H|Aa.VT?  "B9-a"O>E|  <?3_  OC." /2Y.DHH S B  H H% 1I8C1410008
T+-?O D-%aOAH.|&   K235 B<8&B_Sa/   EOH*UE- 8.->OaZ   <|C .VTO B9-a  >  E+CD.V?H&CCO>B9Q  a"O% =D&C1410009
T+-OJWC3"B9Y( B3  3B9$2 &&:D 2"C&   %' >Qa-DD+S <?O4   .|M.W?HAACZ C.a  8* 2"aZAQ+ -<?"H  &EL- :E%C1410010
T+-1<A 2"aZ S+ H  <?"H&.aBGIB32/7<  :8 2"| D.VTO B9-  a  >EOH*.TCYDC.a  a.O>O||a.WC3"B9,   /O% 1ADC1410011
T+-2GTCYBC.aa<&>  O|  .WCO B9, /O>  <+A <?"H&G3--C."  2DA-8& 2"a/ JOH*  UESQ.V->QB9Y%a23  4.|M 4H C1410012
T+-3BOH*UETQ.V->  QB9Y%a234.|P /2&  HOH*DB:SB H- SSB  | B<9&B_SaZ DOH*  U.<BGIFY&OH*BE-   H  O LOaC1410013
T+-3'2<BG /QI  4  'OH*SaaBGI , /2Y  .HHHETOAC.|M /    _+&-%'-H&A*BGIFY   + H,Q% &IB3 /2J  D<<  )2DC1410014
T+-48/2&HOH*DB:S  B"8Y-TOF| B<8BB_  SaZ OOH*DB:SB QY  -TOF| B<8BB_SOA   U.<9GH->Y--F?OH*  UE/  3Y C1410015
T+-53OH*BE-Y CMP   /OHDBO +BaBGH?|   /2&H||a(#LOSC-U  a"O51||a(:%HAH>&  4 &7#OH*DB:SBBHT  "SSH 'D4C1410016
T+-6>TOBE B4'"2_  Sa-EV|& (*-HAGCO   C;4a  51|  (:TO  KC-XB K_F( D(=aB  GCOX /2&%OH*UB%H  AC-8 OT-C1410017
T+-7ZG  (?O *  7  A *BGH->Y--BH HY  STO T+ &,Q?H&D_H  A X7" < ACE" /2&  %OH*BE%BGIFY OH*  DB:- 4ZaC1410018
T+-8U--SH"8YS,3O  A.|$ /2JDHS.UH6H  <    C|a "O&AB G  "C  +DaBG /Q(  8  $OH*BE-8 CS| /OH  OCO  7R*C1410019
T+-9-C=" /2.3|    |$C3+C,7 /2&H|    ,Q%BGI3* 3%BGHJ%  '3S_SO D|$*BGI"H  |*8,Q?HABTYAC6O  < B% 63QC1410020
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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+-:E4S_S| ,Q%B	GI64 3%BGHJ%'3S_	Sa-G5OH*Y & '3S_	SaYDD+-H|$CUCC63	2D Y8 &'%a/C*aY¬	SOH* ;J&C1410021
T+-#NIBOa '%OH*	UbTO C,%a :'C D	+>-'ZOH*|D<BGI"H	|& ,Q?HA. 4 C,Y	|E"HAD3YAC60< B?	KC,4 PH4C1410022
T+-a&C ,42_SaY*	&+-H|$ O H'&+?&O	H'M,QT4¬C,?2-J-	+ :#H3Q'"O:'OHD	+_O8 C,4,(%BGC,*	(&8 NS8C1410023
