```
                        * PROGRAMMER - M.L.BRANDES  PHONE EXT. 6236          81300020
                        *                                                    81300030
                        ****************************************************  81300040
                        *                                                  *  81300050
                        ****************************************************  81300060
                        *                                                    81300070
                        *            1800 MONITOR INTERFACE                  81300080
                        *                                                    81300090
                        ****************************************************  81300100
                        *                                                  *  81300110
                        ****************************************************  81300120
012C 0                  BEGIN EQU    300                                     81300130
012D 0                  START EQU    BEGIN+1                                 81300140
012E 0                  END   EQU    START+1                                 81300150
012F 0                  LOG   EQU    END+1                                   81300160
0130 0                  ERROR EQU    LOG+1                                   81300170
0131 0                  REQDV EQU    ERROR+1                                 81300180
0132 0                  RELDV EQU    REQDV+1                                 81300190
0133 0                  CRCK  EQU    RELDV+1                                 81300200
0134 0                  MAT0  EQU    CRCK+1                                  81300210
                        *                                                    81300220
07FF                            ORG  *+/07FF    ORIGIN OF PGM               81300230
                        *                                                    81300240
                        *           MONITOR INTERFACE TABLES                 81300250
                        *                                                    81300260
                        *                                                    81300270
07FF 0 1300             TPID  DC     /1300                                   81300280
0800 0 0001             TSID  DC     1          SECTION ID                   81300290
0801 0 0000             TSAD  DC     0          SECTION PREFACE ADDRESS      81300300
                        *     EQUATES FOR TSW0 SWITCH OPTIONS                81300310
0008 0                  OLPST EQU    8          LOOP SIO,TIO                 81300320
0009 0                  OSALC EQU    9          SEEK ALIGNMENT CYLINDER      81300330
000A 0                  OPRRS EQU    10         PRINT RESULTS                81300340
000A 0                  OTTLE EQU    10         PRINT RTN TITLES             81300350
000B 0                  ORTRY EQU    11         RETRY SIO                    81300360
000C 0                  OLPER EQU    12         LOOP ERROR                   81300370
000D 0                  OBYPR EQU    13         BYPASS ALL PRINTOUTS         81300380
000E 0                  OHALT EQU    14         HALT ON ERROR                81300390
000F 0                  OCHLT EQU    15         CLEAR ERROR HALT             81300400
                        *                                                    81300410
0802 0 0000             TSW0  DC     0          SELECT OPTIONS               81300420
0803 0 0000             TSW1  DC     0          SELECT SECT AND RTN          81300430
0804 0 FF00             TSW2  DC     /FF00      UNIT ADDRESS                 81300440
0805 0 0000             TSW3  DC     0                                       81300450
0806 1 09C3             IPA   DC     ZIPA       INIT PRGM ADDRESS            81300460
0807 1 09D7             LPA   DC     ZLPA       LOOP PRGM ADDRS              81300470
0808 1 09F3             EPA   DC     ZEPA       END PRG ADDRS                81300480
0809 0                  MLSCF EQU    *          MONITOR CONTROL FIELD        81300490
0809 0 0000             MLSC0 DC     0          ENTRY ZERO                   81300500
080A 0 0000             MLSC1 DC     0                ONE                    81300510
080B 0 0000             MLSC2 DC     0                TWO                    81300520
080C 0 FFFF             TERM  DC     /FFFF                                   81300530
080D 1 19E2                   DC     PEND       LAST ADDRS                   81300540
080E 0 0000                   DC     0          WORDS FOR MONITOR USE        81300550
080F 0 0000                   DC     0          *                            81300560
0810 0 0000                   DC     0          *                            81300570
0811 0 0000                   DC     0          *                            81300580
0812 0 0000                   DC     0          *                            81300590
0813 0 0000             TLGED DC     0          LOG EDIT                     81300600
0814 0 0000             TSCED DC     0          SEL CHANNEL EDIT             81300610
0815 0 0000             TRID  DC     0          ROUTINE ID                   81300620
                        ****************************************************  81300630
                        *                                                  *  81300640
                        ****************************************************  81300650
                        *                                                    81300660
                        *     TABLE OF CONSTANTS                             81300670
                        *                                                    81300680
                        ****************************************************  81300690
                        *                                                  *
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                        ****************************************************  81300700
                        *                                                    81300710
087F 0                  TB    EQU    TPID+128   SO TBL CAN REACH PST TBL     81300720
0816 0 0001             K1    DC     1          CONSTANT ONE                 81300730
0817 0 0002             K2    DC     2          CONSTANT                     81300740
0818 0 0003             K3    DC     3          CONSTANT                     81300750
0819 0 0004             K4    DC     4                                       81300760
081A 0 0006             K6    DC     6          CONSTANT                     81300770
081B 0 0008             K8    DC     8          CONSTANT                     81300780
081C 0 0009             K9    DC     9                                       81300790
081D 0 000A             K10   DC     10                                      81300800
081E 0 0014             K20   DC     20                                      81300810
081F 0 0064             K100  DC     100                                     81300820
0820 0 03E8             K1000 DC     1000                                    81300830
0821 0 000A             H000A DC     /000A      CONSTANT                     81300840
0822 0 000E             H000E DC     /000E                                   81300850
0823 0 000C             H000C DC     /000C                                   81300860
0824 0 0010             H0010 DC     /0010                                   81300870
0825 0 0011             H0011 DC     /0011                                   81300880
0826 0 0013             H0013 DC     /0013      CONSTANT                     81300890
0827 0 0020             H0020 DC     /0020                                   81300900
0828 0 0027             H0027 DC     /0027      CONSTANT                     81300910
0829 0 0050             H0050 DC     /0050      CONSTANT                     81300920
082A 0 00FF             H00FF DC     /00FF      LINE TERMINATOR              81300930
082B 0 0100             H0100 DC     /0100      CONSTANT                     81300940
082C 0 0200             H0200 DC     /0200      CONSTANT                     81300950
082D 0 0400             H0400 DC     /0400      CONSTANT                     81300960
082E 0 0500             H0500 DC     /0500      CONSTANT                     81300970
082F 0 0700             H0700 DC     /0700      CONSTANT FOR SENSE DSW IOC   81300980
0830 0 0A00             H0A00 DC     /0A00                                   81300990
0831 0 1206             H1206 DC     /1206                                   81301000
0832 0 2100             H2100 DC     /2100                                   81301010
0833 0 2106             H2106 DC     /2106                                   81301020
0834 0 3000             H3000 DC     /3000                                   81301030
0835 0 4000             H4000 DC     /4000      CONSTANT                     81301040
0836 0 7FFF             H7FFF DC     /7FFF                                   81301050
0837 0 8010             H8010 DC     /8010                                   81301060
0838 0 8106             H8106 DC     /8106                                   81301070
0839 0 8107             H8107 DC     /8107                                   81301080
083A 0 F000             HF000 DC     /F000                                   81301090
083B 0 FF00             HFF00 DC     /FF00                                   81301100
083C 0 0000             INTFA DC     *-*        PRIMARY  INTF ADDR           81301110
083D 0 0000             INTFB DC     *-*        SECONDARY INTF ADDR          81301120
083E 0 0000             CNTDN DC     0                                       81301130
083F 0 0000             TSCTN DC     *-*        SECTION NUMBER               81301140
0840 0 0000             TRTNN DC     *-*        ROUTINE NUMBER               81301150
0841 0 0000             TCNSW DC     0          ERROR SWITCH FOR RTNS        81301160
0842 0 0000             TCVS1 DC     0                                       81301170
0843 0 0000             TCVS2 DC     0                                       81301180
0844 0 0000             CAWSV DC     *-*        CCW ADDRESS SAVE AREA        81301190
0846    0002            ERTSV BSS    E 2        SENSE INFO SAVE              81301200
0848    0002            TYP2  PRNT   .SIO..                                  81301210
084A    0002            TYP3  PRNT   .SNS..                                  81301220
084C    0002            PCAW  PRNT   .CAW .                                  81301230
084E    0002            PCSW  PRNT   .CSW .                                  81301240
0850    0002            PSNS  PRNT   . SNS.                                  81301250
0852    0001            SPACE PRNT   .  .       SPACES IN 43 CODE            81301260
0853 0 0000             DVADR DC     *-*        DEVICE ADDRESS TO BE TESTED  81301270
0854 0 0000             LGBSY DC     *-*        LOG ROUTINE BUSY SWITCH      81301280
0855 0 0000             SIOSW DC     *-*        FOR SIO RTN                  81301290
0856 0 0000             PASSW DC     *-*        USED TO TEST FOR ERROR       81301300
0857 0 0001             PSCNT DC     1          PASS COUNTER                 81301310
0858 0 0000             STKSW DC     0          SWITCH FOR RE-ENTRANCE       81301320
0859 0 0000             TIOSW DC     0          TEST IO SW                   81301330
085A 0 0000             T45SW DC     0          0= NOT CALLED                81301340
                        *                       1=1443                       81301350
                        *                       2=1053/1816                  81301360
                        *                                                    81301370
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0858 0 0000          CNTRL DC      *-*       CONTROL ROUTINE              81301380
085C 1 4C00 0A41            BSC  L  TCNTE     GO TO ROUTINE                81301390
                     *                                                    81301400
085E 0 0000          EROUT DC      *-*       ERROR PRINTOUT ROUTINE       81301410
085F 1 4C00 170A            BSC  L  ERTNE     GO TO RTN                    81301420
                     *                                                    81301430
0861 0 0000          FREDV DC      *-*       RELEASE CHANNEL ROUTINE      81301440
0862 1 4C00 14F2            BSC  L  FRDVE     GO TO ROUTINE                81301450
                     *                                                    81301460
0864 0 0000          GETDV DC      *-*       CHANNEL ROUTINE              81301470
0865 1 4C00 14D0            BSC  L  GTDVE     GO TO ROUTINE                81301480
                     *                                                    81301490
0867 0 0000          GETSN DC      *-*       GET DEVICE SENSE INFO        81301500
0868 1 4C00 15E7            BSC  L  GTSNS     GO TO ROUTINE                81301510
                     *                                                    81301520
086A 0 0000          SIO   DC      *-*       START I/O ROUTINE            81301530
086B 1 4C00 14FA            BSC  L  SIONT     GO TO RTN                    81301540
                     *                                                    81301550
086D 0 0000          STMLS DC      *-*       SET MLSCF ROUTINE            81301560
086E 1 4C00 1686            BSC  L  STMLE     GO TO RTN                    81301570
                     *                                                    81301580
0870 0 0000          TCVBE DC      *-*       CONVERT HEX TO 1443          81301590
0871 1 4C00 1929            BSC  L  TCVBN     GO TO RTN                    81301600
                     *                                                    81301610
0873 0 0000          TCVHD DC      *-*       CONVERT HEX TO DEC           81301620
0874 1 4C00 1947            BSC  L  THEXD     GO TO RTN                    81301630
                     *                                                    81301640
0876 0 0000          THALT DC      *-*       ENTRY POINT                  81301650
0877 1 4C00 1627            BSC  L  THLTE     GO TO RTN                    81301660
                     *                                                    81301670
0879 0 0000          WAITS DC      *-*       WAIT FOR INT ROUTINE         81301680
087A 1 4C00 09A2            BSC  L  TINTS     GO TO RTN                    81301690
                     *                                                    81301700
087C 0 0000          TIO   DC      *-*       TEST I/O                     81301710
087D 1 4C00 157C            BSC  L  TIONT     GO TO RTN                    81301720
                     *                                                    81301730
087F 0 0000          TLGMS DC      *-*       PRINT RTN                    81301740
0880 1 4C00 17E4            BSC  L  TLGME     GO TO RTN                    81301750
                     *                                                    81301760
0882 0 0000          TLPER DC      *-*       TEST LOOP ON ERROR           81301770
0883 1 4C00 195B            BSC  L  TERLP     GO TO RTN                    81301780
                     *                                                    81301790
0885 0 0000          TLPST DC      *-*       TEST LOOP START I/O          81301800
0886 1 4C00 1968            BSC  L  TSTLP     GO TO RTN                    81301810
                     *                                                    81301820
0888 0 0000          MODDA DC      *-*       GET SEL CHNL FOR CHNL A      81301830
0889 1 4C00 14A9            B    L  MODEA     GO TO RTN                    81301840
                     *                                                    81301850
088B 0 0000          MODDB DC      *-*       GET SEL CHNL FOR CHNL B      81301860
088C 1 4C00 14B1            B    L  MODEB     GO TO RTN                    81301870
                     *                                                    81301880
088E 0 0000          CLRST DC      *-*       CLEAR WIOSW AND SET SIO SW   81301890
088F 1 4C00 148A            B    L  CLSET     GO TO RTN                    81301900
                     *                                                    81301910
0891 0 0000          DELAY DC      *-*       DELAY 30 SECONDS             81301920
0892 1 4C00 14C1            B    L  DLAYE     *                            81301930
                     *                                                    81301940
                     *                                                    81301950
                     ****************************************************81301960
                     *                                                   *81301970
                     ****************************************************81301980
                     *                                                    81301990
                     *     EQUATES AND CONSTANTS FOR CCW'S                81302000
                     *                                                    81302010
                     ****************************************************81302020
                     *                                                   *81302030
                     ****************************************************81302040
                     *                                                    81302050
```



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                     *     FLAGS                                          81302060
                     *                                                    81302070
0080 0               FLDCH EQU     /80       DATA CHAINING                81302080
0040 0               FLCCH EQU     /40       COMMAND CHAINING             81302090
0020 0               FLSLI EQU     /20       SUPPRESS INCORRECT LNG       81302100
0008 0               FLSKP EQU     /08       SKIP BIT                     81302110
0010 0               FLPCI EQU     /10       PGM CONTROLLED INTERRUPT     81302120
                     *                                                    81302130
                     *     OP CODES                                       81302140
                     *                                                    81302150
0000 0               OPTIO EQU     /00       TEST I/O                     81302160
0001 0               OPWR  EQU     /01       WRITE OP CODE                81302170
0002 0               OPRD  EQU     /02       READ OP CODE                 81302180
0003 0               OPNOP EQU     /03       NO-OP                        81302190
0005 0               WRDAT EQU     /05       WRITE DATA                   81302200
0006 0               RDDAT EQU     /06       READ DATA                    81302210
0004 0               OPSNS EQU     /04       SENSE I/O                    81302220
0007 0               SEEKC EQU     /07       SEEK CYLINDER                81302230
0011 0               ERASE EQU     /11       ERASE RECORD                 81302240
0008 0               OPTIC EQU     /08       TRANSFER IN CHANNEL          81302250
000B 0               SEEKB EQU     /0B       SEEK BIN                     81302260
0013 0               RCAL  EQU     /13       RECALIBRATE                  81302270
0012 0               RDCNT EQU     /12       RD COUNT                     81302280
001A 0               RDHA  EQU     /1A       READ HOME ADDRESS            81302290
001E 0               RDCKD EQU     /1E       RD COUNT KEY DATA            81302300
000E 0               RDKD  EQU     /0E       RD KEY DATA                  81302310
000D 0               WRKD  EQU     /0D       WR KEY DATA                  81302320
0016 0               RDR0  EQU     /16       READ RECORD ZERO             81302330
009A 0               RDHMT EQU     /9A       READ HA MULTI TRACK          81302340
001B 0               SKHD  EQU     /1B       SEEK HEAD                    81302350
0039 0               SRCHA EQU     /39       SEARCH HA                    81302360
0031 0               SRCID EQU     /31       SEARCH ID                    81302370
001F 0               SFILM EQU     /1F       SET FILE MASK                81302380
001D 0               WRCKD EQU     /1D       WRT CNT,KEY,DATA             81302390
0019 0               WRHA  EQU     /19       WRITE HA                     81302400
0015 0               WRR0  EQU     /15       WRITE RECORD 0               81302410
                     *                                                    81302420
                     ****************************************************81302430
                     *                                                   *81302440
                     ****************************************************81302450
                     *                                                    81302460
                     *     EQUATES FOR CHANNEL STATUS DSW'S               81302470
                     *                                                    81302480
0000 0               SCUNO EQU     0         UNIT NOT OPERATIONAL         81302490
0001 0               SCUSP EQU     1         UNIT STATUS PENDING          81302500
0002 0               SCPCI EQU     2         PGM CNTRL INT.               81302510
0003 0               SCPCK EQU     3         PGM CHECK                    81302520
0004 0               SCDCK EQU     4         DATA CHECK                   81302530
0005 0               SCICC EQU     5         INTERFACE CNTRL CHECK        81302540
0006 0               SCILG EQU     6         INCORRECT LENGTH INDICATOR   81302550
0007 0               SCABZ EQU     7         ADAPTER BUSY                 81302560
0008 0               SCUOP EQU     8         UNIT OPERATIONAL             81302570
                     *                                                    81302580
                     ****************************************************81302590
                     *                                                   *81302600
                     ****************************************************81302610
                     ****************************************************81302620
                     *                                                   *81302630
                     ****************************************************81302640
                     *                                                    81302650
                     *     EQUATES FOR UNIT STATUS DSW                    81302660
                     *                                                    81302670
0008 0               UNATN EQU     8         UNIT STATUS-ATTENTION        81302680
0009 0               UNSMD EQU     9         STATUS MODIFIER              81302690
000A 0               UNCUE EQU     10        CONTROL UNIT END             81302700
000B 0               UNBZY EQU     11        UNIT BUSY                    81302710
000C 0               UNCHE EQU     12        CHANNEL END                  81302720
000D 0               UNDVE EQU     13        DEVICE END                   81302730
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000E 0              UNCHK EQU     14          UNIT CHECK                    81302740
000F 0              UNEXC EQU     15          UNIT EXCEPTION                81302750
                    ********************************************************* 81302760
                    *                                                       * 81302770
                    ********************************************************* 81302780
                    *                                                       81302790
                    *     EQUATES FOR 2311 SENSE BYTES                      81302800
                    *                                                       81302810
0004 0              FBRST EQU     4           (BURST) DATA CK               81302820
0005 0              FOVRN EQU     5           CHANNEL/2841 OVERRUN          81302830
0007 0              FSKCK EQU     7           SEEK CK                       81302840
0009 0              FTROV EQU     9                                         81302850
000A 0              FEOCY EQU     10          END OF CYLINDER               81302860
000C 0              FNORC EQU     12          NO RECORD FOUND               81302870
0010 0              FUNSF EQU     16                                        81302880
0012 0              FSERD EQU     18          SERDES CHECK                  81302890
0015 0              FUNSL EQU     21                                        81302900
0018 0              FDRDY EQU     24          DRIVE READY                   81302910
0019 0              FONLN EQU     25                                        81302920
001A 0              FUNSI EQU     26          UNSAFE                        81302930
001D 0              FECYL EQU     29          END OF CYLINDER               81302940
001F 0              FSKIN EQU     31          SEEK INCOMPLETE               81302950
                    *                                                       81302960
                    *                                                       81302970
0894 0 0001         NOPCC DC      1           BYTE COUNT                    81302980
0895 0 2003               DC      /20*256+OPNOP FLAGS AND OP CODE           81302990
0896 1 0897               DC      *           ADDRESS                       81303000
                    *                                                       81303010
                    *                                                       81303020
0897 0 0001         RECAL DC      1           BYTE COUNT                    81303030
0898 0 2013               DC      /20*256+RCAL FLAGS AND OP CODE            81303040
0899 1 089A               DC      *           ADDRESS                       81303050
                    *                                                       81303060
                    *                                                       81303070
089A 0 0001         TSCCW DC      1           BYTE COUNT                    81303080
089B 0 2000               DC      /20*256+OPTIO FLAGS AND OP CODE           81303090
089C 1 089D               DC      TSWDS       ADDRESS                       81303100
                    *                                                       81303110
089D 0 0000         TSWDS DC      *-*                                       81303120
                    *                                                       81303130
089E 0 0006         SNCCW DC      6           BYTE COUNT                    81303140
089F 0 0004               DC      0*256+OPSNS FLAGS AND OP CODE             81303150
08A0 1 08A2               DC      SNWDS       ADDRESS                       81303160
                    *                                                       81303170
08A2   0004         SNWDS BSS  E  4           SENSE BYTES                   81303180
08A2 0              SNWD0 EQU     SNWDS                                     81303190
08A3 0              SNWD1 EQU     SNWDS+1                                   81303200
08A4 0              SNWD2 EQU     SNWDS+2                                   81303210
08A5 0              SNWD3 EQU     SNWDS+3                                   81303220
08A6 1 089A         TIOXX DC      TSCCW       TIO CCW                       81303230
08A7 0 0000               DC      *-*         TO BE FILLED IN               81303240
08A8 0 0000         HIOXX DC      *-*                                       81303250
08A9 0 0000               DC      *-*                                       81303260
08AA 1 089E         SENSE DC      SNCCW       SENSE IO W/SUPPRESS POLL      81303270
08AB 0 0000               DC      *-*         TO BE FILLED IN               81303280
08AC 0 0000         SIOXX DC      *-*         TO BE FILLED WITH CCW ADDR    81303290
08AD 0 0000               DC      *-*         TO BE FILLED IN               81303300
08AE 0 0000         SCSN0 DC      *-*                                       81303310
08AF 0 0000               DC      *-*         = 08                          81303320
08B0 0 0000         SCSN1 DC      *-*                                       81303330
08B1 0 0000               DC      *-*         = 09                          81303340
08B2 0 0000         SCSN2 DC      *-*                                       81303350
08B3 0 0000               DC      *-*         = 0A                          81303360
08B4 0 0000         SCSN3 DC      *-*                                       81303370
08B5 0 0000               DC      *-*         = 0B                          81303380
08B6 0 0000         SCSN4 DC      *-*                                       81303390
08B7 0 0000               DC      *-*         = 0C                          81303400
08B8 0 0000         SCSN5 DC      *-*                                       81303410
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08B9 0 0000               DC      *-*         = 06                          81303420
08BA   0004         SCSX0 BSS  E  4           START I/O SAVE AREA           81303430
08BE   0004         SCSX4 BSS  E  4           START I/O SAVE AREA 2         81303440
08C2   0004         SCSX8 BSS  E  4           TIO SAVE AREA                 81303450
08C6   0004         SCSXC BSS  E  4           SENSE I/O SAVE AREA           81303460
08CA   0004         SCSVS BSS  E  4           SAVE AREA FOR SENSE INFO      81303470
08CE   0003         HA    BSS  E  3                                         81303480
08D2   0000               BSS  E  0                                         81303490
08D2 1 18EE         TLGWR DC      TLGBA       IOAREA ADDRESS                81303500
08D3 0 0000               DC      *-*         TO BE FILLED IN               81303510
08D4 0 0000         TLGSP DC      /0000       SPACE IN 1443 CODE            81303520
08D4 0              TLGSN EQU     TLGSP       SENSE DSW IOCC                81303530
08D5 0 0000               DC      *-*         TO BE FILLED IN               81303540
08D6 0 0000         TLGCT DC      0           LOOP COUNT FOR PRNTR INT      81303550
08D7 0 0000         TLGSW DC      0           1ST/2ND CHAR SW (1053)        81303560
08D8 0 0000         TLGSR DC      0           1ST/2ND CHAR SW (TLGCH)       81303570
08D9 0 0000               DC      *-*         SENSE/RESET DSW               81303580
                    *                                                       81303590
08DA   0008         STSER PRNT    .XX ERROR ON XXX .                        81303600
08E2   0007               PRNT    .SECT X.RTN X .                           81303610
08E9 0 FFFF               DC      /FFFF                                     81303620
08EA   0009         UNADR PRNT    . UNIT XX.ADRS XXXX.                      81303630
08F3 0 FFFF               DC      /FFFF                                     81303640
                    *                                                       81303650
                    *    SELECTOR CHANNEL INT ROUTINE                       81303660
                    *                                                       81303670
08F4 0 0000         WIOSW DC      *-*         WAIT FOR USER INTERUPT        81303680
08F5 0 0000         WATSW DC      *-*         WAIT FOR SYST TIO INT.        81303690
08F6 0 0000         SCISW DC      *-*         INTERRUPT SWITCH              81303700
08F7 0 0000         TSCAC DC      *-*         SEL.CHAN AREA CODE            81303710
08F8 0 0000         SCINT DC      *-*           INT. RTN ENTRY              81303720
08F9 0 68FA               STX     WIOSW       SET INTERUPT SWITCH           81303730
08FA 0 6A6D               STX   2 SCIN7+1     SAVE REG                      81303740
08FB 1 6600 087F          LDX   L2 TB         SET UP POINTER TO TBL         81303750
08FD 0 C277               LD    2 SCISW-TB    GET INT SWITCH                81303760
08FE 1 4C18 0953          BZ      SCIN4       BR IF NOT SET                 81303770
                    *                                                       81303780
0900 0 0A2F               XIO   2 SCSN0-TB    FETCH CHANNEL STATUS          81303790
0901 0 1001               SLA     1           TEST FOR USP                  81303800
0902 1 4C10 091D          BNN     SCIN0       BRANCH IF NOT USP             81303810
                    *                                                       81303820
0904 0 0A33               XIO   2 SCSN2-TB    GET UNIT STATUS               81303830
0905 0 18D0               XCH                 SAVE STATUS                   81303840
0906 0 1010               SLA     16          CLEAR A REG                   81303850
0907 0 1088               SLT     8           GET DEVICE ADDRS              81303860
0908 0 F2D4               EOR   2 DVADR-TB    TEST FOR MY DEVICE            81303870
0909 1 4C18 0912          BZ      SCINC       BRANCH IF MINE                81303880
090B 0 1092               SLT     8+UNCUE     TEST FOR CONTROL UNIT END     81303890
090C 1 4C10 0953          BNN     SCIN4       BRANCH IF NOT CU END          81303900
                    *                                                       81303910
090E 0 C2DA               LD    2 TIOSW-TB    GET TIO SW                    81303920
090F 1 4C20 0927          BNZ     SCINX       BR IF INT DUE TO TIO          81303930
0911 0 7041               MDX     SCIN4       ELSE UNEXPCTED INT            81303940
                    *                                                       81303950
0912 0 C2DA         SCINC LD    2 TIOSW-TB    FETCH TIO SW                  81303960
0913 1 4C18 091D          BZ      SCIN0       BRANCH IF USER TIO            81303970
                    *                                                       81303980
                    *  GET HERE IF INTERRUPT FROM TIO AFTER SIO             81303990
                    *  IF STATUS IS NON BUSY THEN PLACE IN SCSX0            81304000
                    *  AND SCSX8                                            81304010
                    *                                                       81304020
0915 0 0A33               XIO   2 SCSN2-TB    FETCH UNIT STATUS             81304030
0916 0 100B               SLA     UNBZY       TEST FOR UNIT OR CU BUSY      81304040
0917 1 4C28 0927          BN      SCINX       BR TO SET POINTER TO SCSX8    81304050
                    *                                                       81304060
0919 0 0A33               XIO   2 SCSN2-TB    FETCH UNIT STATUS             81304070
091A 0 EA3C               OR    2 SCSX0+1-TB  MERGE WITH OLD STATUS         81304080
091B 0 D23C               STO   2 SCSX0+1-TB  *                             81304090
```

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                       *                                          81304100
091C 0 700A                  B   .  SCINX       BR SET POINTER TO SCSX0    81304110
                       *                                          81304120
                       *     GET HERE IF TIOSW WAS NOT ON AND TEST         81304130
                       *     FOR USER TIO IF SO PLACE STATUS IN SCSX8.     81304140
                       *     ELSE GO TEST FOR SENSE OPERATION INTERUPT     81304150
                       *                                          81304160
091D 0 C229            SCIN0 LD    2 HIOXX-TB   GET HIO SW                 81304170
091E 1 4C20 0947             BNZ     SCIN3      BR IF SET                  81304180
                       *                                          81304190
0920 0 0A37                  XIO   2 SCSN4-TB   ELSE GET CCW ADDRS REG     81304200
0921 0 D237                  STO   2 SCSN4-TB   SAVE FOR LATER USE         81304210
0922 0 C227                  LD    2 TIOXX-TB   GET TEST I/O ADDRESS       81304220
0923 0 8299                  A     2 K3-TB      ADD THREE                  81304230
0924 0 F237                  EOR   2 SCSN4-TB   COMPARE WITH CCW ADRS REG  81304240
0925 1 4C20 092B             BNZ     SCIN1      BR IF NOT THE SAME         81304250
                       *                                          81304260
                       *     GET HERE IF USER TIO OR SYSTEM TIO            81304270
                       *     FOUND THAT THE UNIT OR CU WAS BUSY            81304280
                       *     AFTER A TEST I/O.                             81304290
                       *                                          81304300
0927 1 6700 08C2       SCINX LDX  L3 SCSX8      ELSE POINT TO SAVE AREA    81304310
0929 0 68CB                  STX     WATSW      SET TIO INTERRUPT SW       81304320
092A 0 702E                  MDX     SCIN5      GO TO COMMON RTN           81304330
                       *                                          81304340
                       *     GET HERE IF NO TEST I/O WAS INDICATED         81304350
                       *     BY THE PRIOR ROUTINES                         81304360
                       *                                          81304370
092B 0 C22B            SCIN1 LD    2 SENSE-TB   GET CCW ADDRESS FOR SENSE  81304380
092C 0 8299                  A     2 K3-TB      POINT TO FOLLOWING         81304390
092D 0 F237                  EOR   2 SCSN4-TB   COMPARE                    81304400
092E 1 4C20 0933             BNZ     *+3        BR IF NOT                  81304410
0930 1 6700 08C6             LDX  L3 SCSXC      POINT TO SAVE AREA         81304420
0932 0 7026                  MDX     SCIN5      GO TO COMMON RTN           81304430
                       *                                          81304440
                       *     GET HERE IF SENSE WAS FOUND NOT TO            81304450
                       *     BE THE CAUSE OF THE INTERRUPT AND TEST        81304460
                       *     FOR START I/O TO BE THE CAUSE. IF NOT         81304470
                       *     THEN SET THE INTERRUPT TO THE UNEXPECTED.     81304480
                       *                                          81304490
0933 0 C22D                  LD    2 SIOXX-TB   GET START I/O CCW ADDRESS  81304500
0934 1 6780 08AC             LDX  I3 SIOXX      SET IN REG TOO             81304510
                       *                                          81304520
0936 0 8299            SCIN2 A     2 K3-TB      POINT TO NEXT ADRS AFTER   81304530
0937 0 D21E                  STO   2 TSWDS-TB   SAVE IN TEMP STORAGE       81304540
0938 0 F237                  EOR   2 SCSN4-TB   COMPARE                    81304550
0939 1 4C18 0947             BZ      SCIN3      BR IF SAME                 81304560
093B 0 C301                  LD    3 1          GET OPCODE/FLAGS           81304570
093C 0 180E                  SRA     14         SAVE CMD CHAIN/DATA CHAIN  81304580
093D 1 4C20 0944             BNZ     *+5        BR IF SET                  81304590
093F 0 C301                  LD    3 1          GET IT AGAIN               81304600
0940 0 F29C                  EOR   2 K8-TB      TEST FOR TIC               81304610
0941 0 1008                  SLA     8          SAVE OPCODE ONLY           81304620
0942 1 4C20 0953             BNZ     SCIN4        BR IF NOT TIC            81304630
0944 0 7303                  MDX   3 3          POINT TO NEXT CCW IN CHAIN 81304640
0945 0 C21E                  LD    2 TSWDS-TB   GET ADDRESS                81304650
0946 0 70EF                  MDX     SCIN2      LOOP                       81304660
                       *                                          81304670
0947 0 1010            SCIN3 SLA     16         CLEAR HIO SW               81304680
0948 0 D229                  STO   2 HIOXX-TB   *                          81304690
0949 1 6700 088A             LDX  L3 SCSX0      POINT TO SIO SAVE AREA     81304700
094B 0 C301                  LD    3 1          GET LAST UNIT STATUS       81304710
094C 0 100D                  SLA     UNDVE      TEST FOR DEVICE END        81304720
094D 1 4C28 0959             BN      SCIN5      BR IF SET                  81304730
094F 0 1001                  SLA     UNCHK-UNDVE        TEST FOR UCHK      81304740
0950 1 4C28 0959             BN      SCIN5      BR IF SET                  81304750
0952 0 7008                  MDX     SCIN6      ELSE 'OR' IN STATUS        81304760
                       *                                          81304770
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0953 1 6700 096F       SCIN4 LDX  L3 SCIN8      SET MLSCF ENTRY FOR RETURN 81304780
0955 1 6F00 0809             STX  L3 MLSC0      ***                        81304790
0957 1 6700 08BE             LDX  L3 SCSX4      POINT 0 SAVE AREA          81304800
                       *                                          81304810
0959 0 1010            SCIN5 SLA     16         CLEAR WORD TO ZERO         81304820
095A 0 D301                  STO   3 1          FOR OR'ING IN STATUS       81304830
                       *                                          81304840
095B 0 0A31            SCIN6 XIO   2 SCSN1-TB   GET CHAN. STATUS           81304850
095C 0 D300                  STO   3 0          SAVE                       81304860
095D 0 1001                  SLA     1          TEST FOR USP               81304870
095E 1 4C10 096D             BNN     SCINA      BRANCH IF NOT ON           81304880
                       *                                          81304890
0960 0 0A35                  XIO   2 SCSN3-TB   GET UNIT STATUS            81304900
0961 0 EB01                  OR    3 1          COMBINE WITH EXISTING      81304910
0962 0 D301            SCINB STO   3 1          SAVE                       81304920
0963 0 0A37                  XIO   2 SCSN4-TB   GET CCW ADDRESS REG.       81304930
0964 0 D302                  STO   3 2          SAVE                       81304940
0965 0 0A39                  XIO   2 SCSN5-TB   GET BYTE COUNTER           81304950
0966 0 D303                  STO   3 3          SAVE                       81304960
                       *                                          81304970
0967 0 6600 0000       SCIN7 LDX  L2 *-*        RELOAD REG                 81304980
0969 0 1000                  NOP                SAVE FOR TRACE             81304990
096A 0 1000                  NOP                *************              81305000
                       *                                          81305010
096B 1 4C80 08F8             BSC   I SCINT      EXT INT. RTN               81305020
                       *                                          81305030
                       *     GET HERE IF USP WAS NOT THE CAUSE             81305040
                       *     AND SET US TO 0000                            81305050
                       *                                          81305060
096D 0 1010            SCINA SLA     16         CLEAR ACC                  81305070
096E 0 70F3                  MDX     SCINB      RETURN                     81305080
                       *                                          81305090
096F 1 6600 087F       SCIN8 LDX  L2 TB         SET UP TABLE POINTER       81305100
0971 0 4200                  BSI   2 TLGMS-TB   PRNT MSG                   81305110
0972 1 0978                  DC      SCIMS      MSG ADDRESS                81305120
0973 0 42DF                  BSI   2 EROUT-TB   PRINT ERROR MESSAGE        81305130
0974 0 4052                  DC      /4052      FLAGS ANS OPTIONS          81305140
0975 0 0000                  DC      *-*                                   81305150
0976 0 4C80 012D             BSC   I START      GO BACK TO MONITOR         81305160
                       *                                          81305170
0978   0015            SCIMS PRNT    .** ER 00  UNEXPECTED INTERRUPT.      81305180
0987 0 FFFF                  DC      /FFFF                                 81305190
                       ************************************************** 81305200
                       *                                                * 81305210
                       ************************************************** 81305220
                       *     WAIT FOR INTERRUPT                            81305230
                       ************************************************** 81305240
                       *                                                * 81305250
                       ************************************************** 81305260
0988 0 0000            TINTW DC      *-*        ENTRY POINT                81305270
0989 0 C28D                  LD    2 TERM-TB    FETCH TIME OUT CONSTANT    81305280
098A 0 D231                  STO   2 SCSN1-TB                              81305290
                       *                                          81305300
098B 0 C276            TINT2 LD    2 WATSW-TB                              81305310
098C 1 4C20 099C             BNZ     TINT3                                 81305320
098E 0 42EE                  BSI   2 STMLS-TB   GO VISIT MONITOR           81305330
098F 1 74FF 08B0             MDX   L SCSN1,-1                              81305340
0991 0 70F9                  MDX     TINT2                                 81305350
                       *                                          81305360
0992 0 0A31                  XIO   2 SCSN1-TB    GET CHANNEL STATUS        81305370
0993 0 D247                  STO   2 SCSXC-TB    * AND SAVE FOR ERR        81305380
0994 0 0A35                  XIO   2 SCSN3-TB    * MESSAGE                 81305390
0995 0 D248                  STO   2 SCSXC+1-TB  *                         81305400
0996 0 0A37                  XIO   2 SCSN4-TB    *                         81305410
0997 0 D249                  STO   2 SCSXC+2-TB                            81305420
0998 0 0A39                  XIO   2 SCSN5-TB                              81305430
0999 0 D24A                  STO   2 SCSXC+3-TB                            81305440
                       *                                          81305450
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099A 1 4C80 0988          BSC  I  TINTW            EXIT RTN                81305460
                          *                                                81305470
099C 1 7401 0986    TINT3 MDX  L  TINTW,1                                  81305480
099E 0 1010               SLA     16                                     81305490
099F 0 D276               STO   2 WATSW-TB                               81305500
09A0 1 4C80 0988          BSC  I  TINTW            EXIT RTN                81305510
                          *                                                81305520
                          ************************************************ 81305530
                          *                                              * 81305540
                          ************************************************ 81305550
                          *     WAIT FOR I/O INTERRUPT                     81305560
                          ************************************************ 81305570
                          *                                              * 81305580
                          ************************************************ 81305590
                          *                                                81305600
09A2 0                    TINTS EQU     *          ENTRY POINT             81305610
09A2 0 C28D               LD    2 TERM-TB        SET TIMEOUT COUNTER     81305620
09A3 0 D231               STO   2 SCSN1-TB       *                       81305630
                          *                                                81305640
09A4 0 C275               TINS2 LD    2 WIOSW-TB   FETCH WAIT SWITCH       81305650
09A5 1 4C20 09B3          BNZ     TINS3            BRANCH IF SET           81305660
                          *                                                81305670
09A7 1 74FF 08B0          MDX  L  SCSN1,-1         DEC WAIT COUNTER        81305680
09A9 0 70FA               MDX     TINS2            LOOP BACK AND WAIT      81305690
                          *                                                81305700
                          *   COME HERE IF TIMEOUT                         81305710
                          *                                                81305720
09AA 0 0A31               XIO   2 SCSN1-TB       GET SELECTOR CHANNEL AND 81305730
09AB 0 D247               STO   2 SCSXC-TB       UNIT STATUS.             81305740
09AC 0 0A35               XIO   2 SCSN3-TB       *                        81305750
09AD 0 D248               STO   2 SCSXC+1-TB     *                        81305760
09AE 0 0A37               XIO   2 SCSN4-TB       *                        81305770
09AF 0 D249               STO   2 SCSXC+2-TB     *                        81305780
09B0 0 0A39               XIO   2 SCSN5-TB       *                        81305790
09B1 0 D24A               STO   2 SCSXC+3-TB     *                        81305800
09B2 0 7006               MDX     TINS4            GO TO ERROR RETURN      81305810
                          *                                                81305820
09B3 1 7401 0879    TINS3 MDX  L  WAITS,+1         BUMP RETURN             81305830
09B5 0 1010               SLA     16               RESET WAIT I/O SW       81305840
09B6 0 D275               STO   2 WIOSW-TB       *                        81305850
                          *                                                81305860
09B7 1 4C80 0879          BSC  I  WAITS            RETURN TO USER          81305870