T+-'.>-',aYDEC D	+>-',| +>37"C,7	-&:7|H +?*BGC,*	9 O'%a/ H+ D|$|H	&<"HG+*8GIBO'"O:	'OHD "Z*C1410024
TGO',/$ /2&H||a	+?LO C,%< &::C6X	/O=IOH*+_2¬2H D	.....	.....	&Y*C1410025
T+-=XOH*UE-C /2J	DDS?KH'| /2JDHS?	MH'P /2JD<C&HC=8	4 &"D||a,4&O;H'	,4L3".AD<GSO&.AG	2/3* NOOC1410026
T+-"S(-|#T&AC=,	B K>2I |>PO (H	A &8 C#U,(T4-C#X	2 &3B K?2|H |>*B	GC#-'Y =90 D|><8	GI2 7.QC1410027
T+/)OH*XN%HA C	/O D J<*BGH2X	/2-7S|" /2&H|	,Q-OAH64,JT3+.C.	/2$KOH*ZF37+H6.	2 PQ 1A-C1410028
T+/AQOH*J O '3S_	Sa-E3OH*U.<BGI Y	a AADOH*&2LO DD.	/1DC C4 H6.2 N3	/2Y.DHH H3U-H6.	2DEQ ;DYC1410029
T+/BL|Ja&&?HAF 8	DDH,(T7"DDL -J	=C- &JB%6OH*&|%B	GIBO'"1ADOHDBE%B	GI Ya"1ADOH*&_<B	GDCY 5ODC1410030
T+/C+OH*UE-H&FB_	SOH*UE/H&FB_SOH*	UE/H&JB_SOH*UES	4BADB(D&"T3".ED	<GS1&.EG2/2&4BAD	B(D ;C C1410031
T+/DID|#B KO2|	&6XO (HA &8 D(Y	,(T4-D(, JCRC D	,$K_F|B ,QaBGI_.	B & OH* C&HDL	4 JD "/4C1410032
T+/ED.CHADL * AD	/ (HA L&ADLC /2Y	.DHH S-H< HQ .*H	A C /O D& KT%B	GH2U#DAFJ+1 JU8B	GHC* &,4C1410033
T+/E"S|" /2&HC D	KTB_F| KTLO DYY	a AE9|A JS30 DO4	a AF|| %'&OA.|&	%'*BGH->Y--B. Y=	.TY8 QLDC1410034
T+/F:T-BH HY SOH	|BH4 S BH H>>T%:	+CY8 KB33 DY%' A	,.|H(AF..|| JI	PC& JTK34O DKNO4	DQa 4:UC1410035
T+/G5.|P JIPC	KS1E9C KTAFJC	KTJF.|¬aJT¬HAA3Y	&DY,2/O%8DAHHa2	D+Y KST7"DQ72 J*	#DAH =DMC1410036
T+/HOST-&DRG2DAO	:DAFJ+/ JU8BGDN4	a"1F(||aJT3O|DQ?	/1E3+1 JUL%&DR<	'OAE9aYDHC- J;K%	aOH* 6KQC1410037
T+/I,DN49¬1HHa2	HOH*U.<BG /Qa K3	6+< KS?H&A*BGIFY	OH*UE/ (AH(DQ?	2-&-:HAHHOH*J# 4	DY% "OHC1410038
TG/HHDPX2 JD(AH	<DRG2 &-:HAHHOH*	J#CZ-DY, /1G%	.....	.....	3$aC1410039
T+/.HD- L<*BGH2X	/2-7SI3"OH*Y*&	B A"aBGI Y	a B?JCA8,4B?J|	%D&O;.A %DLOCH#U	aAK% 1/QC1410040
T+/<C?LOFH#aa92?	A| QK:3O DOHa B?	2| %C%BGI2C /2)	O| Q,R%BGH*" /2-	AGC4 H6.2-&P /2J	D C4 J-<C1410041
T+/<= 1.,aYD¬|&M	K:"HACCO&DOHaAJ.	,OH*K6TO-DOHa 1.	,OH*K6%BGIB3 /OH	ODO NO*BGH?| /O=	YO-D KC*C1410042