                          *                                                81305880
09B9 1 C480 0879    TINS4 LD    I  WAITS           SET-UP ERROR RETURN     81305890
09BB 0 D003               STO     *+3              *                       81305900
09BC 0 1010               SLA     16               RESET-WAIT SW           81305910
09BD 0 D275               STO   2 WIOSW-TB                                81305920
09BE 0 4C00 0000          BSC  L  *-*              RETURN TO USER          81305930
                          *                                                81305940
                          ************************************************ 81305950
                          *                                              * 81305960
                          ************************************************ 81305970
                          *                                                81305980
09C0 0 4480 012C    BGIN  BSI  I  BEGIN      GO TO MONITOR BEGIN RTN      81305990
09C2 1 07FF               DC      TPID       ADDRESS OF PID               81306000
                          ************************************************ 81306010
                          *                                              * 81306020
                          ************************************************ 81306030
09C3 0 0000               ZIPA  DC      *-*        ENTRY POINT             81306040
09C4 0 C0FE               LD      ZIPA       MOVE RETURN ADDRS           81306050
09C5 0 D011               STO     ZLPA       *                           81306060
09C6 1 6600 087F          LDX   L2 TB        SET UP POINTER              81306070
                          *                                                81306080
09C8 0 1010               SLA     16         RESET-                      81306090
09C9 1 D400 18CF          STO   L FRESW      RESET CONTROL SWS           81306100
09CB 0 D2D5               STO   2 LGBSY-TB   *                           81306110
09CC 0 D275               STO   2 WIOSW-TB   *                           81306120
09CD 0 D276               STO   2 WATSW-TB   *                           81306130
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09CE 0 D283               STO   2 TSW0-TB    * SW 0                      81306140
09CF 0 D284               STO   2 TSW1-TB    * SW 1                      81306150
09D0 1 D400 16B9          STO   L STMPT      RESET STMLS POINTER         81306160
09D2 0 C28C               LD    2 HFF00-TB   FETCH CONSTANT               81306170
09D3 0 D285               STO   2 TSW2-TB    PLACE IN SW 2               81306180
09D4 0 C297               LD    2 K1-TB      FETCH CONSTANT OF 1         81306190
09D5 0 D2D8               STO   2 PSCNT-TB   SET PASS COUNT=1             81306200
09D6 0 7001               MDX     ZLPA+1     CONTINUE                    81306210
                          ************************************************ 81306220
                          *                                              * 81306230
                          ************************************************ 81306240
                          *                                                81306250
09D7 0 0000               ZLPA  DC      *-*        LOOP PGM RTN            81306260
09D8 1 6700 0A06          LDX   L3 TCNPR     GET MLSCF ADDRESS           81306270
09DA 1 6F00 080B          STX   L3 MLSC2     SET IN TBL                  81306280
09DC 1 6600 087F          LDX   L2 TB          SET UP TBL POINTER        81306290
09DE 0 C294               LD    2 TLGED-TB     LOOK AT LOG EDIT          81306300
09DF 1 4C10 09E5          BNN     ZLPA1        BR IF RELEASED            81306310
09E1 0 4480 0132          BSI  I  RELDV        ELSE RELEASE DEVICE       81306320
09E3 1 0813               DC      TLGED        ADDR OF EDIT WORD         81306330
09E4 1 080C               DC      TERM         TERMINATOR                81306340
09E5 0 C295               ZLPA1 LD    2 TSCED-TB   SEL. CHAN. EDIT       81306350
09E6 1 4C10 09EC          BNN     ZLPA2                                  81306360
09E8 0 4480 0132          BSI  I  RELDV        RELEASE DEVICE            81306370
09EA 1 0814               DC      TSCED                                  81306380
09EB 1 080C               DC      TERM                                   81306390
09EC 0                    ZLPA2 EQU     *                                81306400
09EC 0 1010               SLA     16         RESET-                      81306410
09ED 0 D2D9               STO   2 STKSW-TB   * STACK SW                  81306420
09EE 0 D2D6               STO   2 SIOSW-TB   * SIO SW                    81306430
09EF 0 C297               LD    2 K1-TB      FETCH CONSTANT OF 1         81306440
09F0 0 D281               STO   2 TSID-TB    SET SECTION ID = 1          81306450
09F1 1 4C80 09D7          BSC  I  ZLPA         EXIT                      81306460
                          *                                                81306470
                          ************************************************ 81306480
                          *                                              * 81306490
                          ************************************************ 81306500
09F3 0 0000               ZEPA  DC      *-*        END PGM RTN             81306510
09F4 1 6600 087F          LDX   L2 TB          SET UP TBL POINTER        81306520
09F6 0 C294               LD    2 TLGED-TB     LOOK AT LOG EDIT          81306530
09F7 1 4C10 09FD          BNN     ZEPA1        BR IF RELEASED            81306540
09F9 0 4480 0132          BSI  I  RELDV        ELSE RELEASE DEVICE       81306550
09FB 1 0813               DC      TLGED        ADDR OF EDIT WORD         81306560
09FC 1 080C               DC      TERM         TERMINATOR                81306570
09FD 0 C295               ZEPA1 LD    2 TSCED-TB   SEL. CHAN. EDIT       81306580
09FE 1 4C10 0A04          BNN     ZEPA2                                  81306590
                          *                                              81306600
0A00 0 4480 0132          BSI  I  RELDV        RELEASE DEVICE            81306610
0A02 1 0814               DC      TSCED                                  81306620
0A03 1 080C               DC      TERM                                   81306630
0A04 1 4C80 09F3          ZEPA2 BSC  I  ZEPA       EXIT BACK TO MONITOR  81306640
                          ************************************************ 81306650
                          *                                              * 81306660
                          ************************************************ 81306670
                          *                                                81306680
                          *     PRE-CONTROL ROUTINE                        81306690
                          *                                                81306700
                          ************************************************ 81306710
                          *                                              * 81306720
                          ************************************************ 81306730
0A06 1 6600 087F          TCNPR LDX  L2 TB         SET UP TABLE POINTER  81306740
0A08 0 C2DB               LD    2 T45SW-TB     GET 43/53 SWITCH          81306750
0A09 1 4C20 0A1D          BNZ     TCN01                                  81306760
0A0B 0 42EE               TCNRQ BSI   2 STMLS-TB                         81306770
0A0C 0 4480 0131          BSI  I  REQDV        REQUEST DEVICE            81306780
0A0E 1 0A0B               DC      TCNRQ      BUSY RETURN                 81306790
0A0F 1 0813               DC      TLGED      EDIT FOR PRINTER            81306800
0A10 1 1893               DC      TLGDA      AREA CODE GIVEN BACK        81306810
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0A11 1 080C            DC      TERM       TERMINATOR               81306820
0A12 0 4480 0132       BSI   I RELDV      RELEASE DEVICE           81306830
0A14 1 0813            DC      TLGED      EDIT FOR PRINTER         81306840
0A15 1 080C            DC      TERM       TERMINATOR               81306850
0A16 1 C400 1893       LD    L TLGDA      GET PRINTER AREA CODE    81306860
0A18 0 F285            EOR   2 H3000-TB                            81306870
0A19 0 4820            SKP     Z                                   81306880
0A1A 0 C297            LD    2 K1-TB                               81306890
0A1B 0 8297            A     2 K1-TB   ADD ONE                     81306900
0A1C 0 D2DB            STO   2 T45SW-TB   SET SW FOR 43 OR 53      81306910
                 *                                                 81306920
0A1D 0           TCN01 EQU     *                                   81306930
0A1D 0 42E5            BSI   2 GETDV-TB   GET DEVICE FOR USE       81306940
0A1E 0 42E2            BSI   2 FREDV-TB   RELEASE DEVICE           81306950
0A1F 0 C285            LD    2 TSW2-TB    GET SW FNC 2 (DEV ADDR)  81306960
0A20 0 180C            SRA     12           SAVE BITS 4-12         81306970
0A21 1 4C18 0A2A       BZ      TCN02        BR IF ZERO             81306980
0A23 0 4200            BSI   2 TLGMS-TB     PRINT MESSAGE          81306990
0A24 1 0A9C            DC      TCNE2       'ENTER DEV ADDRESS'     81307000
                 *                                                 81307010
0A25 0 42EE            BSI   2 STMLS-TB     GO TO MONITOR          81307020
0A26 0 C285            LD    2 TSW2-TB      GET SW FNC 2           81307030
0A27 0 180C            SRA     12           SAVE BITS 4-12         81307040
0A28 0 4820            SKP     Z            SKIP IF ZERO           81307050
0A29 0 70FB            MDX     *-5          LOOP UNTIL OK          81307060
                 *                                                 81307070
0A2A 0 C285      TCN02 LD    2 TSW2-TB      GET SW FNC 2           81307080
0A2B 0 E2AB            AND   2 H00FF-TB     ISOLATE INTF B ADDR    81307090
0A2C 0 D28E            STO   2 INTFB-TB     SAVE                   81307100
0A2D 0 C285            LD    2 TSW2-TB                             81307110
0A2E 0 1884            SRT     4                                   81307120
0A2F 0 1804            SRA     4                                   81307130
0A30 0 1084            SLT     4            ISOLATE INTF A  ADDR   81307140
0A31 0 D28D            STO   2 INTFA-TB     SAVE                   81307150
0A32 0 D204            STO   2 DVADR-TB     SET INITIAL DEV ADDR   81307160
0A33 0 42F1            BSI   2 TCVBE-TB                            81307170
0A34 0 1090            SLT     16                                  81307180
0A35 0 D04D            STO     CUU11                               81307190
0A36 0 C28E            LD    2 INTFB-TB                            81307200
0A37 0 42F1            BSI   2 TCVBE-TB                            81307210
0A38 0 1090            SLT     16                                  81307220
0A39 0 D04B            STO     CUU22                               81307230
                 *                                                 81307240
0A3A 0 C2D8            LD    2 PSCNT-TB   GET PASS COUNT           81307250
0A3B 0 42F4            BSI   2 TCVHD-TB   CVT TO DECIMAL           81307260
0A3C 0 42F1            BSI   2 TCVBE-TB   CONVERT TO 1443 CODE     81307270
0A3D 0 18D0            XCH                  Q TO A                 81307280
0A3E 0 D048            STO     TTL01+3    PUT IN MSG               81307290
0A3F 0 4200            BSI   2 TLGMS-TB PRINT PROGRAM TITLE        81307300
0A40 1 0A70            DC      TTL00      MSG ADDRESS              81307310
                 ********************************************** 81307320
                 *                                            * 81307330
                 ********************************************** 81307340
                 *                                                 81307350
                 *     THIS ROUTINE CONTROLS ALL TESTS             81307360
                 *                                                 81307370
0A41 0           TCNTE EQU     *            ENTRY POINT            81307380
0A41 1 6600 087F       LDX  L2 TB        SET TABLE ADDRESS         81307390
0A43 0 C284            LD    2 TSW1-TB  GET SW FNC 1               81307400
0A44 0 100C            SLA     12           SAVE BITS 12-15        81307410
0A45 0 180C            SRA     12           **                     81307420
0A46 0 D2C1            STO   2 TRTNN-TB     **                     81307430
0A47 0 C284            LD    2 TSW1-TB      GET SW FNC 1           81307440
0A48 0 E2AB            AND   2 H00FF-TB DROP BAD BITS              81307450
0A49 0 1884            SRT     4            SAVE BITS 8-11         81307460
0A4A 0 D2C0            STO   2 TSCTN-TB     SAVE SECTION NUMBER    81307470
0A4B 1 4C20 0A5E       BNZ     TCN04         BR IF NOT ZERO        81307480
0A4D 0 1090            SLT     16           GET BACK BITS 12-15    81307490
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0A4E 0 180C            SRA     12           SAVE THEM              81307500
0A4F 1 4C20 0A62       BNZ     TCNER      ERR. NO SECTION SPECIFIED 81307510
                 *                                                 81307520
0A51 1 6580 0800 TCN03 LDX  I1 TSID         GET SECTION NUMBER     81307530
0A53 1 C500 0A6B       LD   L1 TCNTA        GET SECT. PREFACE ADDRESS 81307540
0A55 0 D282            STO   2 TSAD-TB  STORE IN SEC ADDRS         81307550
0A56 0 1010            SLA     16           CLEAR ERROR COUNTER    81307560
0A57 0 D2C2            STO   2 TCNSW-TB ***                        81307570
0A58 0 D296            STO   2 TRID-TB      CLEAR RTN ID TO ZERO   81307580
0A59 0 C281            LD    2 TSID-TB  INCREMENT SECTION          81307590
0A5A 0 8297            A     2 K1-TB    *                          81307600
0A5B 0 D281            STO   2 TSID-TB  *                          81307610
0A5C 1 4C80 0801       BSC   I TSAD         GO TO SECTION PREFACE  81307620
                 *                                                 81307630
0A5E 0 D281      TCN04 STO   2 TSID-TB      STORE SECT. NUMBER     81307640
0A5F 0 900B            S       TCNTA      SUB. NUMBER OF SECTIONS  81307650
0A60 1 4C28 0A51       BN      TCN03         BR IF OK              81307660
                 *                                                 81307670
0A62 0 C284      TCNER LD    2 TSW1-TB  GET SW FNC 1               81307680
0A63 0 42F1            BSI   2 TCVBE-TB  CONVERT HEX TO PRNT CODE  81307690
0A64 0 D033            STO     TTLER+11   PUT INVALID SWITCH       81307700
0A65 0 1090            SLT     16         * SETTING INTO MESSAGE   81307710
0A66 0 D032            STO     TTLER+12   *                        81307720
0A67 0 4200            BSI   2 TLGMS-TB                            81307730
0A68 1 0A8D            DC      TTLER                               81307740
0A69 0 42F7            BSI   2 THALT-TB                            81307750
0A6A 0 42DC            BSI   2 CNTRL-TB       GO TO RETRY RTN SELCT 81307760
                 *                                                 81307770
0A6B 0 0005      TCNTA DC      TCNTZ-TCNTA LENGTH OF TBL + 1       81307780
0A6C 1 0AAC            DC      T10NT      SECTION ADDRESS          81307790
0A6D 1 0B21            DC      T20NT      SECTION ADDRESS          81307800
0A6E 1 0CE5            DC      T30NT      SECTION ADDRESS          81307810
0A6F 1 0EAC            DC      T40NT      SECTION ADDRESS          81307820
0A70 0           TCNTZ EQU     *            END OF TABLE           81307830
                 ********************************************** 81307840
                 *                                            * 81307850
                 ********************************************** 81307860
0A70   0018      TTL00 PRNT    . 2 CHNL SW DIAGNOSTIC TEST ON UNITS. 81307870
0A82   0001            PRNT    .  .                                81307880
0A83   0001      CUU11 PRNT    .  .                                81307890
0A84   0001            PRNT    .  .                                81307900
0A85   0001      CUU22 PRNT    .  .                                81307910
0A86 0 FF00            DC      /FF00                               81307920
0A87   0004      TTL01 PRNT    .PASS- XX.                          81307930
0A8B 0 FF00            DC      /FF00      TERMINATOR               81307940
0A8C 0 FFFF            DC      /FFFF                               81307950
0A8D   0013      TTLER PRNT    . **ER INVLD SWS FNC 1 XXXX.        81307960
0A9A 0 00FF            DC      /00FF                               81307970
0A9B 0 FFFF            DC      /FFFF                               81307980
0A9C   0012      TCNE2 PRNT    . *** SELECT OPTIONS ***.           81307990
0AA8 0 00FF            DC      /00FF                               81308000
0AA9 0 FFFF            DC      /FFFF                               81308010
                 ********************************************** 81308020
                 *                                            * 81308030
                 ********************************************** 81308040
                 *                                                 81308050
                 *     SECTION PREFACE                             81308060
                 *                                                 81308070
0AAA 0 0001      T10PR DC      /0001      SECTION NUMBER           81308080
0AAB 0 0001            DC      1                                   81308090
                 *                                                 81308100
0AAC 0 C2C1      T10NT LD    2 TRTNN-TB  SW FNC 1 BITS 12-15       81308110
0AAD 1 4C18 0AB4       BZ      T1101      BR IF RUN ALL RTNS       81308120
0AAF 0 90FB            S       T10PR+1    TEST FOR VALID           81308130
0AB0 1 4C30 0A62       BP      TCNER      BR IF INVALID RTN NUMBER 81308140
0AB2 0 80F8            A       T10PR+1    RESTORE RTN NUMBER       81308150
0AB3 0 7000            MDX     T1101      GO TO FIRST RTN          81308160
                 ********************************************** 81308170
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                          *                                               * 81308180
                          ************************************************* 81308190
                          *                                                 81308200
                          ************************************************* 81308210
                          *                                               * 81308220
                          ************************************************* 81308230
0AB4 0                    T1101 EQU     *           TEST ENTRY POINT        81308240
0AB4 1 7401 0815                MDX  L  TRID,1      BUMP RTN ID             81308250
0AB6 1 4C18 0ABB                BZ      T1102       BR IF TEST NUMBER ZERO  81308260
0AB8 0 9297                     S     2 K1-TB       DECREMENT BY ONE        81308270
0AB9 1 4C20 0B1E                BNZ     T1201       BR IF NOT THIS TEST     81308280
                          *                                                 81308290
0ABB 0 C283               T1102 LD    2 TSW0-TB     GET OPTION SWS          81308300
0ABC 0 100A                     SLA     OTTLE       PRINT TITLES            81308310
0ABD 1 4C10 0AC1                BNN     T1103         BR IF NOT SET         81308320
0ABF 0 4200                     BSI   2 TLGMS-TB GO TO PRINT ROUTINE        81308330
0AC0 1 0AF8                     DC      TTL11       MESSAGE ADDRESS         81308340
                          *                                                 81308350
0AC1 0 42E5               T1103 BSI   2 GETDV-TB    GET CHANNEL FOR RTN     81308360
                          ************************************************* 81308370
                          *                                               * 81308380
                          ************************************************* 81308390
                          *                                                 81308400
                          *             SECTION 1  ROUTINE1                 81308410
                          *             ACCESS DEV FROM INTF A & B WITH SEEK  81308420
                          *                                                 81308430
                          ************************************************* 81308440
                          *                                               * 81308450
                          ************************************************* 81308460
                          *                                                 81308470
0AC2 0 4209               T1104 BSI   2 MODDA-TB    GET SEL.CHNL.  --CHNL A 81308480
0AC3 0 C2B6                     LD    2 H4000-TB    SET UP WAIT AND RETURN  81308490
0AC4 0 D2D6                     STO   2 SIOSW-TB    *ON ERROR IN SIO RTN.   81308500
0AC5 1 6700 0AE0                LDX  L3 T11E1       SET-UP TIME OUT ADDR.   81308510
0AC7 1 6F00 157B                STX  L3 WTADR       *                       81308520
0AC9 0 42E8                     BSI   2 SIO-TB      SEEK CYL.0 HD.0 ON DEV  81308530
0ACA 1 0B18                     DC      SEEK0       CCW ADDR.               81308540
0ACB 0 C23C                     LD    2 SCSX0+1-TB GET UNIT STATUS          81308550
0ACC 0 E2AB                     AND   2 H00FF-TB    MASK-OFF UNIT ADDR.     81308560
0ACD 0 F2A4                     EOR   2 H000C-TB    CHK. FOR DEV.END/CHNL.END 81308570
0ACE 1 4C20 0AE2                BNZ     T11E2       ERROR NOT               81308580
0AD0 0 420C               T1105 BSI   2 MODDB-TB    GET SEL.CHNL.  -- CHNL B 81308590
0AD1 0 C2B6                     LD    2 H4000-TB    SET UP WAIT AND RETURN  81308600
0AD2 0 D2D6                     STO   2 SIOSW-TB    *ON ERROR IN SIO RTN    81308610
0AD3 1 6700 0AEA                LDX  L3 T11E3       SET-UP TIME-OUT ADDR.   81308620
0AD5 1 6F00 157B                STX  L3 WTADR       *                       81308630
0AD7 0 42E8                     BSI   2 SIO-TB      SEEK CYL.0 HD.0 ON DEV  81308640
0AD8 1 0B18                     DC      SEEK0       CCW ADDR.               81308650
0AD9 0 C23C                     LD    2 SCSX0+1-TB GET UNIT STATUS          81308660
0ADA 0 E2AB                     AND   2 H00FF-TB    MASK-OFF UNIT ADDR.     81308670
0ADB 0 F2A4                     EOR   2 H000C-TB    CHK FOR DEV.END/CHNL.END 81308680
0ADC 1 4C20 0AEC                BNZ     T11E4       ERROR NOT               81308690
0ADE 1 4C00 0AF3                B    L  T11EN       CONTINUE-               81308700
0AE0 0 C2B4               T11E1 LD    2 H2106-TB    ENDING STAT.NOT RCVD    81308710
0AE1 0 7001                     B       *+1             - CHNL.A -          81308720
0AE2 0 C2B9               T11E2 LD    2 H8106-TB    ERR STAT IN SCSX0 (SIO) 81308730
0AE3 0 D001                     STO     *+1                                 81308740
0AE4 0 42DF                     BSI   2 EROUT-TB    PRINT ERROR MSG         81308750
0AE5 0 0000                     DC      *-*         VARIABLE CONTROL        81308760
0AE6 0 1103                     DC      /1103       SRXX     XX=03          81308770
0AE7 0 4203                     BSI   2 TLPER-TB    LOOP ON ERROR           81308780
0AE8 1 0AC2                     DC      T1104       LOOP ADDR.              81308790
0AE9 0 70E6                     B       T1105       CONTINUE                81308800
                          *                                                 81308810
0AEA 0 C2B4               T11E3 LD    2 H2106-TB    ENDING STAT.NOT RCVD    81308820
0AEB 0 7001                     B       *+1             - CHNL.B -          81308830
0AEC 0 C2B9               T11E4 LD    2 H8106-TB    ERR STAT IN SCSX0 (SIO) 81308840
0AED 0 D001                     STO     *+1                                 81308850
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0AEE 0 42DF                     BSI   2 EROUT-TB    PRINT ERROR MSG         81308860
0AEF 0 0000                     DC      *-*         VARIABLE CONTROL        81308870
0AF0 0 1103                     DC      /1103       SRXX     XX=03          81308880
0AF1 0 4203                     BSI   2 TLPER-TB    LOOP ON ERROR           81308890
0AF2 1 0AD0                     DC      T1105       LOOP ADDR.              81308900
                          *                                                 81308910
                          *     GO TO NEXT ROUTINE IN SEQUENCE              81308920
                          *                                                 81308930
0AF3 0 42E2               T11EN BSI   2 FREDV-TB      FREE CHANNEL          81308940