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+/(9E&L /2&HG	L:OD:-A(#G L-O	* AMC &OAH'<S9C3	"H6H* A|O /O D=H	B+ HN "H&ACY&D=.	/2- KQHC1410043
T+/+4(OC"OH*DB=S	B HYST8>+TY#8--A	(H'H L2?L DO,5 A	GH'H RK?O+ <N "H	&HA4 H'HAO DM13-	BE&< aI C1410044
T+/|?a/ IG& ,4OG	JL&+ DL-"H&BJ4	H'&AO DM6L%CH'M	' B?NO DM8T%CH'Q	' B?OO DM:aBGIB3	K &< aK%C1410045
T+/&D¬¬a O DL&*B	GI Ya A&.C D,42%	8OH*DB=SB HYST8>	+=HH JK?K:HH.T?S	B FM,43-BH'.2U<O	9 S% ;9YC1410046
T+/JV4"H&1&8 E %	,|C7-E ? J|"OH*	U.CO EEUa AKGOH*	UB-OAH'<,+%BGH-?	Y--BH:Ya<T¬SB DM	,4>-)1UC1410047
T+/K---FHHYaHT¬S	B FM,43-AH'.2UGa	9 K?LaZA8OH*DB=S	B HYSTOS(F<,4TU	BH'.2DF$ /2&%|M	MO* LH<C1410048
T+/L$-&HO|¬aMO¬H	AD 8 EEU,J08 EH*	,JaBGEDUa&AJR|D	M/aBGEDX /2JD /M	CH'. /2JDD/"CH'|	/2& &,HC1410049
T+/MOESH,5B_SOH*	UETHL5S?NOH*UEUH	L8S?OOH*UEVC /2J	DQ<BGIFZO	AC BA DC8B DI8H	EHB 7S4C1410050
T+/NJAS TA21 BDJ	DBM/ BUAEB41-CFA	WCO1-CWJXC6S DHK	HDQS DYBID82-EHB	DEE2-EDK,E:T F<C	<F*O 3ZYC1410051
T+/O<OA,D3J?H"1&	E;L /2<ZOH*Y(8T	"OH*&2LO EPOa AH	HOH*UBTO EQMa AO	KOH*DB:SB H%8T8>	+TY8 NCMC1410052
T+/PG HQ .L4 H6.	2-&&: JHH|* N/¬H	AD 8 EQM,| 8 ERH	,(%BGEPa8 JHHa/	VOH*U.C-BDY, D H	OOH* 3#4C1410053
T+/QBHC;C/8>|U9;	$X"a: /HH|A N¬<B	GEP| /2JD AM E3¬	/2.3OH*Y(8C"OH*	UBTO E? aD/$2|C&	O'CO $/YC1410054
T+/Q'SA$6OH*O7T4	4E3C2 EM(A*1H3"	2-&O(A*2H4C2 RT	2/9Y(A*2H4C2 R$	/2&%OH*UBTODE?H	aTAQ 2 QC1410055
T+/R8'<BGI64 <B	GI64A <BGE_8'TA*	Oa-E-+ D%'?H&DO4	AE3H,&?HARC-HE3P	2UF.2/OU(J*4H4.	2 ND &/MC1410056
T+/E3OH*U.<BGI Y	aBA$6OH*X$& OH*	X$&D OH*O7TV E3$	2UC-(J*2H4.2-L&	(J*4H4.2-K? /2&	%OH* O&OC1410057
T+/$> /$ /2JD <B	GIFY&OH*UESC /2J	D<<BGIFZ OH*UEVC	/2JDQ<BGIFZO(-	P.aBGH-?Y--FHHY=	.TD- 2Z<C1410058
T+/*Z--BHDYY4S8S	B H"Y--BE DUP< A	CE3EY--BH>HH L/*	1 DYP<DS8 QD8--A	+E?< K/*4SHH T#S	B FM)$YC1410059
TAJ*?E3P /O	.....	.....	.....	.....	$:8C1410060