0AF4 0 C2C1                     LD    2 TRTNN-TB    GET RTN SWS             81308950
0AF5 1 4C18 0B1E                BZ      T1201         GO TO NEXT RTN IN SEQ 81308960
0AF7 0 42DC                     BSI   2 CNTRL-TB    GO TO CONTROL RTN       81308970
0AF8   0007               TTL11 PRNT    . SECT 1,RT 1- .                    81308980
                          *                                                 81308990
0AFF   0017                     PRNT    .ADDR DEV FROM INTF-A- AND INTF-B-. 81309000
0B10   0007                     PRNT    .WITH SEEK CCW..                    81309010
0B17 0 FFFF                     DC      /FFFF       TERMINATOR              81309020
                          *                                                 81309030
                          *                                                 81309040
0B18 0 0006               SEEK0 DC      6           BYTE COUNT              81309050
0B19 0 2007                     DC      FLSLI*256+/07 FLAGS AND OP CODE     81309060
0B1A 1 0B1B                     DC      CYHDA           ADDRESS             81309070
                          *                                                 81309080
                          *                                                 81309090
0B1B 0 0000               CYHDA DC      *-*         SEEK I/O AREA           81309100
0B1C 0 0000                     DC      *-*         CYLINDER 0              81309110
0B1D 0 0000                     DC      *-*         HEAD 0                  81309120
                          *                                                 81309130
                          ************************************************* 81309140
                          *                                               * 81309150
                          ************************************************* 81309160
                          *                                                 81309170
                          *     SECTION END                                 81309180
                          *                                                 81309190
0B1E 0 42DC               T1201 BSI   2 CNTRL-TB    GO TO CONTROL RTN       81309200
                          ************************************************* 81309210
                          *                                               * 81309220
                          ************************************************* 81309230
                          *                                                 81309240
                          *     SECTION PREFACE                             81309250
                          *                                                 81309260
0B1F 0 0002               T20PR DC      /0002     SECTION NUMBER            81309270
0B20 0 0002                     DC      2                                   81309280
                          *                                                 81309290
0B21 0 C2C1               T20NT LD    2 TRTNN-TB  SW FNC 1 BITS 12-15       81309300
0B22 1 4C18 0B29                BZ      T2101     BR IF RUN ALL RTNS        81309310
0B24 0 90FB                     S       T20PR+1   TEST FOR VALID            81309320
0B25 1 4C30 0A62                BP      TCNER     BR IF INVALID RTN NUMBER  81309330
0B27 0 80F8                     A       T20PR+1   RESTORE RTN NUMBER        81309340
0B28 0 7000                     MDX     T2101     GO TO FIRST RTN           81309350
                          ************************************************* 81309360
                          *                                               * 81309370
                          ************************************************* 81309380
                          *                                                 81309390
                          ************************************************* 81309400
                          *                                               * 81309410
                          ************************************************* 81309420
0B29 0                    T2101 EQU     *           TEST ENTRY POINT        81309430
0B29 1 7401 0815                MDX  L  TRID,1      BUMP RTN ID             81309440
0B2B 1 4C18 0B30                BZ      T2102       BR IF TEST NUMBER ZERO  81309450
0B2D 0 9297                     S     2 K1-TB       DECREMENT BY ONE        81309460
0B2E 1 4C20 0C1A                BNZ     T2201       BR IF NOT THIS TEST     81309470
                          *                                                 81309480
0B30 0 C283               T2102 LD    2 TSW0-TB     GET OPTION SWS          81309490
0B31 0 100A                     SLA     OTTLE       PRINT TITLES            81309500
0B32 1 4C10 0B36                BNN     T2103         BR IF NOT SET         81309510
0B34 0 4200                     BSI   2 TLGMS-TB GO TO PRINT ROUTINE        81309520
0B35 1 0BC0                     DC      TTL21       MESSAGE ADDRESS         81309530
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                           *                                                              81309540
0B36 0 42E5                T2103 BSI   2 GETDV-TB    GET CHANNEL FOR RTN                  81309550
                           ****************************************************************** 81309560
                           *                                                                * 81309570
                           ****************************************************************** 81309580
                           *                                                              81309590
                           *          SECTION 2  ROUTINE 1                                81309600
                           *                                                              81309610
                           *          CHECK DEVICE ALLOCATION COMMANDS                    81309620
                           *          CHNL A PRIMARY, CHNL B SECONDARY                    81309630
                           *                                                              81309640
                           ****************************************************************** 81309650
                           *                                                                * 81309660
                           ****************************************************************** 81309670
                           *                                                              81309680
0B37 1 6700 0BBB                 LDX  L3 T21EN       GET TIMEOUT ERROR ADDR               81309690
0B39 1 6F00 17E3                 STX  L3 ERADR       STORE FOR EROUT RTN.                 81309700
0B3B 0 4209                T2104 BSI   2 MODDA-TB    GET SEL CHNL.  -CHNL A               81309710
0B3C 0 420F                      BSI   2 CLRST-TB    CLEAR WATSW AND SET SIOSW            81309720
0B3D 0 42EB                      BSI   2 SIO-TB      DO RESERVE DEV TO CHNL A             81309730
0B3E 1 0BF1                      DC      RESRV       CCW ADDR                             81309740
0B3F 0 42FA                      BSI   2 WAITS-TB    CALL WAIT I/O ROUTINE                81309750
0B40 1 0B78                      DC      T21E1      NO INTERRUPT ADDRESS                  81309760
0B41 0 C23C                      LD    2 SCSX0+1-TB GET UNIT STATUS                       81309770
0B42 0 E2AB                      AND   2 H00FF-TB                                         81309780
0B43 0 F2A4                      EOR   2 H000C-TB    ERR IF NOT DEV/CHNL END              81309790
0B44 1 4C20 0B7D                 BNZ     T21E2                                            81309800
0B46 0 420C                T2105 BSI   2 MODDB-TB    GET SEL CHNL.  -CHNL B               81309810
0B47 0 420F                      BSI   2 CLRST-TB    CLEAR WATSW AND SET SIOSW            81309820
0B48 0 42EB                      BSI   2 SIO-TB       ERROR                               81309830
0B49 1 0BFA                      DC      CCWSN                                            81309840
0B4A 0 42FA                      BSI   2 WAITS-TB    CALL WAIT I/O ROUTINE                81309850
0B4B 1 0B87                      DC      T21E3      NO INTERRUPT ADDRESS                  81309860
0B4C 0 C23C                      LD    2 SCSX0+1-TB GET UNIT STATUS                       81309870
0B4D 0 E2AB                      AND   2 H00FF-TB                                         81309880
0B4E 0 F2A5                      EOR   2 H0010-TB     TEST FOR DEV BUSY ALONE             81309890
0B4F 1 4C20 0B8C                 BNZ     T21E4        ERROR NOT SET OR OTHER              81309900
0B51 0 1010                T2106 SLA     16                                               81309910
0B52 0 D277                      STO   2 SCISW-TB    SET ALL INTRPTS UNEXPECTED           81309920
0B53 0 D275                      STO   2 WIOSW-TB    WAIT FOR MINIMUM OF                  81309930
0B54 0 6700 01F4                 LDX  L3 500         * 1 SECOND                           81309940
0B56 0 42EE                T2107 BSI   2 STMLS-TB                                         81309950
                           * ANY INTRPT RCVD DURING WAIT WILL BE UNEXPECTED               81309960
0B57 0 73FF                      MDX   3 -1                                               81309970
0B58 0 70FD                      B       T2107                                            81309980
0B59 1 6C00 08F6                 STX  L  SCISW       SET INTERRUPTS EXPECTED              81309990
0B5B 0 C275                      LD    2 WIOSW-TB    GET WAIT SWITCH                      81310000
0B5C 1 4C20 0B96                 BNZ     T21E5        OCCURRED. ELSE ERROR.               81310010
                           *                                                              81310020
0B5E 0 4209                T2108 BSI   2 MODDA-TB    GET SEL CHNL. -CHNL A                81310030
0B5F 0 C23A                      LD    2 SCSN5+1-TB SET SUPPRESS POLL IN BYTE             81310040
0B60 0 EA9C                      OR    2 K8-TB        COUNT SENSE IOCC TO                 81310050
0B61 0 D23A                      STO   2 SCSN5+1-TB   CAUSE SUPP. POLL AFTER              81310060
0B62 0 420F                      BSI   2 CLRST-TB    CLEAR WATSW AND SET SIOSW            81310070
0B63 0 42EB                      BSI   2 SIO-TB      DO RELEASE DEV FROM CHNL A           81310080
0B64 1 0BF4                      DC      RELSE       CCW ADDR                             81310090
0B65 0 42FA                      BSI   2 WAITS-TB    CALL WAIT I/O ROUTINE                81310100
0B66 1 0B9C                      DC      T21E6      NO INTERRUPT ADDRESS                  81310110
0B67 0 C23C                      LD    2 SCSX0+1-TB GET UNIT STATUS                       81310120
0B68 0 E2AB                      AND   2 H00FF-TB                                         81310130
0B69 0 F2A4                      EOR   2 H000C-TB     CHK FOR DEV/CHNL END                81310140
0B6A 1 4C20 0BA1                 BNZ     T21E7       ERROR NOT                            81310150
0B6C 0 420C                T2109 BSI   2 MODDB-TB    GET SEL CHNL -CHNL B                 81310160
0B6D 0 1010                      SLA     16                                               81310170
0B6E 0 D275                      STO   2 WIOSW-TB    CLR WAIT SWITCH                      81310180
0B6F 0 0A39                      XIO   2 SCSN5-TB    SENSE TO RELIEVE POLL                81310190
0B70 0 42FA                      BSI   2 WAITS-TB    CALL WAIT I/O ROUTINE                81310200
0B71 1 0BAB                      DC      T21E8      NO INTERRUPT ADDRESS                  81310210
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0B72 0 C23C                      LD    2 SCSX0+1-TB GET UNIT STATUS                       81310220
0B73 0 E2AB                      AND   2 H00FF-TB    MASK OFF UNIT ADDR.                  81310230
0B74 0 F29A                      EOR   2 K4-TB       CHK FOR DEV END ALONE                81310240
0B75 1 4C20 0BB0                 BNZ     T21E9       ERROR NOT                            81310250
0B77 0 7043                      B       T21EN       CONTINUE-                            81310260
                           *                                                              81310270
                           *             ERROR ROUTINES                                   81310280
                           *                                                              81310290
0B78 0 42DF                T21E1 BSI   2 EROUT-TB    PRINT NO INTRPT RCVD MSG             81310300
0B79 0 0148                      DC      /0148       CONTROL                              81310310
0B7A 1 0C00                      DC      NOINT       ERROR MSG ADDR                       81310320
0B7B 0 C2B2                      LD    2 H1206-TB    STATUS IN SCSXC/ABORT RTN            81310330
0B7C 0 7001                      B       *+1                                              81310340
0B7D 0 C2B9                T21E2 LD    2 H8106-TB    ERR STAT IN SCSX0 (SIO)              81310350
0B7E 0 D001                      STO     *+1                                              81310360
0B7F 0 42DF                      BSI   2 EROUT-TB    GO PRINT ERROR MSG 09                81310370
0B80 0 0000                      DC      *-*         VARIABLE CONTROL                     81310380
0B81 0 2109                      DC      /2109       ERROR MSG NO. 9                      81310390
0B82 0 4206                      BSI   2 TLPST-TB    LOOP SIO REQUESTED                   81310400
0B83 1 0B3B                      DC      T2104       BR.ADR.TO ALLOW SCOPE LOOP           81310410
0B84 0 4203                      BSI   2 TLPER-TB    LOOP ON ERROR                        81310420
0B85 1 0B3B                      DC      T2104       LOOP ADDR                            81310430
0B86 0 7031                      B       T21EB       CONTINUE TO ABORT MESSAGE            81310440
                           *                                                              81310450
0B87 0 42DF                T21E3 BSI   2 EROUT-TB    PRINT NO INTRPT RCVD MSG             81310460
0B88 0 0148                      DC      /0148       CONTROL                              81310470
0B89 1 0C00                      DC      NOINT       ERROR MSG ADDR                       81310480
0B8A 0 C2B2                      LD    2 H1206-TB    STATUS IN SCSXC/ABORT RTN            81310490
0B8B 0 7001                      B       *+1         NO INTRPT RCVD                       81310500
0B8C 0 C2B9                T21E4 LD    2 H8106-TB    ERR STAT IN SCSX0 (SIO)              81310510
0B8D 0 D001                      STO     *+1                                              81310520
0B8E 0 42DF                      BSI   2 EROUT-TB    GO PRINT MSG 11                      81310530
0B8F 0 0000                      DC      *-*         VARIABLE CONTROL                     81310540
0B90 0 2111                      DC      /2111       ERR MSG NR 11                        81310550
0B91 0 4206                      BSI   2 TLPST-TB    LOOP SIO REQUESTED                   81310560
0B92 1 0B46                      DC      T2105       BR.ADR.TO ALLOW SCOPE LOOP           81310570
0B93 0 4203                      BSI   2 TLPER-TB    LOOP ON ERROR                        81310580
0B94 1 0B3B                      DC      T2104       ERROR LOOP ADDRESS                   81310590
0B95 0 7022                      B       T21EB       CONTINUE TO ABORT MESSAGE            81310600
                           *                                                              81310610
0B96 0 42DF                T21E5 BSI   2 EROUT-TB    UNEXPECTED INTRPT DURING             81310620
0B97 0 0100                      DC      /0100       1.0 SECOND WAIT                      81310630
0B98 0 2112                      DC      /2112       PRINT ONLY LINE 1                    81310640
0B99 0 4203                      BSI   2 TLPER-TB    LOOP ON ERROR                        81310650
0B9A 1 0B3B                      DC      T2104       ERROR LOOP ADDRESS                   81310660
0B9B 0 70C2                      B       T2108       CONTINUE-                            81310670
                           *                                                              81310680
0B9C 0 42DF                T21E6 BSI   2 EROUT-TB    PRINT NO INTRPT RCVD MSG             81310690
0B9D 0 0148                      DC      /0148       CONTROL                              81310700
0B9E 1 0C00                      DC      NOINT       ERROR MSG ADDR                       81310710
0B9F 0 C2B2                      LD    2 H1206-TB    STATUS IN SCSXC/ABORT RTN            81310720
0BA0 0 7001                      B       *+1                                              81310730
0BA1 0 C2B9                T21E7 LD    2 H8106-TB    ERR STAT IN SCSX0 (SIO)              81310740
0BA2 0 D001                      STO     *+1                                              81310750
0BA3 0 42DF                      BSI   2 EROUT-TB    PRINT ERR MSG NR 10                  81310760
0BA4 0 0000                      DC      *-*         VARIABLE CONTROL                     81310770
0BA5 0 2110                      DC      /2110       SRXX                                 81310780
0BA6 0 4206                      BSI   2 TLPST-TB    LOOP SIO REQUESTED                   81310790
0BA7 1 0B5E                      DC      T2108       BR.ADR.TO ALLOW SCOPE LOOP           81310800
0BA8 0 4203                      BSI   2 TLPER-TB    LOOP ON ERROR                        81310810
0BA9 1 0B3B                      DC      T2104       ERROR LOOP ADDRESS                   81310820
0BAA 0 70C1                      B       T2109       CONTINUE                             81310830
                           *                                                              81310840
0BAB 0 42DF                T21E8 BSI   2 EROUT-TB    PRINT ERR MSG FOR NO                 81310850
0BAC 0 0148                      DC      /0148       CONTROL                              81310860
0BAD 1 0C00                      DC      NOINT       ERROR MSG ADDR                       81310870
0BAE 0 C2B2                      LD    2 H1206-TB    STATUS IN SCSXC/ABORT RTN            81310880
0BAF 0 7001                      B       *+1                                              81310890
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0BB0 0 C289          T21E9 LD    2 H8106-TB   ERR STAT IN SCSX0 (SIO)    81310900
0BB1 0 D001                STO     *+1                                   81310910
0BB2 0 42DF                BSI   2 EROUT-TB   PRINT ERR MSG NR 10       81310920
0BB3 0 0000                DC      *-*        VARIABLE CONTROL           81310930
0BB4 0 2113                DC      /2113      SRXX                       81310940
0BB5 0 4203          T21EA BSI   2 TLPER-TB   LOOP ON ERROR             81310950
0BB6 1 0B36                DC      T2104      ERROR LOOP ADDRESS         81310960
0BB7 0 7003                B       T21EN      CONTINUE TO END RTN.       81310970
                     *                                                  81310980
0BB8 0 42DF          T21EB BSI   2 EROUT-TB   PRINT RTN ABORT PENDING    81310990
0BB9 0 0140                DC      /0140      CONTROL-1RST LN & NO HALT  81311000
0BBA 0 2105                DC      /2105                                 81311010
                     *                                                  81311020
                     *    GO TO NEXT ROUTINE IN SEQUENCE                81311030
                     *                                                  81311040
0BBB 0 42E2          T21EN BSI   2 FREDV-TB     FREE CHANNEL            81311050
0BBC 0 C2C1                LD    2 TRTNN-TB   GET RTN SWS                81311060
0BBD 1 4C18 0C1A           BZ      T2201       GO TO NEXT RTN IN SEQ     81311070
0BBF 0 42DC                BSI   2 CNTRL-TB   GO TO CONTROL RTN          81311080
0BC0   0007          TTL21 PRNT    . SECT 2,RT 1- .                      81311090
                                                                        81311100
0BC7   0017                PRNT    .RESERVE TO INTF-A-,ADDR ON INTF-B-. 81311110
0BD8   0017                PRNT    .,RELEASE FROM INTF-A-,CLR DEV END .  81311120
0BE9   0007                PRNT    .FROM INTF-B-. .                      81311130
0BF0 0 FFFF                DC      /FFFF                                 81311140
                     *                                                  81311150
0BF1 0 0006          RESRV DC      6          BYTE COUNT                 81311160
0BF2 0 2084                DC      /20*256+/B4 FLAGS AND OP CODE         81311170
0BF3 1 0BFD                DC      CYHDB           ADDRESS               81311180
                     *                                                  81311190
                     *                                                  81311200
0BF4 0 0006          RELSE DC      6          BYTE COUNT                 81311210
0BF5 0 2094                DC      /20*256+/94 FLAGS AND OP CODE         81311220
0BF6 1 0BFD                DC      CYHDB           ADDRESS               81311230
                     *                                                  81311240
                     *                                                  81311250
0BF7 0 0001          CCWTS DC      1          BYTE COUNT                 81311260
0BF8 0 2000                DC      /20*256+OPTIO FLAGS AND OP CODE       81311270
0BF9 1 089D                DC      TSWDS           ADDRESS               81311280
                     *                                                  81311290
                     *                                                  81311300
0BFA 0 0006          CCWSN DC      6          BYTE COUNT                 81311310
0BFB 0 0004                DC      0*256+OPSNS FLAGS AND OP CODE         81311320
0BFC 1 08A2                DC      SNWDS           ADDRESS               81311330
                     *                                                  81311340
0BFD   0003          CYHDB BSS     3          DUMMY STORAGE              81311350
                     *                                                  81311360
0C00   0015          NOINT PRNT    .28 -EXPECTED INTRPT NOT RCVD- .      81311370
0C0F   0010                PRNT    .-RTN ABORT PENDING- .                81311380
0C19 0 FFFF                DC      /FFFF       TERMINATOR                81311390
                     *                                                  81311400
                     ******************************************************81311410
                     *                                                  * 81311420
                     ******************************************************81311430
0C1A 0               T2201 EQU     *          TEST ENTRY POINT           81311440
0C1A 1 7401 0815            MDX   L TRID,1     BUMP RTN ID               81311450
0C1C 1 4C18 0C21            BZ      T2202      BR IF TEST NUMBER ZERO     81311460
0C1E 0 9297                 S     2 K1-TB      DECREMENT BY ONE           81311470
0C1F 1 4C20 0CE2            BNZ     T2301      BR IF NOT THIS TEST        81311480
                     *                                                  81311490
0C21 0 C283          T2202 LD    2 TSW0-TB    GET OPTION SWS             81311500
0C22 0 100A                SLA     OTTLE       PRINT TITLES              81311510
0C23 1 4C10 0C27           BNN     T2203         BR IF NOT SET           81311520
0C25 0 4200                BSI   2 TLGMS-TB GO TO PRINT ROUTINE          81311530
0C26 1 0CB1                DC      TTL22       MESSAGE ADDRESS           81311540
                     *                                                  81311550
0C27 0 42E5          T2203 BSI   2 GETDV-TB   GET CHANNEL FOR RTN.       81311560
                     ******************************************************81311570
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                     *                                                  * 81311580
                     ****************************************************** 81311590
                     *                                                  81311600
                     *          SECTION 2  ROUTINE 2                    81311610
                     *                                                  81311620
                     *          CHECK DEVICE ALLOCATION COMMANDS        81311630
                     *          CHNL B PRIMARY, CHNL A SECONDARY        81311640