T+/)1E- P|aBG /Q	P A!GOH*BE/- FBT	/2<ZOH*UBTO E'T	/1¬>|D ,QOOAH6a	,J%BGIX#B K12O-H	%%W4 R,UC1410061
T+/;% a-D24-D	A8-HA(D,O-4AH5Y	,L* AE7D'"212aYD	HOH*P6*BGE5%9¬1¬	QaZ _OH*U.<BG /Q	'"2O &T-C1410062
TH/¬P*?HADT&AE'M	4 /¬PC- P6B%6CH*	P;CV"E'T2U P /2J	D <BGIFYK	.....	1RHC1410063
T+/-L(-QI3&AFB<	a"221CC8%%B21aY*	U(-QI3&AFB|B K1	2| P"7O (HA &8	E"a,(T5 E"" J¬	=C D 'Y<C1410064

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+//+H6a,JT1 H6|	/2Q%O-D <BG	R A-OOH*BE/Y F-?	/2<Z|.OQQ%BGI Y	a AHHOH*DB:SB QY	ST8% NLQC1410065
T+/SIT-+H-HYDS8S	B H=H--BC HFY-,2	H H>H--B| D4P<HS	B DHP(&A E3Q /&	_|$OQQ?HAFL-AE3P	2D & &E&C1410066
T+/TD+-DKSTS E3$	2DA4: /HHaY*O+&D	P(¬H&ACYADYY9-A*	6a/ D+-HKST4 H6.	2D &:AAHH|& P<|H	AACY #- C1410067
T+/T"BAHH+&aKS?H	&HL-BE3P2UDM8 J*	6aZACOH*U.C6OFF.	2-L4a%A/SOH*Q&C-	|DY,2DAY8 1HHa/	++ & N:8C1410068
T+/U:DY,2D O8BAH	Ha/ HOH*UE/C /2J	D <BGIFY-OH*UEWC	/2JD*<BGE=# /2&	H| KS%BGH->Y--E	H-HY "Q*C1410069
T+/v5C8>H--B|DHH	/&A(E3O-S/=.SHH	T:SB HM $J*6OH*	Xa- 'C2_SaYDO+-D	KS%BGH D |Ja,Q?H	AACY EODC1410070
T+/WO /HH|&aP(¬H	AACYDDYY'G1*6aYD	D+--KSTU|DY,2U ¬	/2&%aY*-+ aKS?H	&C3UCDY,2D |2/O,	/2& #.OC1410071
T+/X,EVC /2JD<<B	GIFZ OH*UB%BGH->	Y--;H-CY|S8SB H=	Y--BE D4P(&FH YO	/-A_E3Q'C1*5a-D	||&a 1E-C1410072
T+/YWE3$2 JG /2&	%OH*BE%BGIFDBF*%	P(*BGIFDKF*%P(/%	F/| /OHOG $*<B	GH2X /2&HOH*P#%B	GH-% OIOC1410073
T+/Z/SHH -OBA DH	P(&A-E3Q8 J*5aZC	5+H P(?H&aaBGH->	Y--FHHY=.T-+H-HY	DS8SB H=Y-,2HG8>	H-- $1HC1410074
T+/D*TOA(E3BY--A	BE3M &A*6 HM .L-	AE3P2D.a9-A*6aZB	'+ HP(¬H&8L4¬H6.	2 $&'G1*Oa-F2|	KS% "8MC1410075
T+/,P/2Y.DHH.SHB	H H?"SQSB H=Y--B	E B4'"2_Sa-FM|	,$aBGIX8'"222a-F	H| %ULO¬H6" /2Q	%|A4 JQDC1410076
T+/%KF?*aGJ%FOH*	DB:SBCYB.SHFHG8>	H--B|DHH /& _|J4	,Q?HAPCO¬H6" /2R	=|J4,Q?HANT4;F?¬	2-JQ 6/aC1410077
T+/_(|A8E'3O;FO$	/2Y.SHH -OB/OH*	E7%BGIB3 /OHOOH*	UE-C /2JDD<BGIFY	-OH*UETC /2JD&<B	GIFY 91<C1410078