                     *                                                  81311650
                     ****************************************************** 81311660
                     *                                                  * 81311670
                     ****************************************************** 81311680
                     *                                                  81311690
0C28 1 6700 0CAC           LDX   L3 T22EN       GET TIMEOUT ERROR ADDR  81311700
0C2A 1 6F00 17E3           STX   L3 ERADR       STORE FOR EROUT RTN.    81311710
0C2C 0 420C          T2204 BSI   2 MODDB-TB     GET SEL CHNL.  -CHNL B  81311720
0C2D 0 420F                BSI   2 CLRST-TB     CLEAR WATSW AND SET SIOSW 81311730
0C2E 0 42EB                BSI   2 SIO-TB       DO RESERVE DEV TO CHNL B 81311740
0C2F 1 0BF1                DC      RESRV        CCW ADDR                81311750
0C30 0 42FA                BSI   2 WAITS-TB     CALL WAIT I/O ROUTINE   81311760
0C31 1 0C69                DC      T22E1      NO INTERRUPT ADDRESS      81311770
0C32 0 C23C                LD    2 SCSX0+1-TB GET UNIT STATUS           81311780
0C33 0 E2AB                AND   2 H00FF-TB                             81311790
0C34 0 F2A4                EOR   2 H000C-TB   ERR IF NOT DEV/CHNL END   81311800
0C35 1 4C20 0C6E           BNZ     T22E2                                81311810
0C37 0 4209          T2205 BSI   2 MODDA-TB     GET SEL CHNL.  -CHNL A  81311820
0C38 0 420F                BSI   2 CLRST-TB     CLEAR WATSW AND SET SIOSW 81311830
0C39 0 42EB                BSI   2 SIO-TB        ERROR                 81311840
0C3A 1 0BFA                DC      CCWSN                                81311850
0C3B 0 42FA                BSI   2 WAITS-TB     CALL WAIT I/O ROUTINE   81311860
0C3C 1 0C78                DC      T22E3      NO INTERRUPT ADDRESS      81311870
0C3D 0 C23C                LD    2 SCSX0+1-TB GET UNIT STATUS           81311880
0C3E 0 E2AB                AND   2 H00FF-TB                             81311890
0C3F 0 F2A5                EOR   2 H0010-TB     TEST FOR DEV BUSY ALONE 81311900
0C40 1 4C20 0C7D           BNZ     T22E4        ERROR NOT SET OR OTHER  81311910
0C42 0 1010          T2206 SLA     16                                   81311920
0C43 0 D277                STO   2 SCISW-TB     SET ALL INTRPTS UNEXPECTED 81311930
0C44 0 D275                STO   2 WIOSW-TB     WAIT FOR MINIMUM OF     81311940
0C45 0 6700 01F4           LDX  L3 500          * 1 SECOND              81311950
0C47 0 42EE          T2207 BSI   2 STMLS-TB                             81311960
                     * ANY INTRPT RCVD DURING WAIT WILL BE UNEXPECTED   81311970
0C48 0 73FF                MDX   3 -1                                   81311980
0C49 0 70FD                B       T2207                                81311990
0C4A 1 6C00 08F6           STX   L SCISW        SET INTERRUPTS EXPECTED 81312000
0C4C 0 C275                LD    2 WIOSW-TB     GET WAIT SWITCH         81312010
0C4D 1 4C20 0C87           BNZ     T22E5         OCCURRED, ELSE ERROR.  81312020
                     *                                                  81312030
0C4F 0 420C          T2208 BSI   2 MODDB-TB     GET SEL CHNL. -CHNL B   81312040
0C50 0 C23A                LD    2 SCSN5+1-TB SET SUPPRESS POLL IN BYTE 81312050
0C51 0 EA9C                OR    2 K8-TB         COUNT SENSE IOCC TO    81312060
0C52 0 D23A                STO   2 SCSN5+1-TB   CAUSE SUPP. POLL AFTER  81312070
0C53 0 420F                BSI   2 CLRST-TB     CLEAR WATSW AND SET SIOSW 81312080
0C54 0 42EB                BSI   2 SIO-TB       DO RELEASE DEV FROM CHNL B 81312090
0C55 1 0BF4                DC      RELSE        CCW ADDR                81312100
0C56 0 42FA                BSI   2 WAITS-TB     CALL WAIT I/O ROUTINE   81312110
0C57 1 0C8D                DC      T22E6      NO INTERRUPT ADDRESS      81312120
0C58 0 C23C                LD    2 SCSX0+1-TB GET UNIT STATUS           81312130
0C59 0 E2AB                AND   2 H00FF-TB                             81312140
0C5A 0 F2A4                EOR   2 H000C-TB     CHK FOR DEV/CHNL END    81312150
0C5B 1 4C20 0C92           BNZ     T22E7        ERROR NOT               81312160
0C5D 0 4209          T2209 BSI   2 MODDA-TB     GET SEL CHNL -CHNL A    81312170
0C5E 0 1010                SLA     16                                   81312180
0C5F 0 D275                STO   2 WIOSW-TB     CLR WAIT SWITCH         81312190
0C60 0 0A39                XIO   2 SCSN5-TB     SENSE TO RELIEVE POLL   81312200
0C61 0 42FA                BSI   2 WAITS-TB     CALL WAIT I/O ROUTINE   81312210
0C62 1 0C9C                DC      T22E8      NO INTERRUPT ADDRESS      81312220
0C63 0 C23C                LD    2 SCSX0+1-TB GET UNIT STATUS           81312230
0C64 0 E2AB                AND   2 H00FF-TB   MASK OFF UNIT ADDR.       81312240
0C65 0 F29A                EOR   2 K4-TB      CHK FOR DEV END ALONE     81312250
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0C66 1 4C20 0CA1          BNZ     T22E9     ERROR NOT                      81312260
0C68 0 7043               B       T22EN     CONTINUE-                      81312270
                          *                                                81312280
                          *         ERROR ROUTINES                         81312290
                          *                                                81312300
0C69 0 42DF       T22E1   BSI   2 EROUT-TB  PRINT NO INTRPT RCVD MSG        81312310
0C6A 0 0148               DC      /0148     CONTROL                        81312320
0C6B 1 0CC0               DC      NOINT     ERROR MSG ADDR                 81312330
0C6C 0 C282               LD    2 H1206-TB  STATUS IN SCSXC/ABORT RTN      81312340
0C6D 0 7001               B       *+1                                      81312350
0C6E 0 C289       T22E2   LD    2 H8106-TB  ERR STAT IN SCSX0 (SIO)        81312360
0C6F 0 D001               STO     *+1                                      81312370
0C70 0 42DF               BSI   2 EROUT-TB  GO PRINT ERROR MSG 09          81312380
0C71 0 0000               DC      *-*       VARIABLE CONTROL               81312390
0C72 0 2209               DC      /2209     SRXX PARAMETER                 81312400
0C73 0 4206               BSI   2 TLPST-TB  LOOP SIO REQUESTED             81312410
0C74 1 0C2C               DC      T2204     BR.ADR.TO ALLOW SCOPE LOOP     81312420
0C75 0 4203               BSI   2 TLPER-TB  LOOP ON ERROR                  81312430
0C76 1 0C2C               DC      T2204     LOOP ADDR                      81312440
0C77 0 7031               B       T22E8     CONTINUE TO ABORT MESSAGE      81312450
                          *                                                81312460
0C78 0 42DF       T22E3   BSI   2 EROUT-TB  PRINT NO INTRPT RCVD MSG        81312470
0C79 0 0148               DC      /0148     CONTROL                        81312480
0C7A 1 0C00               DC      NOINT     ERROR MSG ADDR                 81312490
0C7B 0 C282               LD    2 H1206-TB  STATUS IN SCSXC/ABORT RTN      81312500
0C7C 0 7001               B       *+1       NO INTRPT RCVD                 81312510
0C7D 0 C289       T22E4   LD    2 H8106-TB  ERR STAT IN SCSX0 (SIO)        81312520
0C7E 0 D001               STO     *+1                                      81312530
0C7F 0 42DF               BSI   2 EROUT-TB  GO PRINT MSG 11                81312540
0C80 0 0000               DC      *-*       VARIABLE CONTROL               81312550
0C81 0 2211               DC      /2211     SRXX PARAMETER                 81312560
0C82 0 4206               BSI   2 TLPST-TB  LOOP SIO REQUESTED             81312570
0C83 1 0C37               DC      T2205     BR.ADR.TO ALLOW SCOPE LOOP     81312580
0C84 0 4203               BSI   2 TLPER-TB  LOOP ON ERROR                  81312590
0C85 1 0C2C               DC      T2204     ERROR LOOP ADDRESS             81312600
0C86 0 7022               B       T22E8     CONTINUE TO ABORT MESSAGE      81312610
                          *                                                81312620
0C87 0 42DF       T22E5   BSI   2 EROUT-TB  UNEXPECTED INTRPT DURING        81312630
0C88 0 0100               DC      /0100     1.0 SECOND WAIT                81312640
0C89 0 2212               DC      /2212     SRXX PARAMETER                 81312650
0C8A 0 4203               BSI   2 TLPER-TB  LOOP ON ERROR                  81312660
0C8B 1 0C2C               DC      T2204     ERROR LOOP ADDRESS             81312670
0C8C 0 70C2               B       T2208     CONTINUE-                      81312680
                          *                                                81312690
0C8D 0 42DF       T22E6   BSI   2 EROUT-TB  PRINT NO INTRPT RCVD MSG        81312700
0C8E 0 0148               DC      /0148     CONTROL                        81312710
0C8F 1 0C00               DC      NOINT     ERROR MSG ADDR                 81312720
0C90 0 C282               LD    2 H1206-TB  STATUS IN SCSXC/ABORT RTN      81312730
0C91 0 7001               B       *+1                                      81312740
0C92 0 C289       T22E7   LD    2 H8106-TB  ERR STAT IN SCSX0 (SIO)        81312750
0C93 0 D001               STO     *+1                                      81312760
0C94 0 42DF               BSI   2 EROUT-TB  PRINT ERR MSG NR 10            81312770
0C95 0 0000               DC      *-*       VARIABLE CONTROL               81312780
0C96 0 2210               DC      /2210     SRXX PARAMETER                 81312790
0C97 0 4206               BSI   2 TLPST-TB  LOOP SIO REQUESTED             81312800
0C98 1 0C4F               DC      T2208     BR.ADR.TO ALLOW SCOPE LOOP     81312810
0C99 0 4203               BSI   2 TLPER-TB  LOOP ON ERROR                  81312820
0C9A 1 0C2C               DC      T2204     ERROR LOOP ADDRESS             81312830
0C9B 0 70C1               B       T2209     CONTINUE                       81312840
                          *                                                81312850
0C9C 0 42DF       T22E8   BSI   2 EROUT-TB  PRINT ERR MSG FOR NO           81312860
0C9D 0 0148               DC      /0148     CONTROL                        81312870
0C9E 1 0C00               DC      NOINT     ERROR MSG ADDR                 81312880
0C9F 0 C282               LD    2 H1206-TB  STATUS IN SCSXC/ABORT RTN      81312890
0CA0 0 7001               B       *+1                                      81312900
0CA1 0 C289       T22E9   LD    2 H8106-TB  ERR STAT IN SCSX0 (SIO)        81312910
0CA2 0 D001               STO     *+1                                      81312920
0CA3 0 42DF               BSI   2 EROUT-TB  PRINT ERR MSG NR 10            81312930
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0CA4 0 0000               DC      *-*       VARIABLE CONTROL               81312940
0CA5 0 2213               DC      /2213     SRXX PARAMETER                 81312950
0CA6 0 4203       T22EA   BSI   2 TLPER-TB  LOOP ON ERROR                  81312960
0CA7 1 0C2C               DC      T2204     ERROR LOOP ADDRESS             81312970
0CA8 0 7003               B       T22EN     CONTINUE TO END RTN.           81312980
                          *                                                81312990
0CA9 0 42DF       T22EB   BSI   2 EROUT-TB  PRINT RTN ABORT PENDING        81313000
0CAA 0 0140               DC      /0140     CONTROL-1RST LN & NO HALT      81313010
0CAB 0 2205               DC      /2205                                    81313020
                          *                                                81313030
                          *     GO TO NEXT ROUTINE IN SEQUENCE             81313040
                          *                                                81313050
0CAC 0 42E2       T22EN   BSI   2 FREDV-TB    FREE CHANNEL                 81313060
0CAD 0 C2C1               LD    2 TRTNN-TB  GET RTN SWS                    81313070
0CAE 1 4C18 0CE2          BZ      T2301       GO TO NEXT RTN IN SEQ        81313080
0CB0 0 42DC               BSI   2 CNTRL-TB   GO TO CONTROL RTN            81313090
0CB1   0007       TTL22   PRNT    . SECT 2,RT 2- .                         81313100
                          *                                                81313110
0CB8   0017               PRNT    .RESERVE TO INTF-B-,ADDR ON INTF-A-.     81313120
0CC9   0017               PRNT    .,RELEASE FROM INTF-B-,CLR DEV END .     81313130
0CDA   0007               PRNT    .FROM INTF-A-. .                         81313140
0CE1 0 FFFF               DC      /FFFF                                    81313150
                          ********************************************** 81313160
                          *                                            * 81313170
                          ********************************************** 81313180
                          *                                                81313190
                          *     SECTION END                                81313200
                          *                                                81313210
0CE2 0 42DC       T2301   BSI   2 CNTRL-TB   GO TO CONTROL RTN            81313220
                          ********************************************** 81313230
                          *                                            * 81313240
                          ********************************************** 81313250
                          *                                                81313260
                          *     SECTION PREFACE                            81313270
                          *                                                81313280
0CE3 0 0003       T30PR   DC      /0003     SECTION NUMBER                 81313290
0CE4 0 0002               DC      2                                        81313300
                          *                                                81313310
0CE5 0 C2C1       T30NT   LD    2 TRTNN-TB  SW FNC 1 BITS 12-15            81313320
0CE6 1 4C18 0CED          BZ      T3101     BR IF RUN ALL RTNS             81313330
0CE8 0 90FB               S       T30PR+1   TEST FOR VALID                 81313340
0CE9 1 4C30 0A62          BP      TCNER     BR IF INVALID RTN NUMBER       81313350
0CEB 0 80F8               A       T30PR+1   RESTORE RTN NUMBER             81313360
0CEC 0 7000               MDX     T3101     GO TO FIRST RTN                81313370
                          ********************************************** 81313380
                          *                                            * 81313390
                          ********************************************** 81313400
                          *                                                81313410
                          ********************************************** 81313420
                          *                                            * 81313430
                          ********************************************** 81313440
0CED 0            T3101   EQU     *         TEST ENTRY POINT               81313450
0CED 1 7401 0815          MDX   L TRID,1    BUMP RTN ID                    81313460
0CEF 1 4C18 0CF4          BZ      T3102     BR IF TEST NUMBER ZERO         81313470
0CF1 0 9297               S     2 K1-TB     DECREMENT BY ONE               81313480
0CF2 1 4C20 0DCB          BNZ     T3201     BR IF NOT THIS TEST            81313490
                          *                                                81313500
0CF4 0 C283       T3102   LD    2 TSW0-TB   GET OPTION SWS                 81313510
0CF5 0 100A               SLA     OTTLE     PRINT TITLES                   81313520
0CF6 1 4C10 0CFA          BNN     T3103       BR IF NOT SET                81313530
0CF8 0 4200               BSI   2 TLGMS-TB GO TO PRINT ROUTINE            81313540
0CF9 1 0D94               DC      TTL31     MESSAGE ADDRESS                81313550
                          *                                                81313560
0CFA 0 42E5       T3103   BSI   2 GETDV-TB   GET CHANNEL FOR RTN          81313570
                          ********************************************** 81313580
                          *                                            * 81313590
                          ********************************************** 81313600
                          *                                                81313610
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                            *               SECTION 3   ROUTINE 1               81313620
                            *                                                   81313630
                            *      TEST CHANNEL SELECTION SWITCH WITH UNIT CHK  81313640
                            *       CHNL A IS PRIMARY INTF. CHNL B IS SECONDARY 81313650
                            *                                                   81313660
                            ************************************************** 81313670
                            *                                                 * 81313680
                            ************************************************** 81313690
                            *                                                   81313700
0CFB 1 6700 0D8F                  LDX  L3 T31EN      GET TIMEOUT ERROR ADDR     81313710
0CFD 1 6F00 17E3                  STX  L3 ERADR      STORE FOR EROUT RTN.       81313720
0CFF 0 4209                 T3104 BSI   2 MODDA-TB   GET SEL CHNL.  -CHNL A     81313730
0D00 0 420F                       BSI   2 CLRST-TB   CLR WAIT SW & SETUP OPTNS  81313740
0D01 0 42EB                       BSI   2 SIO-TB     GO EXECUTE                 81313750
0D02 1 0DC5                       DC      CC311        INVALID COMMD CHAIN      81313760
0D03 0 42FA                       BSI   2 WAITS-TB   CALL WAIT I/O ROUTINE      81313770
0D04 1 0D43                       DC      T31E1     NO INTERRUPT ADDRESS        81313780
0D05 0 C23C                       LD    2 SCSX0+1-TB FETCH UNIT STATUS          81313790
0D06 0 E2AB                       AND   2 H00FF-TB                              81313800
0D07 0 F298                       EOR   2 K2-TB      UNIT CHECK ONLY            81313810
0D08 1 4C20 0D48                  BNZ     T31E2      NO. ERROR                  81313820
0D0A 0 420F                 T3105 BSI   2 CLRST-TB   CLR WAIT SW & SETUP OPTION 81313830
0D0B 0 42EB                       BSI   2 SIO-TB     GO EXECUTE                 81313840
0D0C 1 0BF7                       DC      CCWTS        TEST I/O                 81313850
0D0D 0 420F                       BSI   2 CLRST-TB   CLR WAIT SW & SETUP OPTN   81313860
0D0E 0 42EB                       BSI   2 SIO-TB     GO EXECUTE                 81313870
0D0F 1 0894                       DC      NOPCC        NO-OP                    81313880
0D10 0 42FA                       BSI   2 WAITS-TB   CALL WAIT I/O ROUTINE      81313890
0D11 1 0D52                       DC      T31E3     NO INTERRUPT ADDRESS        81313900
0D12 0 C23C                       LD    2 SCSX0+1-TB FETCH STATUS               81313910
0D13 0 E2AB                       AND   2 H00FF-TB                              81313920
0D14 0 F2A4                       EOR   2 H000C-TB   CHAN END & DEV END ONLY    81313930
0D15 1 4C20 0D57                  BNZ     T31E4      NO. ERR                    81313940
0D17 0 420C                       BSI   2 MODDB-TB   GET SEL CHNL.  -CHNL B     81313950
0D18 0 C29C                 T3106 LD    2 K8-TB      INSERT SUPP POLL BIT INTO  81313960
0D19 0 EA3A                       OR    2 SCSN5+1-TB  SENSE IOCC                81313970
0D1A 0 D23A                       STO   2 SCSN5+1-TB                            81313980
0D1B 0 420F                       BSI   2 CLRST-TB   CLR WAIT SW & SETUP OPTION 81313990
0D1C 0 42EB                       BSI   2 SIO-TB     GO EXECUTE                 81314000
0D1D 1 0BFA                       DC      CCWSN        SENSE                    81314010
0D1E 0 42FA                       BSI   2 WAITS-TB   CALL WAIT I/O ROUTINE      81314020
0D1F 1 0D61                       DC      T31E5     NO INTERRUPT ADDRESS        81314030
0D20 0 C23C                       LD    2 SCSX0+1-TB FETCH STATUS               81314040
0D21 0 E2AB                       AND   2 H00FF-TB                              81314050
0D22 0 F2AA                       EOR   2 H0050-TB   CTRL UNIT BUSY             81314060
0D23 1 4C20 0D66                  BNZ     T31E6      NO. ERROR                  81314070
0D25 0 4209                 T3107 BSI   2 MODDA-TB   GET SEL CHANL. -CHNL A     81314080
0D26 0 C29C                       LD    2 K8-TB                                 81314090
0D27 0 EA3A                       OR    2 SCSN5+1-TB                            81314100
0D28 0 D23A                       STO   2 SCSN5+1-TB                            81314110
0D29 0 420F                       BSI   2 CLRST-TB   CLR WAIT SW & SETUP OPTION 81314120
0D2A 0 42EB                       BSI   2 SIO-TB     GO EXECUTE                 81314130
0D2B 1 0BFA                       DC      CCWSN        SENSE                    81314140
0D2C 0 42FA                       BSI   2 WAITS-TB   CALL WAIT I/O ROUTINE      81314150
0D2D 1 0D70                       DC      T31E7     NO INTERRUPT ADDRESS        81314160
0D2E 0 C23C                       LD    2 SCSX0+1-TB GET UNIT STATUS            81314170
0D2F 0 E2AB                       AND   2 H00FF-TB   MASK OFF UNIT ADDR         81314180
0D30 0 F2A4                       EOR   2 H000C-TB   CHK FOR DEV/CHNL END       81314190
0D31 1 4C20 0D75                  BNZ     T31E8      ERROR NOT                  81314200
0D33 0 C223                       LD    2 SNWDS-TB   FETCH SENSE BYTES 0, 1     81314210
0D34 0 F288                       EOR   2 H8010-TB   COMMD REJ & INVALID SEQ    81314220
0D35 1 4C20 0D75                  BNZ     T31E8      NO. ERROR                  81314230
0D37 0 420C                 T3108 BSI   2 MODDB-TB   GET SEL CHNL. -CHNL B      81314240
0D38 0 420F                       BSI   2 CLRST-TB   CLR WAIT SW                81314250
0D39 0 0A39                       XIO   2 SCSN5-TB   SENSE                      81314260
                            *              SUPPRESS POLL IS RELIEVED            81314270
0D3A 0 42FA                       BSI   2 WAITS-TB   CALL WAIT I/O ROUTINE      81314280
0D3B 1 0D7F                       DC      T31E9      NO INTERRUPT ADDRESS       81314290
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0D3C 0 C2D4                       LD    2 DVADR-TB   CTRL UNIT END              81314300
0D3D 0 1008                       SLA     8                &                    81314310
0D3E 0 EAA8                       OR    2 H0020-TB   DEV ADDR=BX                81314320
0D3F 0 F23C                       EOR   2 SCSX0+1-TB                            81314330
0D40 1 4C20 0D84                  BNZ     T31EA      NO. ERROR                  81314340
0D42 0 704C                       B       T31EN      CONTINUE-                  81314350
                            *                                                   81314360
                            *             ERROR ROUTINES                        81314370
                            *                                                   81314380
0D43 0 42DF                 T31E1 BSI   2 EROUT-TB   PRINT                      81314390
0D44 0 0148                       DC      /0148                                 81314400
0D45 1 0C00                       DC      NOINT       NO I/R RCVD MSG           81314410
0D46 0 C282                       LD    2 H1206-TB   STATUS IN SCSXC/ABORT RTN  81314420
0D47 0 7001                       B       *+1                                   81314430
0D48 0 C2B9                 T31E2 LD    2 H8106-TB   ERR STAT IN SCSX0 (SIO)    81314440
0D49 0 D001                       STO     *+1                                   81314450
0D4A 0 42DF                       BSI   2 EROUT-TB   PRINT                      81314460
0D4B 0 0000                       DC      *-*                                   81314470
0D4C 0 3115                       DC      /3115      MSG 15                     81314480
0D4D 0 4206                       BSI   2 TLPST-TB   LOOP SIO REQUESTED         81314490
0D4E 1 0CFF                       DC      T3104      BR.ADR.TO ALLOW SCOPE LOOP 81314500
0D4F 0 4203                       BSI   2 TLPER-TB   CHECK LOOP-ON-ERR OPTION   81314510
0D50 1 0CFF                       DC      T3104      LOOP ADDR                  81314520
0D51 0 703A                       B       T31EB      CONTINUE                   81314530
                            *                                                   81314540
0D52 0 42DF                 T31E3 BSI   2 EROUT-TB   PRINT                      81314550
0D53 0 0148                       DC      /0148                                 81314560
0D54 1 0C00                       DC      NOINT      NO I/R RCVD MSG            81314570
0D55 0 C282                       LD    2 H1206-TB   STATUS IN SCSXC/ABORT RTN  81314580
0D56 0 7001                       B       *+1                                   81314590
0D57 0 C2B9                 T31E4 LD    2 H8106-TB   ERR STAT IN SCSX0 (SIO)    81314600
0D58 0 D001                       STO     *+1                                   81314610
0D59 0 42DF                       BSI   2 EROUT-TB   PRINT                      81314620
0D5A 0 0000                       DC      *-*                                   81314630
0D5B 0 3116                       DC      /3116      MSG 16                     81314640
0D5C 0 4206                       BSI   2 TLPST-TB   LOOP SIO REQUESTED         81314650
0D5D 1 0D0A                       DC      T3105      BR.ADR.TO ALLOW SCOPE LOOP 81314660
0D5E 0 4203                       BSI   2 TLPER-TB   CHECK LOOP-ON-ERR OPTION   81314670
0D5F 1 0CFF                       DC      T3104      LOOP ADDR                  81314680
0D60 0 702B                       B       T31EB      CONTINUE                   81314690
                            *                                                   81314700
0D61 0 42DF                 T31E5 BSI   2 EROUT-TB   PRINT                      81314710
0D62 0 0148                       DC      /0148                                 81314720
0D63 1 0C00                       DC      NOINT      NO I/R RCVD MSG            81314730
0D64 0 C282                       LD    2 H1206-TB   STATUS IN SCSXC/ABORT RTN  81314740
0D65 0 7001                       B       *+1                                   81314750
0D66 0 C2B9                 T31E6 LD    2 H8106-TB   ERR STAT IN SCSX0 (SIO)    81314760
0D67 0 D001                       STO     *+1                                   81314770
0D68 0 42DF                       BSI   2 EROUT-TB   PRINT                      81314780
0D69 0 0000                       DC      *-*                                   81314790
0D6A 0 3118                       DC      /3118      MSG 18                     81314800
0D6B 0 4206                       BSI   2 TLPST-TB   LOOP SIO REQUESTED         81314810
0D6C 1 0D18                       DC      T3106      BR.ADR.TO ALLOW SCOPE LOOP 81314820
0D6D 0 4203                       BSI   2 TLPER-TB   CHECK LOOP-ON-ERR OPTION   81314830
0D6E 1 0CFF                       DC      T3104      LOOP ADDR                  81314840
0D6F 0 70B5                       B       T3107      CONTINUE-                  81314850
                            *                                                   81314860
0D70 0 42DF                 T31E7 BSI   2 EROUT-TB   PRINT                      81314870
0D71 0 0148                       DC      /0148                                 81314880
0D72 1 0C00                       DC      NOINT      NO I/R RCVD MSG            81314890
0D73 0 C2B2                       LD    2 H1206-TB   STATUS IN SCSXC/ABORT RTN  81314900
0D74 0 7001                       B       *+1                                   81314910
0D75 0 C2BA                 T31E8 LD    2 H8107-TB   ERR STAT IN SCSX0 (SIO)    81314920
0D76 0 D001                       STO     *+1                                   81314930
0D77 0 42DF                       BSI   2 EROUT-TB   PRINT                      81314940
0D78 0 0000                       DC      *-*                                   81314950
0D79 0 3117                       DC      /3117      MSG 17                     81314960
0D7A 0 4206                       BSI   2 TLPST-TB   LOOP SIO REQUESTED         81314970
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0D7B 1 0025              DC      T3107      BR.ADR.TO ALLOW SCOPE LOOP 81314980
0D7C 0 4203              BSI  2 TLPER-TB   CHECK LOOP-ON-ERR OPTION   81314990
0D7D 1 0CFF              DC      T3104      LOOP ADDR                  81315000
0D7E 0 7088              B       T3108      CONTINUE                   81315010
                     *                                               81315020
0D7F 0 42DF          T31E9 BSI  2 EROUT-TB   PRINT                    81315030
0D80 0 0148                DC      /0148                              81315040
0D81 1 0C00                DC      NOINT      NO I/R RCVD MSG         81315050
0D82 0 C282                LD   2 H1206-TB   STATUS IN SCSXC/ABORT RTN 81315060
0D83 0 7001                B       *+1                                81315070
0D84 0 C289          T31EA LD   2 H8106-TB   ERR STAT IN SCSX0 (SIO)   81315080
0D85 0 D001                STO     *+1                                81315090
0D86 0 42DF                BSI  2 EROUT-TB   PRINT                    81315100
0D87 0 0000                DC      *-*                                81315110
0D88 0 3119                DC      /3119      MSG 19                  81315120
0D89 0 4203                BSI  2 TLPER-TB   CHECK LOOP-ON-ERR OPTION 81315130
0D8A 1 0CFF                DC      T3104      LOOP ADDR               81315140
0D8B 0 7003                B       T31EN      CONTINUE                81315150
                     *                                               81315160
0D8C 0 42DF          T31EB BSI  2 EROUT-TB   PRINT                    81315170
0D8D 0 0140                DC      /0140      CONTROL-1RST LN & NO HALT 81315180
0D8E 0 3105                DC      /3105      MSG 05                  81315190
                     *                                               81315200
                     *                                               81315210
                     *    GO TO NEXT ROUTINE IN SEQUENCE             81315220
                     *                                               81315230
0D8F 0 42E2          T31EN BSI  2 FREDV-TB     FREE CHANNEL          81315240
0D90 0 C2C1                LD   2 TRTNN-TB   GET RTN SWS              81315250
0D91 1 4C18 0DCB           BZ      T3201       GO TO NEXT RTN IN SEQ  81315260
0D93 0 42DC                BSI  2 CNTRL-TB   GO TO CONTROL RTN        81315270
0D94   0007          TTL31 PRNT    . SECT 3.RT 1- .                   81315280
                     *                                               81315290
0D9B   0017                PRNT    .CHKS CHNL SEL SW DOES NOT RTRN TO . 81315300
0DAC   0017                PRNT    .NEUTRAL WHEN END STATUS ON INTF-A-. 81315310
0DBD   0007                PRNT    . WAS UNIT CHK..                   81315320
0DC4 0 FFFF                DC      /FFFF                              81315330
                     *ILLEGAL COMMAND FOR UNIT CHECK                 81315340
                     *                                               81315350
0DC5 0 0001          CC311 DC      1          BYTE COUNT              81315360
0DC6 0 601F                DC      /60*256+SFILM FLAGS AND OP CODE    81315370
0DC7 1 0BFD                DC      CYHDB          ADDRESS             81315380
                     *                                               81315390
                     *                                               81315400
0DC8 0 0006                DC      6          BYTE COUNT              81315410
0DC9 0 20B4                DC      FLSLI*256+/B4 FLAGS AND OP CODE    81315420
0DCA 1 0BFD                DC      CYHDB          ADDRESS             81315430
                     *                                               81315440
                     *                                               81315450
                     ************************************************ 81315460
                     *                                              * 81315470
                     ************************************************ 81315480
0DCB 0               T3201 EQU     *          TEST ENTRY POINT        81315490
0DCB 1 7401 0815           MDX  L  TRID,1     BUMP RTN ID             81315500
0DCD 1 4C18 0DD2           BZ      T3202      BR IF TEST NUMBER ZERO  81315510
0DCF 0 9297                S    2 K1-TB       DECREMENT BY ONE        81315520
0DD0 1 4C20 0EA9           BNZ     T3301      BR IF NOT THIS TEST     81315530
                     *                                               81315540
0DD2 0 C283          T3202 LD   2 TSW0-TB     GET OPTION SWS          81315550
0DD3 0 100A                SLA     OTTLE      PRINT TITLES            81315560
0DD4 1 4C10 0DD8           BNN     T3203        BR IF NOT SET         81315570
0DD6 0 4200                BSI  2 TLGMS-TB GO TO PRINT ROUTINE        81315580
0DD7 1 0E72                DC      TTL32      MESSAGE ADDRESS         81315590
                     *                                               81315600
0DD8 0 42E5          T3203 BSI  2 GETDV-TB   GET CHANNEL FOR RTN     81315610
                     ************************************************ 81315620
                     *                                              * 81315630
                     ************************************************ 81315640
                     *                                               81315650
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                     *          SECTION 3   ROUTINE 2                81315660
                     *                                               81315670
                     *    TEST CHANNEL SELECTION SWITCH WITH UNIT CHK 81315680
                     *     CHNL B IS PRIMARY INTF, CHNL A IS SECONDARY 81315690
                     *                                               81315700
                     ************************************************ 81315710
                     *                                              * 81315720
                     ************************************************ 81315730
                     *                                               81315740
0DD9 1 6700 0E6D           LDX  L3 T32EN      GET TIMEOUT ERROR ADDR  81315750
0DDB 1 6F00 17E3           STX  L3 ERADR      STORE FOR EROUT RTN.    81315760
0DDD 0 420C          T3204 BSI  2 MODDB-TB    GET SEL CHNL.  -CHNL B  81315770
0DDE 0 420F                BSI  2 CLRST-TB   CLR WAIT SW & SETUP OPTNS 81315780
0DDF 0 42EB                BSI  2 SIO-TB     GO EXECUTE              81315790
0DE0 1 0EA3                DC      CC321                              81315800
0DE1 0 C23C                LD   2 SCSX0+1-TB FETCH UNIT STATUS       81315810
0DE2 0 E2AB                AND  2 H00FF-TB                           81315820
0DE3 0 F298                EOR  2 K2-TB      UNIT CHECK ONLY         81315830
0DE4 1 4C20 0E26           BNZ     T32E2      NO. ERROR               81315840
0DE6 0 420F          T3205 BSI  2 CLRST-TB   CLR WAIT SW & SETUP OPTION 81315850
0DE7 0 42EB                BSI  2 SIO-TB     GO EXECUTE              81315860
0DE8 1 0BF7                DC      CCWTS       TEST I/O               81315870
0DE9 0 42FA                BSI  2 WAITS-TB   CALL WAIT I/O ROUTINE   81315880
0DEA 1 0E21                DC      T32E1    NO INTERRUPT ADDRESS      81315890
0DEB 0 420F                BSI  2 CLRST-TB   CLR WAIT SW & SETUP OPTN 81315900
0DEC 0 42EB                BSI  2 SIO-TB     GO EXECUTE              81315910
0DED 1 0894                DC      NOPCC       NO-OP                 81315920
0DEE 0 42FA                BSI  2 WAITS-TB   CALL WAIT I/O ROUTINE   81315930
0DEF 1 0E30                DC      T32E3    NO INTERRUPT ADDRESS      81315940
0DF0 0 C23C                LD   2 SCSX0+1-TB FETCH STATUS            81315950
0DF1 0 E2AB                AND  2 H00FF-TB                           81315960
0DF2 0 F2A4                EOR  2 H000C-TB   CHAN END & DEV END ONLY  81315970
0DF3 1 4C20 0E35           BNZ     T32E4      NO. ERR                 81315980
0DF5 0 4209                BSI  2 MODDA-TB   GET SEL CHNL.  -CHNL A   81315990
0DF6 0 C29C          T3206 LD   2 K8-TB       INSERT SUPP POLL BIT INTO 81316000
0DF7 0 EA3A                OR   2 SCSN5+1-TB  SENSE IOCC             81316010
0DF8 0 D23A                STO  2 SCSN5+1-TB                         81316020
0DF9 0 420F                BSI  2 CLRST-TB   CLR WAIT SW & SETUP OPTION 81316030
0DFA 0 42EB                BSI  2 SIO-TB     GO EXECUTE              81316040
0DFB 1 0BFA                DC      CCWSN       SENSE                 81316050
0DFC 0 42FA                BSI  2 WAITS-TB   CALL WAIT I/O ROUTINE   81316060
0DFD 1 0E3F                DC      T32E5    NO INTERRUPT ADDRESS      81316070
0DFE 0 C23C                LD   2 SCSX0+1-TB FETCH STATUS            81316080
0DFF 0 E2AB                AND  2 H00FF-TB                           81316090
0E00 0 F2AA                EOR  2 H0050-TB   CTRL UNIT BUSY          81316100
0E01 1 4C20 0E44           BNZ     T32E6      NO. ERROR               81316110
0E03 0 420C          T3207 BSI  2 MODDB-TB    GET SEL CHANL, -CHNL B  81316120
0E04 0 C29C                LD   2 K8-TB       INSERT SUPP POLL BIT INTO 81316130
0E05 0 EA3A                OR   2 SCSN5+1-TB  SENSE IOCC             81316140
0E06 0 D23A                STO  2 SCSN5+1-TB                         81316150
0E07 0 420F                BSI  2 CLRST-TB   CLR WAIT SW & SETUP OPTION 81316160
0E08 0 42EB                BSI  2 SIO-TB     GO EXECUTE              81316170
0E09 1 0BFA                DC      CCWSN       SENSE                 81316180
0E0A 0 42FA                BSI  2 WAITS-TB   CALL WAIT I/O ROUTINE   81316190
0E0B 1 0E4E                DC      T32E7    NO INTERRUPT ADDRESS      81316200
0E0C 0 C23C                LD   2 SCSX0+1-TB GET UNIT STATUS         81316210
0E0D 0 E2AB                AND  2 H00FF-TB   MASK OFF UNIT ADDR      81316220
0E0E 0 F2A4                EOR  2 H000C-TB   CHK FOR DEV/CHNL END    81316230
0E0F 1 4C20 0E53           BNZ     T32E8      ERROR NOT               81316240
0E11 0 C223                LD   2 SNWDS-TB   FETCH SENSE BYTES 0, 1  81316250
0E12 0 F288                EOR  2 H8010-TB   COMMD REJ & INVALID SEQ  81316260
0E13 1 4C20 0E53           BNZ     T32E8      NO. ERROR               81316270
0E15 0 4209          T3208 BSI  2 MODDA-TB    GET SEL CHNL. -CHNL A   81316280
0E16 0 420F                BSI  2 CLRST-TB   CLR WAIT SW             81316290
0E17 0 0A39                XIO  2 SCSN5-TB   SENSE                   81316300
                     *                 SUPPRESS POLL IS RELIEVED     81316310
0E18 0 42FA                BSI  2 WAITS-TB   CALL WAIT I/O ROUTINE   81316320
0E19 1 0E5D                DC      T32E9    NO INTERRUPT ADDRESS      81316330
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0E1A 0 C2D4              LD    2 DVADR-TB   CTRL UNIT END                  81316340
0E1B 0 1008              SLA     8          &                              81316350
0E1C 0 EAA8              OR    2 H0020-TB   DEV ADD = A1                   81316360
0E1D 0 F23C              EOR   2 SCSX0+1-TB                                81316370
0E1E 1 4C20 0E62         BNZ     T32EA      NO, ERROR                      81316380
0E20 0 704C              B       T32EN      CONTINUE-                      81316390
                    *                                                     81316400
                    *         ERROR ROUTINES                              81316410
                    *                                                     81316420
0E21 0 42DF         T32E1 BSI   2 EROUT-TB   PRINT                        81316430
0E22 0 0148               DC      /0148                                   81316440
0E23 1 0C00               DC      NOINT      NO I/R RCVD MSG              81316450
0E24 0 C282               LD    2 H1206-TB   STATUS IN SCSXC/ABORT RTN     81316460
0E25 0 7001               B       *+1                                     81316470
0E26 0 C289         T32E2 LD    2 H8106-TB   ERR STAT IN SCSX0 (SIO)       81316480
0E27 0 D001               STO     *+1                                     81316490
0E28 0 42DF               BSI   2 EROUT-TB   PRINT                        81316500
0E29 0 0000               DC      *-*                                     81316510
0E2A 0 3215               DC      /3215      MSG 15                       81316520
0E2B 0 4206               BSI   2 TLPST-TB   LOOP SIO REQUESTED           81316530
0E2C 1 0DDD               DC      T3204      BR.ADR.TO ALLOW SCOPE LOOP   81316540
0E2D 0 4203               BSI   2 TLPER-TB   CHECK LOOP-ON-ERR OPTION     81316550
0E2E 1 0CFF               DC      T3104      LOOP ADDR                    81316560
0E2F 0 703A               B       T32EB      CONTINUE                     81316570
                    *                                                     81316580
0E30 0 42DF         T32E3 BSI   2 EROUT-TB   PRINT                        81316590
0E31 0 0148               DC      /0148                                   81316600
0E32 1 0C00               DC      NOINT      NO I/R RCVD MSG              81316610
0E33 0 C282               LD    2 H1206-TB   STATUS IN SCSXC/ABORT RTN     81316620
0E34 0 7001               B       *+1                                     81316630
0E35 0 C289         T32E4 LD    2 H8106-TB   ERR STAT IN SCSX0 (SIO)       81316640
0E36 0 D001               STO     *+1                                     81316650
0E37 0 42DF               BSI   2 EROUT-TB   PRINT                        81316660
0E38 0 0000               DC      *-*                                     81316670
0E39 0 3216               DC      /3216      MSG 16                       81316680
0E3A 0 4206               BSI   2 TLPST-TB   LOOP SIO REQUESTED           81316690
0E3B 1 0DE6               DC      T3205      BR.ADR.TO ALLOW SCOPE LOOP   81316700
0E3C 0 4203               BSI   2 TLPER-TB   CHECK LOOP-ON-ERR OPTION     81316710
0E3D 1 0DDD               DC      T3204      LOOP ADDR                    81316720
0E3E 0 702B               B       T32EB      CONTINUE                     81316730
                    *                                                     81316740
0E3F 0 42DF         T32E5 BSI   2 EROUT-TB   PRINT                        81316750
0E40 0 0148               DC      /0148                                   81316760
0E41 1 0C00               DC      NOINT      NO I/R RCVD MSG              81316770
0E42 0 C282               LD    2 H1206-TB   STATUS IN SCSXC/ABORT RTN     81316780
0E43 0 7001               B       *+1                                     81316790
0E44 0 C289         T32E6 LD    2 H8106-TB   ERR STAT IN SCSX0 (SIO)       81316800
0E45 0 D001               STO     *+1                                     81316810
0E46 0 42DF               BSI   2 EROUT-TB   PRINT                        81316820
0E47 0 0000               DC      *-*                                     81316830
0E48 0 3218               DC      /3218      MSG 18                       81316840
0E49 0 4206               BSI   2 TLPST-TB   LOOP SIO REQUESTED           81316850
0E4A 1 0DF6               DC      T3206      BR.ADR.TO ALLOW SCOPE LOOP   81316860
0E4B 0 4203               BSI   2 TLPER-TB   CHECK LOOP-ON-ERR OPTION     81316870
0E4C 1 0DDD               DC      T3204      LOOP ADDR                    81316880
0E4D 0 70B5               B       T3207      CONTINUE-                    81316890
                    *                                                     81316900
0E4E 0 42DF         T32E7 BSI   2 EROUT-TB   PRINT                        81316910
0E4F 0 0148               DC      /0148                                   81316920
0E50 1 0C00               DC      NOINT      NO I/R RCVD MSG              81316930
0E51 0 C282               LD    2 H1206-TB   STATUS IN SCSXC/ABORT RTN     81316940
0E52 0 7001               B       *+1                                     81316950
0E53 0 C28A         T32E8 LD    2 H8107-TB   ERR STAT IN SCSX0 (SIO)       81316960
0E54 0 D001               STO     *+1                                     81316970
0E55 0 42DF               BSI   2 EROUT-TB   PRINT                        81316980
0E56 0 0000               DC      *-*                                     81316990
0E57 0 3217               DC      /3217      MSG 17                       81317000
0E58 0 4206               BSI   2 TLPST-TB   LOOP SIO REQUESTED           81317010
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0E59 1 0E03              DC      T3207      BR.ADR.TO ALLOW SCOPE LOOP   81317020
0E5A 0 4203              BSI   2 TLPER-TB   CHECK LOOP-ON-ERR OPTION     81317030
0E5B 1 0DDD              DC      T3204      LOOP ADDR                    81317040
0E5C 0 7008              B       T3208      CONTINUE                     81317050
                    *                                                     81317060
0E5D 0 42DF         T32E9 BSI   2 EROUT-TB   PRINT                        81317070
0E5E 0 0148               DC      /0148                                   81317080
0E5F 1 0C00               DC      NOINT      NO I/R RCVD MSG              81317090
0E60 0 C282               LD    2 H1206-TB   STATUS IN SCSXC/ABORT RTN     81317100
0E61 0 7001               B       *+1                                     81317110
0E62 0 C289         T32EA LD    2 H8106-TB   ERR STAT IN SCSX0 (SIO)       81317120
0E63 0 D001               STO     *+1                                     81317130
0E64 0 42DF               BSI   2 EROUT-TB   PRINT                        81317140
0E65 0 0000               DC      *-*                                     81317150
0E66 0 3219               DC      /3219      MSG 19                       81317160
0E67 0 4203               BSI   2 TLPER-TB   CHECK LOOP-ON-ERR OPTION     81317170
0E68 1 0DDD               DC      T3204      LOOP ADDR                    81317180
0E69 0 7003               B       T32EN      CONTINUE                     81317190
                    *                                                     81317200
0E6A 0 42DF         T32EB BSI   2 EROUT-TB   PRINT                        81317210
0E6B 0 0140               DC      /0140      CONTROL-1RST LN & NO HALT    81317220
0E6C 0 3205               DC      /3205      MSG 05                       81317230
                    *                                                     81317240
                    *                                                     81317250
                    *         GO TO NEXT ROUTINE IN SEQUENCE              81317260
                    *                                                     81317270
0E6D 0 42E2         T32EN BSI   2 FREDV-TB     FREE CHANNEL               81317280
0E6E 0 C2C1               LD    2 TRTNN-TB   GET RTN SWS                  81317290
0E6F 1 4C18 0EA9          BZ      T3301      GO TO NEXT RTN IN SEQ        81317300
0E71 0 42DC               BSI   2 CNTRL-TB   GO TO CONTROL RTN           81317310
0E72    0007         TTL32 PRNT    . SECT 3,RT 2- .                       81317320
                    *                                                     81317330
0E79    0017              PRNT    .CHKS CHNL SEL SW DOES NOT RTRN TO .    81317340
0E8A    0017              PRNT    .NEUTRAL WHEN END STATUS ON INTF-B-.    81317350
0E9B    0007              PRNT    . WAS UNIT CHK..                        81317360
0EA2 0 FFFF               DC      /FFFF                                   81317370
                    *ILLEGAL COMMAND FOR UNIT CHECK                       81317380
                    *                                                     81317390
0EA3 0 0001         CC321 DC      1          BYTE COUNT                   81317400
0EA4 0 601F               DC      /60*256+SFILM FLAGS AND OP CODE         81317410
0EA5 1 0BFD               DC      CYHDB      ADDRESS                      81317420
                    *                                                     81317430
                    *                                                     81317440
0EA6 0 0006               DC      6          BYTE COUNT                   81317450
0EA7 0 20B4               DC      FLSLI*256+/B4 FLAGS AND OP CODE         81317460
0EA8 1 0BFD               DC      CYHDB      ADDRESS                      81317470
                    *                                                     81317480
                    *                                                     81317490
                    ***************************************************** 81317500
                    *                                                   * 81317510
                    ***************************************************** 81317520
                    *                                                     81317530
                    *     SECTION END                                     81317540
                    *                                                     81317550