T+/>HM<BGIFZ-OH*	UEXC /2JD-/,7H6.	/2JDU/,7.(G /2J	DYA4 F7T /OHOG-	*R*BGH2X /1¬>OH*	UB% 7: C1410079
T+/?C/2Y.DHHASSH	|S8BCSHBHAH>H--B	|DHHHSHBHDY>H--B	|DHH /&_|EY,Q?H	AB*BGIFYBF#D,QTO	H6a 2CYC1410080
T+/?=OH*W¬T6D...	2-&X /2JDD/>1...	/2&%OH*UB%BGE=#	B J1*G $=- * A?	a *BGH->Y--2HUHY	AS8-)-QC1410081
T+/O9--B|DHH /&	_C *F/?:+= *FT4	AH6.2 LD@DB_?OH*	W¬-OAGC W,&OAGE%	W,L4A C2 J'"O.	-JO :SOC1410082
T+/14&_HA %BGF=T	/2&%OH*BE%BGIFY	SH3Q,Q%BGIFY2H3Q	I A-/8C ZD&"1a	GF7 /OHOH *#%B	GH2U 6HHC1410083
T+/2?OH*UB%HAG(U	* A2H <BGH->Y--B	H"8Y SOB| Qa|TOB	E D4P<BF|C8a /&A	(E3O-TO=| HM LJ*	2 H% *E%C1410084
T+/3D Qa|TOBE F4	P<14CE3<DaYDEOH*	UE-CK &N'"OC J1	'OH*U.<BG /Q C	" D """"-C" |a	C |a ¬ OC1410085
T+/4V"?""H& *'%B	G /QS A3=OH*BES<	G&$ /OHOI)C%B	G /QV A4OOH*BESQ	GST /2<ZOH*Y(8S	*"a OR C1410086

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+/5-/2/1 H	H H H H H	H H H H	& X"OH*UB%BGGRH	a K_WOH*Z3aBGH-%	H-- ¬&8C1410087
T+/6$Q1*OOH*)6%H	A.AI'B&C2 JPK &&	4 J*2C&DP<S_.O D	)$<BGIB3 /2JD J*	OOH*BET&HG)U4 J7	N| a DC1410088
T+/7O.AD<GSO&.AD	a B?JCA8,4B?J| <	,_LOVH#UaJ2>'|FU	,OL2.HaMa,K?I|<D	,3*BGI2C /2)OO-D	< "-OC1410089
T+/8J/O (-;I3&	AGS|B K?KO-H%DTO	G¬Qa A8 OH*Xa-A	<,Q%BGH D T	H6H+ A76H3Q+ A8	H3Q P8&C1410090
T+/9<4-DA8-HA|Ja	)'% AG¬.B & OH*	B* GTC /OHOH	;_aBGH2X /2/1	& HD& HH H<& H&	HM P2*C14 0091
T+/:G BFD BGD B	H BID I"aBGI ,	/16KOH*Y(8BDSH2	&VIS*"3OAH6$ /2X	|OH*)6%HA.AI#- A	'B& #KMC1410092
T+/#Ba-DS;8 A¬&U	Aa-D;4-DD(DP<-4	AE3H,Ka AGY. /2&	%OH*BE%BGIFY OH*	UE/ Z A:"OH*bESY	G8U 1/&C1410093
T+/#'OH*TH*BGHGD	AS "OS&"O ?a	aBBO2|AU%<3OD.C&	a+2O5|DO%(T1).C*	a$SO8\| ,$LOHH6|	/2Q 'Q C1410094
T+/@84%BGHC; /HS	<UIKQX|" /2&HOH*	)U%BGE=8a AHH| D	,R%BGH*aa&B_TC D	,$2_FOH*W¬%HA..I	'"O QZ-C1410095
T+/'3a-DG+-HKS?H	GACYADY,K &&4 J*	2C&DP<S_JOHD¬E&4	AE3H,La AG3$K &L	/1a6+ DKS?H&DL-	BDYY =.<C1410096