0EA9 0 42DC         T3301 BSI   2 CNTRL-TB   GO TO CONTROL RTN             81317560
                    ***************************************************** 81317570
                    *                                                   * 81317580
                    ***************************************************** 81317590
                    *                                                     81317600
                    *     SECTION PREFACE                                 81317610
                    *                                                     81317620
0EAA 0 0004         T40PR DC      /0004      SECTION NUMBER               81317630
0EAB 0 0008               DC      8                                       81317640
                    *                                                     81317650
0EAC 0 C2C0         T40NT LD    2 TSCTN-TB                                81317660
0EAD 1 4C18 0EB7          BZ      T40EN                                   81317670
                    *                                                     81317680
0EAF 0 C2C1               LD    2 TRTNN-TB   SW FNC 1 BITS 12-15          81317690
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0EB0 1 4C18 0EC9          BZ      T4101     BR IF RUN ALL RTNS                81317700
0EB2 0 90F8               S       T40PR+1   TEST FOR VALID                    81317710
0EB3 1 4C30 0A62          BP      TCNER     BR IF INVALID RTN NUMBER          81317720
0EB5 0 80F5               A       T40PR+1   RESTORE RTN NUMBER                81317730
0EB6 0 7012               MDX     T4101     GO TO FIRST RTN                   81317740
0EB7 0 4200     T40EN BSI   2 TLGMS-TB  PRINT END OF TEST MSG                 81317750
0EB8 1 0EBE               DC      T40ER                                       81317760
0EB9 1 7401 0857          MDX  L  PSCNT,1   BUMP PASS CNTR                    81317770
0EBB 0 1000               NOP               IN CASE OF SKIP                 81317780
0EBC 0 4C80 012E          BSC  I  END       GO TO MONITOR END               81317790
                          *                                                   81317800
0EBE   0009     T40ER PRNT    . ** END OF DFT **.                             81317810
0EC7 0 FF00               DC      /FF00                                       81317820
0EC8 0 FFFF               DC      /FFFF                                       81317830
                          ************************************************* 81317840
                          *                                               * 81317850
                          ************************************************* 81317860
                          *                                                   81317870
                          ************************************************* 81317880
                          *                                               * 81317890
                          ************************************************* 81317900
0EC9 0          T4101 EQU     *           TEST ENTRY POINT                    81317910
0EC9 1 7401 0815          MDX  L  TRID,1    BUMP RTN ID                       81317920
0ECB 1 4C18 0ED0          BZ      T4102     BR IF TEST NUMBER ZERO            81317930
0ECD 0 9297               S     2 K1-TB     DECREMENT BY ONE                  81317940
0ECE 1 4C20 0FCE          BNZ     T4201     BR IF NOT THIS TEST               81317950
                          *                                                   81317960
0ED0 0 C283     T4102 LD    2 TSW0-TB   GET OPTION SWS                        81317970
0ED1 0 100A               SLA     OTTLE     PRINT TITLES                      81317980
0ED2 1 4C10 0ED6          BNN     T4103       BR IF NOT SET                   81317990
0ED4 0 4200               BSI   2 TLGMS-TB GO TO PRINT ROUTINE                81318000
0ED5 1 0F15               DC      TTL41     MESSAGE ADDRESS                   81318010
                          *                                                   81318020
0ED6 0 42E5     T4103 BSI   2 GETDV-TB  GET CHANNEL FOR RTN                   81318030
                          ************************************************* 81318040
                          *                                               * 81318050
                          ************************************************* 81318060
                          *                                               * 81318070
                          *           SECTION 4   ROUTINE 1               * 81318080
                          * CHECK THAT INTERFACE'A'CAN BE DISABLED/ENABLED  * 81318090
                          *           WITH CLOCK-OUT DOWN                     81318100
                          *                                               * 81318110
                          ************************************************* 81318120
                          *                                               * 81318130
                          ************************************************* 81318140
0ED7 0 4200     T4104 BSI   2 TLGMS-TB  PRINT OPRTR MSG.REQ.TO              81318150
0ED8 1 0F48               DC      OP411     *DISABLE CHNL'A'                  81318160
0ED9 0 4212               BSI   2 DELAY-TB  WAIT FOR 30 SECONDS               81318170
0EDA 0 4209               BSI   2 MODDA-TB  GET SEL.CHNL.  -CHANL A-          81318180
0EDB 0                    *                                                   81318190
0EDB 0 C2B6     T4105 EQU     *                                               81318200
0EDC 0 D2D6               LD    2 H4000-TB  SET-UP FOR RTRN ON ERROR          81318210
0EDD 1 6700 0EFD          STO   2 SIOSW-TB  *                                 81318220
0EDF 1 6F00 157B          LDX  L3 T41E1     SET-UP TIMEOUT                    81318230
0EE1 0 42E8               STX  L3 WTADR     *                                 81318240
0EE2 1 0818     T4106 BSI   2 SIO-TB    DO SEEK                             81318250
0EE3 0 C23B               DC      SEEK0     *                                 81318260
0EE4 1 4C10 0EFF          LD    2 SCSX0-TB  GET CHANL STATUS                  81318270
0EE6 0 1001               BNN     T41E2     UNIT NOT OPERATIONAL              81318280
0EE7 1 4C20 0EFF          SLA     1         IS U.N.O. ALONE                   81318290
0EE9 0 4200               BNZ     T41E2     ERROR NOT                         81318300
0EEA 1 0F8B     T4107 BSI   2 TLGMS-TB  PRINT OPRTR MSG.REQ.TO              81318310
0EEB 0 4212               DC      OP412     *ENABLE CHNL'A'.                  81318320
0EEC 0                    BSI   2 DELAY-TB  WAIT FOR 30 SECONDS               81318330
0EEC 0 C2B6     T4108 EQU     *                                               81318340
0EED 0 D2D6               LD    2 H4000-TB  SET-UP FOR RTRN.ON ERROR          81318350
0EEE 1 6700 0F07          STO   2 SIOSW-TB  *                                 81318360
0EF0 1 6F00 157B          LDX  L3 T41E3     SET-UP TIMEOUT                    81318370
                          STX  L3 WTADR     *                                 81318380
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0EF2 0 42EB     T4109 BSI   2 SIO-TB    DO SEEK                             81318380
0EF3 1 0818               DC      SEEK0     *                                 81318390
0EF4 0 C23B               LD    2 SCSX0-TB  GET CHNL.STATUS                   81318400
0EF5 1 4C28 0F09          BN      T41E4       OPERATIONAL  ERROR NOT          81318410
0EF7 0 C23C               LD    2 SCSX0+1-TB GET UNIT STATUS                  81318420
0EF8 0 E2AB               AND   2 H00FF-TB  MASK-OFF UNIT ADDR.              81318430
0EF9 0 F2A4               EOR   2 H000C-TB  CHK.FOR DEV/CHNL END              81318440
0EFA 1 4C20 0F09          BNZ     T41E4     ERROR NOT                         81318450
0EFC 0 7013               B       T41EN       GO TO END RTN.                  81318460
0EFD 0 C284     T41E1 LD    2 H2106-TB    ERR- ENDING STAT.NOT RCVD           81318470
0EFE 0 7001               B       *+1                                         81318480
0EFF 0 C289     T41E2 LD    2 H8106-TB    ERR- INCORRECT STATUS RCVD          81318490
0F00 0 D001               STO     *+1                                         81318500
0F01 0 42DF               BSI   2 EROUT-TB  PRINT ERROR MSG.20                81318510
0F02 0 0000               DC      *-*                                         81318520
0F03 0 4120               DC      /4120                                       81318530
0F04 0 4203               BSI   2 TLPER-TB  LOOP ON ERROR                     81318540
0F05 1 0EDB               DC      T4105       LOOP ON ERROR ADDRESS           81318550
0F06 0 70E2               B       T4107     CONTINUATION ADDR.                81318560
0F07 0 C284     T41E3 LD    2 H2106-TB    ERR- ENDING STAT.NOT RCVD           81318570
0F08 0 7001               B       *+1                                         81318580
0F09 0 C289     T41E4 LD    2 H8106-TB    ERR- INCORRECT STATUS RCVD          81318590
0F0A 0 D001               STO     *+1                                         81318600
0F0B 0 42DF               BSI   2 EROUT-TB  PRINT ERROR MSG.21                81318610
0F0C 0 0000               DC      *-*                                         81318620
0F0D 0 4121               DC      /4121                                       81318630
0F0E 0 4203               BSI   2 TLPER-TB  LOOP ON ERROR                     81318640
0F0F 1 0EEC               DC      T4108       LOOP ON ERROR ADDRESS           81318650
                          *                                                   81318660
                          *     GO TO NEXT ROUTINE IN SEQUENCE                81318670
                          *                                                   81318680
0F10 0 42E2     T41EN BSI   2 FREDV-TB      FREE CHANNEL                      81318690
0F11 0 C2C1               LD    2 TRTNN-TB  GET RTN SWS                       81318700
0F12 1 4C18 0FCE          BZ      T4201       GO TO NEXT RTN IN SEQ           81318710
0F14 0 42DC               BSI   2 CNTRL-TB   GO TO CONTROL RTN                81318720
0F15   0007     TTL41 PRNT    . SECT 4,RT 1- .                                81318730
                          *                                                   81318740
0F1C   0017               PRNT    .CHKS THAT INTF-A- IS DSBLD WHEN SW.      81318750
0F2D   0017               PRNT    .. DSBLD. CHNL SEL. SW. NEUTRAL. AN.      81318760
0F3E   0009               PRNT    .D CLOCK OUT DOWN. .                      81318770
0F47 0 FFFF               DC      /FFFF                                       81318780
0F48   0017     OP411 PRNT    . 1 - PLACE 2841 ENABLE SW ON INTF .            81318790
0F59   0009               PRNT    .-A- TO --DISABLE--.                      81318800
0F62 0 00FF               DC      /00FF                                       81318810
0F63   0016               PRNT    . 2 - STOP CPU WITHIN 30 SECONDS-.        81318820
0F73 0 00FF               DC      /00FF                                       81318830
0F74   0016               PRNT    . 3 - CONTINUE PROG AFTER THIS IS.        81318840
0F84   0006               PRNT    . PERFORMED- .                            81318850
0F8A 0 FFFF               DC      /FFFF                                       81318860
                          *                                                   81318870
0F8B   0017     OP412 PRNT    . 1 - PLACE 2841 ENABLE SW ON INTF .            81318880
0F9C   0009               PRNT    .-A- TO --ENABLE--.                       81318890
0FA5 0 00FF               DC      /00FF                                       81318900
0FA6   0016               PRNT    . 2 - STOP CPU WITHIN 30 SECONDS-.        81318910
0FB6 0 00FF               DC      /00FF                                       81318920
0FB7   0016               PRNT    . 3 - CONTINUE PROG AFTER THIS IS.        81318930
0FC7   0006               PRNT    . PERFORMED- .                            81318940
0FCD 0 FFFF               DC      /FFFF                                       81318950
                          ************************************************* 81318960
                          *                                               * 81318970
                          ************************************************* 81318980
0FCE 0          T4201 EQU     *           TEST ENTRY POINT                    81318990
0FCE 1 7401 0815          MDX  L  TRID,1    BUMP RTN ID                       81319000
0FD0 1 4C18 0FD5          BZ      T4202     BR IF TEST NUMBER ZERO            81319010
0FD2 0 9297               S     2 K1-TB     DECREMENT BY ONE                  81319020
0FD3 1 4C20 10D3          BNZ     T4301     BR IF NOT THIS TEST               81319030
                          *                                                   81319040
0FD5 0 C283     T4202 LD    2 TSW0-TB   GET OPTION SWS                        81319050
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0FD6 0 100A            SLA      OTTLE       PRINT TITLES                 81319060
0FD7 1 4C10 0FDB       BNN      T4203         BR IF NOT SET              81319070
0FD9 0 4200            BSI    2 TLGMS-TB GO TO PRINT ROUTINE             81319080
0FDA 1 101A            DC       TTL42       MESSAGE ADDRESS              81319090
                 *                                                       81319100
0FDB 0 42E5      T4203 BSI    2 GETDV-TB   GET CHANNEL FOR RTN           81319110
                 ************************************************** 81319120
                 *                                                * 81319130
                 ************************************************** 81319140
                 *                                                * 81319150
                 *              SECTION 4   ROUTINE 2             * 81319160
                 * CHECK THAT INTERFACE'B'CAN BE DISABLED/ENABLED  * 81319170
                 *              WITH CLOCK-OUT DOWN                  81319180
                 *                                                * 81319190
                 ************************************************** 81319200
                 *                                                * 81319210
                 ************************************************** 81319220
0FDC 0 4200      T4204 BSI    2 TLGMS-TB  PRINT OPRTR MSG.REQ.TO         81319230
0FDD 1 104D            DC       OP421     *DISABLE CHNL'B'               81319240
0FDE 0 4212            BSI    2 DELAY-TB   WAIT FOR 30 SECONDS           81319250
0FDF 0 420C            BSI    2 MODDB-TB  GET SEL.CHNL.    -CHANL B-     81319260
0FE0 0           T4205 EQU      *                                        81319270
0FE0 0 C2B6            LD     2 H4000-TB  SET-UP FOR RTRN ON ERROR       81319280
0FE1 0 D2D6            STO    2 SIOSW-TB  *                              81319290
0FE2 1 6700 1002       LDX   L3 T42E1     SET-UP TIMEOUT                 81319300
0FE4 1 6F00 157B       STX   L3 WTADR     *                              81319310
0FE6 0 42EB      T4206 BSI    2 SIO-TB    DO SEEK                        81319320
0FE7 1 0818            DC       SEEK0     *                              81319330
0FE8 0 C23B            LD     2 SCSX0-TB  GET CHANL STATUS               81319340
0FE9 1 4C10 1004       BNN      T42E2     UNIT NOT OPERATIONAL           81319350
0FEB 0 1001            SLA      1         IS U.N.O. ALONE                81319360
0FEC 1 4C20 1004       BNZ      T42E2     ERROR NOT                      81319370
0FEE 0 4200      T4207 BSI    2 TLGMS-TB  PRINT OPRTR MSG.REQ.TO         81319380
0FEF 1 1090            DC       OP422     *ENABLE CHNL'B'.               81319390
0FF0 0 4212            BSI    2 DELAY-TB   WAIT FOR 30 SECONDS           81319400
0FF1 0           T4208 EQU      *                                        81319410
0FF1 0 C2B6            LD     2 H4000-TB  SET-UP FOR RTRN.ON ERROR       81319420
0FF2 0 D2D6            STO    2 SIOSW-TB  *                              81319430
0FF3 1 6700 100C       LDX   L3 T42E3     SET-UP TIMEOUT                 81319440
0FF5 1 6F00 157B       STX   L3 WTADR     *                              81319450
0FF7 0 42EB      T4209 BSI    2 SIO-TB    DO SEEK                        81319460
0FF8 1 0818            DC       SEEK0     *                              81319470
0FF9 0 C23B            LD     2 SCSX0-TB  GET CHNL.STATUS                81319480
0FFA 1 4C28 100E       BN       T42E4      OPERATIONAL  ERR IF NOT       81319490
0FFC 0 C23C            LD     2 SCSX0+1-TB GET UNIT STATUS               81319500
0FFD 0 E2AB            AND    2 H00FF-TB  MASK-OFF UNIT ADDR.            81319510
0FFE 0 F2A4            EOR    2 H000C-TB  CHK.FOR DEV/CHNL END           81319520
0FFF 1 4C20 100E       BNZ      T42E4     ERROR NOT                      81319530
1001 0 7013            B        T42EN      GO TO END RTN.                81319540
1002 0 C2B4      T42E1 LD     2 H2106-TB   ERR- ENDING STAT.NOT RCVD     81319550
1003 0 7001            B        *+1                                      81319560
1004 0 C2B9      T42E2 LD     2 H8106-TB   ERR- INCORRECT STATUS RCVD    81319570
1005 0 D001            STO      *+1                                      81319580
1006 0 42DF            BSI    2 EROUT-TB  PRINT ERROR MSG.20             81319590
1007 0 0000            DC       *-*                                      81319600
1008 0 4220            DC       /4220                                    81319610
1009 0 4203            BSI    2 TLPER-TB  LOOP ON ERROR                  81319620
100A 1 0FE0            DC       T4205      LOOP ON ERROR ADDRESS         81319630
100B 0 70E2            B        T4207     CONTINUATION ADDR.             81319640
100C 0 C2B4      T42E3 LD     2 H2106-TB   ERR- ENDING STAT.NOT RCVD     81319650
100D 0 7001            B        *+1                                      81319660
100E 0 C2B9      T42E4 LD     2 H8106-TB   ERR- INCORRECT STATUS RCVD    81319670
100F 0 D001            STO      *+1                                      81319680
1010 0 42DF            BSI    2 EROUT-TB  PRINT ERROR MSG.21             81319690
1011 0 0000            DC       *-*                                      81319700
1012 0 4221            DC       /4221                                    81319710
1013 0 4203            BSI    2 TLPER-TB  LOOP ON ERROR                  81319720
1014 1 0FF1            DC       T4208      LOOP ON ERROR ADDRESS         81319730
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                 *                                                       81319740
                 *                                                       81319750
                 *     GO TO NEXT ROUTINE IN SEQUENCE                    81319760
                 *                                                       81319770
1015 0 42E2      T42EN BSI    2 FREDV-TB     FREE CHANNEL                81319780
1016 0 C2C1            LD     2 TRTNN-TB   GET RTN SWS                   81319790
1017 1 4C18 10D3       BZ       T4301        GO TO NEXT RTN IN SEQ       81319800
1019 0 42DC            BSI    2 CNTRL-TB   GO TO CONTROL RTN             81319810
101A   0007      TTL42 PRNT     . SECT 4.RT 2- .                         81319820
                 *                                                       81319830
1021   0017            PRNT     .CHKS THAT INTF-B- IS DSBLD WHEN SW.     81319840
1032   0017            PRNT     .. DSBLD. CHNL SEL. SW. NEUTRAL. AN.     81319850
1043   0009            PRNT     .D CLOCK OUT DOWN. .                     81319860
104C 0 FFFF            DC       /FFFF                                    81319870
104D   0017      OP421 PRNT     . 1 - PLACE 2841 ENABLE SW ON INTF .     81319880
105E   0009            PRNT     .-B- TO --DISABLE--.                     81319890
1067 0 00FF            DC       /00FF                                    81319900
1068   0016            PRNT     . 2 - STOP CPU WITHIN 30 SECONDS-.       81319910
1078 0 00FF            DC       /00FF                                    81319920
1079   0016            PRNT     . 3 - CONTINUE PROG AFTER THIS IS.       81319930
1089   0006            PRNT     . PERFORMED, .                           81319940
108F 0 FFFF            DC       /FFFF                                    81319950
                 *                                                       81319960
1090   0017      OP422 PRNT     . 1 - PLACE 2841 ENABLE SW ON INTF .     81319970
10A1   0009            PRNT     .-B- TO --ENABLE--.                      81319980
10AA 0 00FF            DC       /00FF                                    81319990
10AB   0016            PRNT     . 2 - STOP CPU WITHIN 30 SECONDS-.       81320000
10BB 0 00FF            DC       /00FF                                    81320010
10BC   0016            PRNT     . 3 - CONTINUE PROG AFTER THIS IS.       81320020
10CC   0006            PRNT     . PERFORMED- .                           81320030
10D2 0 FFFF            DC       /FFFF                                    81320040
                 ************************************************** 81320050
                 *                                                * 81320060
                 ************************************************** 81320070
10D3 0           T4301 EQU      *           TEST ENTRY POINT             81320080
10D3 1 7401 0815       MDX   L  TRID,1      BUMP RTN ID                  81320090
10D5 1 4C18 10DA       BZ       T4302       BR IF TEST NUMBER ZERO       81320100
10D7 0 9297            S      2 K1-TB       DECREMENT BY ONE             81320110
10D8 1 4C20 11AE       BNZ      T4401       BR IF NOT THIS TEST          81320120
                 *                                                       81320130
10DA 0 C283      T4302 LD     2 TSW0-TB     GET OPTION SWS               81320140
10DB 0 100A            SLA      OTTLE       PRINT TITLES                 81320150
10DC 1 4C10 10E0       BNN      T4303         BR IF NOT SET              81320160
10DE 0 4200            BSI    2 TLGMS-TB GO TO PRINT ROUTINE             81320170
10DF 1 1121            DC       TTL43       MESSAGE ADDRESS              81320180
                 *                                                       81320190
10E0 0 42E5      T4303 BSI    2 GETDV-TB    GET CHANNEL FOR RTN          81320200
                 ************************************************** 81320210
                 *                                                * 81320220
                 ************************************************** 81320230
                 *                                                * 81320240
                 *              SECTION 4, ROUTINE 3                 81320250
                 * CHECK THAT INTERFACE 'A' CANNOT BE DISABLED/      81320260
                 *              ENABLED WITH CLOCK-OUT UP            81320270
                 *                                                * 81320280
                 ************************************************** 81320290
                 *                                                * 81320300
                 ************************************************** 81320310
10E1 0 4209            BSI    2 MODDA-TB  GET SEL.CHNL.   -CHANL A-      81320320
10E2 0 4200      T4304 BSI    2 TLGMS-TB  PRINT OPRTR MSG.REQ.TO         81320330
10E3 1 1154            DC       OP431     *DISABLE CHNL'A'               81320340
10E4 0 4212            BSI    2 DELAY-TB   WAIT FOR 30 SECONDS           81320350
10E5 0           T4305 EQU      *                                        81320360
10E5 0 C2B6            LD     2 H4000-TB  SET-UP FOR RTRN ON ERROR       81320370
10E6 0 D2D6            STO    2 SIOSW-TB  *                              81320380
10E7 1 6700 1109       LDX   L3 T43E1     SET-UP TIMEOUT                 81320390
10E9 1 6F00 157B       STX   L3 WTADR     *                              81320400
10EB 0 42EB            BSI    2 SIO-TB    DO SEEK                        81320410
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10EC 1 0818              DC       SEEK0      *                            81320420
10ED 0 C23B              LD     2 SCSX0-TB   GET CHANL STATUS             81320430
10EE 1 4C28 1109         BN       T43E1       OPERATIONAL   ERR IF NOT.   81320440
10F0 0 C23C              LD     2 SCSX0+1-TB FETCH UNIT STATUS            81320450
10F1 0 E2AB              AND    2 H00FF-TB    MASK OFF UNIT ADDR          81320460
10F2 0 F2A4              EOR    2 H000C-TB    CH END. DEV END             81320470
10F3 1 4C20 1108         BNZ      T43E2        ERR IF NOT                 81320480