T+/=>aZ EOH*UE-C	/2JDD<BGIB3 /OH	OHO ¬U*BG /Q% BB	*OH*TH*BGHGD AS	T "1D HAU A&	HAU L&OC1410097
T+/"ZO|aR BDA U	& BDEO|aA BHI 4	& BH.O|aC B<K B<	. AH& B&.O|aC AM	BMH BQB A- BQ	Q- J#DC1410098
T+/S UBHD BHH *C	"D%G" a."B	¬ -D /D S	TD U V W"aB	GI , /2)_ C /2X	|OH* &&OC1410099
T+/SA-H D |KQ,Q?H	DOL4-H6.2-V.2 K%	a 2_TC D,$2_FOH*	W-T4 ...2 La' B2	3a-D'|& %_|HA+aB	GIBO ;J<C1410100
T+/SBEOH*BE-O HH*	,Q%HA + BBGHH¬	K &D4 J*2|&&P<%	AHF# /2JD <BGIFD	-OH*UE,C /2JDO<B	GIFY N&DC1410101
T+/SCN4B4 HHL /OH	O.- /O<BGH2X /2/	1 H- *Q-&-H-?a	J&HDR&QH &< & $	"OH*UB%BGI64 <B	GH*a LB-C1410102
T+/SD&OH*Y & 'AS_	SaYDEOH*UE- a 2_	TC D,$2_FOH*W¬T7	"...2 &8' K23a-D	6I¬3%_|HAA*BGIFY	&I * E UC1410103
T+/SE.H7G /2TJOH*	DB:SBCYB ES34|&-	,*¬HADL4H.|L2 JH	+ B_1H3$ /2DL|¬a	%'<BAIB3 /2JDH<B	GHGD 6I4C1410104
T+/SFF H- *K&<Q	."OH*Y*& GD <	D M "33".GX /2*	7 YC /2&H| *,$aB	GIS3 /2)_ -C /2)	_ QY*C1410105
T+/SGAOH*Z3aBGH D	|&H,Q?HAA*BGIFY	| H,Q3OFH6" /2R	=|&<%>|HABC4E..X	-K&%OH*UETC /OH	O.O 6J C1410106
T+/SG&H>G /2<ZOH*	Y*& 8HA"FD CD	.BHB"EM FD $BHC	¬BU ID $FH F4	<D $BHC7CD |D	$8H 914C1410107
T+/SH7=15 D/ FOS	"&9 EJ FOS "-'	FA F1S "1/ FO	F/ F"" /2-7SI3	"OH*UB%BGGRHa K_	WOH* a,OC1410108

C141 3340 ATTACHMENT TESTS (PART 1) 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
T+SI2H*" /17EO-D	%DX4E	HAE}HAAC&	AE3H(J*2H4? KI	BOH*U.<BGIFY OH*	Y*& BHB D CD .BH *T<C1410109
T+SH_&AE A/ FOS	HAI BJ FOS D (	CA FOS BAJ C1	FOS A N D/ FOS	/R EJ FOS J)	FA 6/aC1410110
T+S.Y A%Q- &A%	AY& A?"OH*UB%B	GI64 <BGH*" /2-	A C4EH6. -K&%OH*	UE/C /OHO< C""04	TH EO C1410111
T+S<TB-C -OOBOH*	BET&HI U8DB_KaZ	HOH*BFUQKH3PA C-	AB/X DBOHC& B<-Y	OHDV|&3".|-%=&3	".ED 5HaC1410112
T+S(:.E.2/'M4BB&	I+A ,M?H&B%BG /Z	FDS%50& 8 &YROA	VS 4 THH <BAIL4	<"238.|U<"21J.EH	a-B% "JOC1410113
T+S+R¬30(H6X /2P	8| ,¬aBGI¬-aC2_	ZOH*V=COCH6X /2P	8|A<,E*BGI¬-aAK_	ZOH*V=C2 H7UaA2_	ZOH* K-4C1410114
T+S|MI¬T /2WROH*	Y(8BDSY2&VIS;X?"	/2*-|A&,=334H"4	aNB?"|E&% *BGI5Q	a B__|B ,QaBGI_H	a&B% 72QC1410115
T+S&|QaBG;S3 /2U	3B "aBGHGD +	/ & & & &	& & |aaBS3	6OH*BD%BG 4BB&	,+Y LT-C1410116
T+SJHH5.31G8O B_	M|QD,MaBAIQT31H	a K_TOH* C&HIFU	8-B_KaZ ?+A ,M%	&IBD:&B_K|E<VB-a	.|Q 8.<C1410117
T+SKEH3$ K&/+B	,M?H&DL?"H5HaBS3	6aa&BaaJaOH* C&	HII-4 KL$+A ,M%	&IBD<GBD5H,$ /OH	; &Y R/4C1410118
TDBKO KDROH*BG-D	H 2DEOH*BG-D	.....	.....	.....	EA8C1410119
THKLBH5-< BD&H5¬	B KD;(DU1TMAII-	G B_QH372-/?K &H	* KLD <BG /8A	.....	LAOC1410120
T+SMAC-DU1S%:OH*	U,)HA L&AI+|B &	+H ,M%B& aNSM	H+D ,M?H&DTY-H5H		B36H3$ K&/|ED	VB% LQQC1410121
T.BM>/OHEO&DD_%D	OH*BFYD*H_. /OH	E//8D_&OA:L VB?|	D ?|D¬CY&H5. /OH	S	R#8C1410122
T+SN,OH*BF-QEH>3	/2&/(-V/3&AIPa	4 SOCC&DHGBN30 D	VP&4A$ DV*aBAIPL	/OHEJ/<,HaD CA-	H+&Y 4.-C1410123
T+SOWF<BG SYDCA*	:D YROH)% %HA C	B - OH* C&HI;*	8 &H(aZAJ(DV83&	BI)a<F Y9B/-(&Y	;I*4 *.MC1410124
T+SP/a-DIC&E KP	(aYDVC& B<-Y OHD	V7<BG /ZFD2,"O&C	/OHDA OROH*BFUQ	JH1CA <BG&.B -	O-D #1DC1410125
T(2QR C /O (-	V'30GH6X /2P8OH*	C&HIS%4 KQXOH*	Y'*HAH7H6 K_Z(D	WFaBGH->-OS32 <%	..... JTYC1410126
T(KRJ YaBT&CS.|.	B & OH* C&HIX4	4 KR9OH*Z'aHA.GH	6 K_?(DWMaBGH->	-OS32 <Y,$OC.	..... :DUC1410127
T+SE+ HOBTOF(+H	%aT4AH6| ABR6CO	,Q2%6C- ,$2%6OH*	W+<HA C /O (-	W4L&AI%7 /2X7O-D	%%TQ "SaC1410128
T+S$I K_?(DW,*B	GH->YOS32 <Y,$OB	<BHaCTOBE D4 C	S.|H' K_TO &W2-a	H6<,(-8 H6a,(%B	GIYY O MC1410129
T+S*DO-D <BG	4BB*¬(DXFaHA.CH	6 K__+Y ,$LOC.|<	< B34H64* B35 <B	GHOP /2WI|&D,Qa	DI1- 3BOC1410130

C141 3340 ATTACHMENT TESTS (PART 1) 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
T+S*"CO ,Q2%6C-	,$K%64-DAOH*W9%H	A C /O (-X&L&	AI=4&HB_T|H ,E&H	AH#.2/"H4BB¬1(D	X#LY $#MC1410131
T+S):AB_K(&DX&JO	H6% +Y ,E*HA ¬H	G<3&HI"D4 K¬_|B	,Q32-H6?B K?2&Y*	*(-X&L&AI=4: S_	K(&D $I C1410132
T+S;5I"D* B_, CD	-H6?K &D& S33C	%'B_,G %'& :-B3	2OH*ZR*BGHQU9AS_	KOA X%*HA L&AI"D	* K% &IYC1410133
T+S¬OQ& DI*8| B_	TH3Q+ B_,H3$K &D	9AS_KOA XSL-DH5.	DB)GOH*X¬L> .|H	& K_T+OQ,M%HA C	/O ;:*C1410134
T+S-, C&HHCQ4 K-	2| 8YH?HGCC&HHCQ	4 K-2| YYHTMAHCQ	* B34 (HA L&AHC$	/2VVOH*DB#TB.|H	C- =QQC1410135
T+S/WBS32O-D <B	G 4BB/O(DY$CM	AHG &AS33G %'	&-B35OH*ZR*BGHQX	K &E'"OC K/C4-D	A(D NIYC1410136
T+SS/HGCB & OH*	C&HH. 4 KS%(&D	Y%AOAH7DA4-DBG H	%'&. /2S14-DC¬¬3	OHDYY-8 H7D,(%B	GHHM 488C1410137
T+ST*4-DA(DY$<H	A C /O (-Y4<B	GH(G /2VVOH*DB:C	B.|H>T%:+ +H%a%B	G 4BBT4OH*Z'aB	GH-%)/8C1410138
T+SUPY<H%a-CHH7	22_1 YaHT&CS.|.	/O (-ZF%BGH¬¬	/2Y.Y<H%a-BH <Y	,ROF<H<Y,E&B< +H	%a% a0MC1410139
T+SVK/O (-Z<%B	GH¬¬ /2Y.H<H%a-B	5 B7 /O (-ZRC&	AHO 5 KVUG H%'&.	/2VVOH*ZO*HA 77	" < 30UC1410140
T+SW(KU"4-DA(D	ZR<HA C /O (-	ZS<BGH¬¬ /2Y.Y<H	%a-CH.|< 2S34 <%	%'&CS.|. /O (-	ZW< ;TQC1410141
T+SXH/2Y.SHH ,aB	G 4BBXB|A&,R%B	GH¬¬ /2Y.D<H%a-C	B.|H-OS32 <%,R-H	|S88H,%BG 4BBX	6+— #E%C1410142
T+SYC.|. /2XZ(-	Z'%BGH->-OS32 <%	,R-H|S88H,T%H.|.	/2Y. <H%a-B>OH*	C&HH-Y:BB32OH*	DBO ¬Q%C1410143
T+SY=8S32OH* C&	HHZ*4 KDL< ,NC6	BH5| -KOH(&DDV10	H5QAG D,Q D#aB_	-4-DB+H ,N?H&HC/	H5Q =R&C1410144
T+SZ9aZ KG DDL D	< BZ+ : B_¬4-D	B<*M,Q|HGGLGGH6	O12_S+D ,N?H&C/O	AHXHAC B_S4-D	B+B L/<C1410145
TGKDPH5$ UBYT(D	DV3 H5&'-2_LOHD	VS<HA C /O	.....	.....	..... 68YC1410146
T+S.O&<PR6MA 9¬E	9¬I 9¬(9¬J 9¬N	9¬R 9¬) 9¬/ &DA	*PE1 8aPS84CI8UC	L5_$P2)PG&E1*P(	OO*&).UC1410147
T+S%,2)PG&+.EO=|	I5_N O"G98%PC8aX	O5MCCa¬V 6*PA1+T	L5%GD2)PG&+.EO=|	I5_N O"G78%PC8aX	O5M Q3 C1410148
TIS_K6*N-8>|A6;|	E1 D - CABC1a/H	4AHOS#O DK?2.B8	%%S3+.+8	....	..... 030C1410149
T B39	....	....	....	....	..... :,HC1410150
E"*'*C7*=¬DC"PH$	="7M&F| '	C F% ASC R A	SO Q	 11060630750	12976=.-C1410151

LAST PAGE