10F5 0 4200        T4307 BSI    2 TLGMS-TB   PRINT OPRTR MSG.REQ.TO       81320490
10F6 1 1181              DC       OP432       *ENABLE CHNL 'A'            81320500
10F7 0 4212              BSI    2 DELAY-TB    WAIT FOR 30 SECONDS         81320510
10F8 0             T4308 EQU      *                                       81320520
10F8 0 C2B6              LD     2 H4000-TB   SET-UP FOR RTRN.ON ERROR     81320530
10F9 0 D2D6              STO    2 SIOSW-TB   *                            81320540
10FA 1 6700 1113         LDX   L3 T43E3      SET-UP TIMEOUT               81320550
10FC 1 6F00 157B         STX   L3 WTADR      *                            81320560
10FE 0 42EB              BSI    2 SIO-TB     DO SEEK                      81320570
10FF 1 0B18              DC       SEEK0      *                            81320580
1100 0 C23B              LD     2 SCSX0-TB   GET CHNL.STATUS              81320590
1101 1 4C28 1115         BN       T43E4       OPERATIONAL  ERROR NOT      81320600
1103 0 C23C              LD     2 SCSX0+1-TB GET UNIT STATUS              81320610
1104 0 E2AB              AND    2 H00FF-TB   MASK-OFF UNIT ADDR.          81320620
1105 0 F2A4              EOR    2 H000C-TB   CHK.FOR DEV/CHNL END         81320630
1106 1 4C20 1115         BNZ      T43E4      ERROR NOT                    81320640
1108 0 7013              B        T43EN       GO TO END RTN.              81320650
                   *                                                      81320660
1109 0 C2B4        T43E1 LD     2 H2106-TB    ERR- ENDING STAT.NOT RCVD   81320670
110A 0 7001              B        *+1                                     81320680
110B 0 C2B9        T43E2 LD     2 H8106-TB    ERR- INCORRECT STATUS RCVD  81320690
110C 0 D001              STO      *+1                                     81320700
110D 0 42DF              BSI    2 EROUT-TB   PRINT ERROR MSG.20           81320710
110E 0 0000              DC       *-*                                     81320720
110F 0 4320              DC       /4320                                   81320730
1110 0 4203              BSI    2 TLPER-TB   LOOP ON ERROR                81320740
1111 1 10E5              DC       T4305       LOOP ON ERROR ADDRESS       81320750
1112 0 70E2              B        T4307       CONTINUE                    81320760
1113 0 C2B4        T43E3 LD     2 H2106-TB    ERR- ENDING STAT.NOT RCVD   81320770
1114 0 7001              B        *+1                                     81320780
1115 0 C2B9        T43E4 LD     2 H8106-TB    ERR- INCORRECT STATUS RCVD  81320790
1116 0 D001              STO      *+1                                     81320800
1117 0 42DF              BSI    2 EROUT-TB   PRINT ERROR MSG.21           81320810
1118 0 0000              DC       *-*                                     81320820
1119 0 4321              DC       /4321                                   81320830
111A 0 4203              BSI    2 TLPER-TB   LOOP ON ERROR                81320840
111B 1 10F8              DC       T4308       LOOP ON ERROR ADDRESS       81320850
                   *                                                      81320860
                   *                                                      81320870
                   *     GO TO NEXT ROUTINE IN SEQUENCE                   81320880
                   *                                                      81320890
111C 0 42E2        T43EN BSI    2 FREDV-TB      FREE CHANNEL              81320900
111D 0 C2C1              LD     2 TRTNN-TB    GET RTN SWS                 81320910
111E 1 4C18 11AE         BZ       T4401         GO TO NEXT RTN IN SEQ     81320920
1120 0 42DC              BSI    2 CNTRL-TB    GO TO CONTROL RTN           81320930
1121   0007        TTL43 PRNT      . SECT 4.RT 3- .                       81320940
                   *                                                      81320950
1128   0017              PRNT      .CHKS THAT INTF-A- IS NOT DSBLD WHE.   81320960
1139   0017              PRNT      .N SW DSBLD. CHNL SEL. SW. NEUTRAL..   81320970
114A   0009              PRNT      . AND CLOCK OUT UP..                   81320980
1153 0 FFFF              DC        /FFFF                                  81320990
1154   0017        OP431 PRNT      . 1 - PLACE 2841 ENABLE SW ON INTF .   81321000
1165   0009              PRNT      .-A- TO --DISABLE--.                   81321010
116E 0 00FF              DC        /00FF                                  81321020
116F   0017              PRNT      . 2 - PGM WILL WAIT FOR 30 SECONDS.    81321030
1180 0 FFFF              DC        /FFFF                                  81321040
                   *                                                      81321050
1181   0017        OP432 PRNT      . 1 - PLACE 2841 ENABLE SW ON INTF .   81321060
1192   0009              PRNT      .-A- TO --ENABLE--.                    81321070
119B 0 00FF              DC        /00FF                                  81321080
119C   0017              PRNT      . 2 - PGM WILL WAIT FOR 30 SECONDS.    81321090
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11AD 0 FFFF              DC        /FFFF                                  81321100
                   *                                                      81321110
                   ****************************************************** 81321120
                   *                                                    * 81321130
                   ****************************************************** 81321140
11AE 0             T4401 EQU       *           TEST ENTRY POINT           81321150
11AE 1 7401 0815         MDX    L  TRID,1      BUMP RTN ID                81321160
11B0 1 4C18 11B5         BZ        T4402       BR IF TEST NUMBER ZERO     81321170
11B2 0 9297              S       2 K1-TB       DECREMENT BY ONE           81321180
11B3 1 4C20 1289         BNZ       T4501       BR IF NOT THIS TEST        81321190
                   *                                                      81321200
11B5 0 C283        T4402 LD      2 TSW0-TB     GET OPTION SWS             81321210
11B6 0 100A              SLA       OTTLE       PRINT TITLES               81321220
11B7 1 4C10 11BB         BNN       T4403         BR IF NOT SET            81321230
11B9 0 4200              BSI     2 TLGMS-TB GO TO PRINT ROUTINE           81321240
11BA 1 11FC              DC        TTL44       MESSAGE ADDRESS            81321250
                   *                                                      81321260
11BB 0 42E5        T4403 BSI     2 GETDV-TB    GET CHANNEL FOR RTN        81321270
                   ****************************************************** 81321280
                   *                                                    * 81321290
                   ****************************************************** 81321300
                   *                                                    * 81321310
                   *                SECTION 4. ROUTINE 4                  81321320
                   * CHECK THAT INTERFRCE 'B' CANNOT BE DISABLED/         81321330
                   *                ENABLED WITH CLOCK-OUT UP             81321340
                   *                                                    * 81321350
                   ****************************************************** 81321360
                   *                                                    * 81321370
                   ****************************************************** 81321380
11BC 0 420C              BSI     2 MODDB-TB    GET SEL CHNL -CHNL B-      81321390
11BD 0 4200        T4404 BSI     2 TLGMS-TB    PRINT OPRTR MSG REQ TO     81321400
11BE 1 122F              DC        OP441       *DISABLE CHNL 'B'          81321410
11BF 0 4212              BSI     2 DELAY-TB    WAIT FOR 30 SECONDS        81321420
11C0 0             T4405 EQU       *                                      81321430
11C0 0 C2B6              LD      2 H4000-TB  SET-UP FOR RTRN ON ERROR     81321440
11C1 0 D2D6              STO     2 SIOSW-TB  *                            81321450
11C2 1 6700 11E4         LDX    L3 T44E1      SETUP TIMEOUT ADDR          81321460
11C4 1 6F00 157B         STX    L3 WTADR     *                            81321470
11C6 0 42EB              BSI     2 SIO-TB    DO SEEK                      81321480
11C7 1 0B18              DC        SEEK0     *                            81321490
11C8 0 C23B              LD      2 SCSX0-TB  GET CHANL STATUS             81321500
11C9 1 4C28 11E4         BN        T44E1      OPERATIONAL  ERR IF NOT.    81321510
11CB 0 C23C              LD      2 SCSX0+1-TB FETCH UNIT STATUS           81321520
11CC 0 E2AB              AND     2 H00FF-TB   MASK OFF UNIT ADDR          81321530
11CD 0 F2A4              EOR     2 H000C-TB   CH END. DEV END             81321540
11CE 1 4C20 11E6         BNZ       T44E2       ERR IF NOT                 81321550
11D0 0 4200        T4407 BSI     2 TLGMS-TB   PRINT OPR MSG REQ TO        81321560
11D1 1 125C              DC        OP442      * ENABLE CHNL 'B'           81321570
11D2 0 4212              BSI     2 DELAY-TB   WAIT FOR 30 SECONDS         81321580
11D3 0             T4408 EQU       *                                      81321590
11D3 0 C2B6              LD      2 H4000-TB  SET-UP FOR RTRN.ON ERROR     81321600
11D4 0 D2D6              STO     2 SIOSW-TB  *                            81321610
11D5 1 6700 11EE         LDX    L3 T44E3      SETUP TIMEOUT ADDR          81321620
11D7 1 6F00 157B         STX    L3 WTADR     *                            81321630
11D9 0 42EB              BSI     2 SIO-TB    DO SEEK                      81321640
11DA 1 0B18              DC        SEEK0     *                            81321650
11DB 0 C23B              LD      2 SCSX0-TB  GET CHNL.STATUS              81321660
11DC 1 4C28 11F0         BN        T44E4      OPERATIONAL   ERR IF NOT    81321670
11DE 0 C23C              LD      2 SCSX0+1-TB GET UNIT STATUS             81321680
11DF 0 E2AB              AND     2 H00FF-TB  MASK-OFF UNIT ADDR.          81321690
11E0 0 F2A4              EOR     2 H000C-TB  CHK.FOR DEV/CHNL END         81321700
11E1 1 4C20 11F0         BNZ       T44E4      ERR IF NOT                  81321710
11E3 0 7013              B         T44EN      GO TO END RTN.              81321720
11E4 0 C2B4        T44E1 LD      2 H2106-TB   ERR- ENDING STAT.NOT RCVD   81321730
11E5 0 7001              B         *+1                                    81321740
11E6 0 C2B9        T44E2 LD      2 H8106-TB   ERR- INCORRECT STATUS RCVD  81321750
11E7 0 D001              STO       *+1                                    81321760
11E8 0 42DF              BSI     2 EROUT-TB  PRINT ERROR MSG.20           81321770
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11E9 0 0000                DC      *-*                                  81321780
11EA 0 4420                DC      /4420                                81321790
11EB 0 4203                BSI   2 TLPER-TB  LOOP ON ERROR              81321800
11EC 1 11C0                DC      T4405      LOOP ON ERROR ADDRESS     81321810
11ED 0 70E2                B       T4407      CONTINUE                  81321820
                                                                        81321830
11EE 0 C284    T44E3 LD    2 H2106-TB   ERR- ENDING STAT.NOT RCVD       81321840
11EF 0 7001          B       *+1                                        81321850
11F0 0 C289    T44E4 LD    2 H8106-TB   ERR- INCORRECT STATUS RCVD      81321860
11F1 0 D001          STO     *+1                                        81321870
11F2 0 42DF          BSI   2 EROUT-TB   PRINT ERROR MSG.21              81321880
11F3 0 0000          DC      *-*                                        81321890
11F4 0 4421          DC      /4421                                      81321900
11F5 0 4203          BSI   2 TLPER-TB   LOOP ON ERROR                   81321910
11F6 1 11D3          DC      T4408      LOOP ON ERROR ADDRESS           81321920
                                                                        81321930
                     *                                                  81321940
                     *     GO TO NEXT ROUTINE IN SEQUENCE               81321950
                     *                                                  81321960
11F7 0 42E2    T44EN BSI   2 FREDV-TB     FREE CHANNEL                  81321970
11F8 0 C2C1          LD    2 TRTNN-TB    GET RTN SWS                     81321980
11F9 1 4C18 1289     BZ      T4501       GO TO NEXT RTN IN SEQ           81321990
11FB 0 42DC          BSI   2 CNTRL-TB    GO TO CONTROL RTN               81322000
11FC   0007    TTL44 PRNT    . SECT 4.RT 4- .                           81322010
                     *                                                  81322020
1203   0017          PRNT    .CHKS THAT INTF-B- IS NOT DSBLD WHE.       81322030
1214   0017          PRNT    .N SW DSBLD. CHNL SEL. SW. NEUTRAL..       81322040
1225   0009          PRNT    . AND CLOCK OUT UP..                       81322050
122E 0 FFFF          DC      /FFFF                                      81322060
                     *                                                  81322070
122F   0017    OP441 PRNT    . 1 - PLACE 2841 ENABLE SW ON INTF .       81322080
1240   0009          PRNT    .-B- TO --DISABLE--.                       81322090
1249 0 00FF          DC      /00FF                                      81322100
124A   0017          PRNT    . 2 - PGM WILL WAIT FOR 30 SECONDS.        81322110
125B 0 FFFF          DC      /FFFF                                      81322120
                     *                                                  81322130
125C   0017    OP442 PRNT    . 1 - PLACE 2841 ENABLE SW ON INTF .       81322140
126D   0009          PRNT    .-B- TO --ENABLE--.                        81322150
1276 0 00FF          DC      /00FF                                      81322160
1277   0017          PRNT    . 2 - PGM WILL WAIT FOR 30 SECONDS.        81322170
1288 0 FFFF          DC      /FFFF                                      81322180
                     *                                                  81322190
                     ********************************************** 81322200
                     *                                              * 81322210
                     ********************************************** 81322220
                     *                                                  81322230
1289 0         T4501 EQU     *          TEST ENTRY POINT                81322240
1289 1 7401 0815     MDX   L TRID,1     BUMP RTN ID                     81322250
1288 1 4C18 1290     BZ      T4502      BR IF TEST NUMBER ZERO          81322260
128D 0 9297          S     2 K1-TB      DECREMENT BY ONE                81322270
128E 1 4C20 1306     BNZ     T4601      BR IF NOT THIS TEST             81322280
                     *                                                  81322290
1290 0 C283    T4502 LD    2 TSW0-TB    GET OPTION SWS                  81322300
1291 0 100A          SLA     OTTLE      PRINT TITLES                    81322310
1292 1 4C10 1296     BNN     T4503        BR IF NOT SET                 81322320
1294 0 4200          BSI   2 TLGMS-TB GO TO PRINT ROUTINE               81322330
1295 1 12D3          DC      TTL45      MESSAGE ADDRESS                 81322340
                     *                                                  81322350
1296 0 42E5    T4503 BSI   2 GETDV-TB   GET CHANNEL FOR RTN             81322360
                     ********************************************** 81322370
                     *                                              * 81322380
                     ********************************************** 81322390
                     *                                                  81322400
                     *            SECTION 4   ROUTINE 5                 81322410
                     * CHECK THAT INTF NOT DISBLD WHEN SWITCH SELECTED  81322420
                     * TO 'A', SW IS DISBLD. AND CLOCK OUT DOWN         81322430
                     *                                                  81322440
                     ********************************************** 81322450
                     *
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                     ********************************************** 81322460
                     *                                              * 81322470
                     *     BSI   2 MODDA-TB   GET SEL CHNL  -CHNL A     81322480
1297 0 4209    T4504 EQU     *                                          81322490
1298 0                     LDX   L3 T45E1     SET-UP ERROR ADDR FOR     81322500
1298 1 6700 12BB           STX   L3 WTADR      * TIMEOUT                81322510
129A 1 6F00 157B           LD    2 H4000-TB   SET-UP WAIT BUT RETURN     81322520
129C 0 C2B6                STO   2 SIOSW-TB   * ON ERROR               81322530
129D 0 D2D6                BSI   2 SIO-TB     GO EXECUTE                81322540
129E 0 42EB                DC       CC311     *INVALID COMMAND CHAIN    81322550
129F 1 0DC5                LD    2 SCSX0+1-TB GET UNIT STATUS           81322560
12A0 0 C23C                SLA      UNCHK     UNIT CHECK                81322570
12A1 0 100E                BNN      T45E2     ERROR NOT                 81322580
12A2 1 4C10 12BD   T4505 BSI   2 TLGMS-TB   WAIT FOR 30 SECONDS         81322590
12A4 0 4200                DC       OP451     *FOR OPRTR TO             81322600
12A5 1 0F48                BSI   2 DELAY-TB   * DISABLE INTF 'A' AND    81322610
12A6 0 4212                                   *  STOP/START CPU         81322620
                     *                                                  81322630
12A7 0         T4506 EQU     *                                          81322640
12A7 0 C2B6                LD    2 H4000-TB   SET-UP RETRN ON ERROR AND 81322650
12A8 0 D2D6                STO   2 SIOSW-TB   * WAIT FOR ENDING STATUS 81322660
12A9 1 6700 12C5           LDX   L3 T45E3     SET-UP TIMEOUT ADDR       81322670
12AB 1 6F00 157B           STX   L3 WTADR      *                        81322680
12AD 0 42EB                BSI   2 SIO-TB     GO XEQ                    81322690
12AE 1 0B18                DC       SEEK0     *SEEK                     81322700
12AF 0 C23B                LD    2 SCSX0-TB   GET CHNL STATUS           81322710
12B0 1 4C28 12C7           BN       T45E4     *ERROR IF UNIT NOT OPRTNL 81322720
12B2 0 C23C                LD    2 SCSX0+1-TB GET UNIT STATUS           81322730
12B3 0 E2AB                AND   2 H00FF-TB   MASK-OFF UNIT ADDR        81322740
12B4 0 F2A4                EOR   2 H000C-TB   DEV/CHNL END              81322750
12B5 1 4C20 12C7           BNZ      T45E4     ERROR NOT                 81322760
12B7 0 4200                BSI   2 TLGMS-TB   PRINT OPRTR MSG.REQ TO    81322770
12B8 1 0F8B                DC       OP452     *ENABLE INTF'A' & STOP/STRT 81322780
12B9 0 4212                BSI   2 DELAY-TB   WAIT 30 SECONDS          81322790
12BA 0 7013                B        T45EN      GO TO END RTN.          81322800
12BB 0 C2B4    T45E1 LD    2 H2106-TB   ERR- ENDING STAT.NOT RCVD       81322810
12BC 0 7001          B       *+1                                        81322820
12BD 0 C2B9    T45E2 LD    2 H8106-TB   ERR- INCORRECT STATUS RCVD      81322830
12BE 0 D001          STO     *+1                                        81322840
12BF 0 42DF          BSI   2 EROUT-TB   PRINT ERROR MSG.NO.24           81322850
12C0 0 0000          DC      *-*                                        81322860
12C1 0 4524          DC      /4524      SRXX                            81322870
12C2 0 4203          BSI   2 TLPER-TB   LOOP ON ERROR                   81322880
12C3 1 1298          DC       T4504     LOOP ON ERROR ADDRESS           81322890
12C4 0 70DF          B        T4505     CONTINUATION ADDR.              81322900
                     *                                                  81322910
12C5 0 C2B4    T45E3 LD    2 H2106-TB   ERR- ENDING STAT.NOT RCVD       81322920
12C6 0 7001          B       *+1                                        81322930
12C7 0 C2B9    T45E4 LD    2 H8106-TB   ERR- INCORRECT STATUS RCVD      81322940
12C8 0 D001          STO     *+1                                        81322950
12C9 0 42DF          BSI   2 EROUT-TB   PRINT ERROR MSG.NO.25           81322960
12CA 0 0000          DC      *-*                                        81322970
12CB 0 4525          DC      /4525      SRXX                            81322980
12CC 0 4203          BSI   2 TLPER-TB   LOOP ON ERROR                   81322990
12CD 1 12A7          DC       T4506     LOOP ON ERROR ADDRESS           81323000
                     *                                                  81323010
                     *                                                  81323020
                     *     GO TO NEXT ROUTINE IN SEQUENCE               81323030
                     *                                                  81323040
12CE 0 42E2    T45EN BSI   2 FREDV-TB     FREE CHANNEL                  81323050
12CF 0 C2C1          LD    2 TRTNN-TB    GET RTN SWS                     81323060
12D0 1 4C18 1306     BZ       T4601      GO TO NEXT RTN IN SEQ           81323070
12D2 0 42DC          BSI   2 CNTRL-TB    GO TO CONTROL RTN               81323080
12D3   0007    TTL45 PRNT    . SECT 4.RT 5- .                           81323090
                     *                                                  81323100
12DA   0017          PRNT    .CHKS THAT INTF-A- IS NOT DSBLD WHE.       81323110
12EB   0017          PRNT    .N SW DSBLD. CHNL SW SEL. TO -A-. A.       81323120
12FC   0009          PRNT    .ND CLOCK OUT DOWN..                       81323130
1305 0 FFFF          DC      /FFFF
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0F48 0              OP451 EQU     OP411                                       81323140
                    *                                                          81323150
0F8B 0              OP452 EQU     OP412                                       81323160
                    *                                                          81323170
                    ************************************************** 81323180
                    *                                                *  81323190
                    ************************************************** 81323200
1306 0              T4601 EQU     *            TEST ENTRY POINT               81323210
1306 1 7401 0815          MDX  L  TRID,1       BUMP RTN ID                    81323220
1308 1 4C18 130D          BZ      T4602        BR IF TEST NUMBER ZERO         81323230
130A 0 9297               S     2 K1-TB        DECREMENT BY ONE               81323240
130B 1 4C20 1383          BNZ     T4701        BR IF NOT THIS TEST            81323250
                    *                                                          81323260
130D 0 C283         T4602 LD    2 TSW0-TB      GET OPTION SWS                 81323270
130E 0 100A               SLA     OTTLE        PRINT TITLES                   81323280
130F 1 4C10 1313          BNN     T4603          BR IF NOT SET                81323290
1311 0 4200               BSI   2 TLGMS-TB GO TO PRINT ROUTINE                81323300
1312 1 1350               DC      TTL46        MESSAGE ADDRESS                81323310
                    *                                                          81323320
1313 0 42E5         T4603 BSI   2 GETDV-TB     GET CHANNEL FOR RTN            81323330
                    ************************************************** 81323340
                    *                                                *  81323350
                    ************************************************** 81323360
                    *                                                          81323370
                    *                SECTION 4   ROUTINE 6                    81323380
                    * CHECK THAT INTF NOT DISBLD WHEN SWITCH SELECTED         81323390
                    * TO 'B', SW IS DISBLD, AND CLOCK OUT DOWN.               81323400
                    *                                                          81323410
                    ************************************************** 81323420
                    *                                                *  81323430
                    ************************************************** 81323440
                    *                                                          81323450
1314 0 420C               BSI   2 MODDB-TB     GET SEL CHNL  -CHNL B          81323460
1315 0              T4604 EQU     *                                           81323470
1315 1 6700 1338          LDX  L3 T46E1       SET-UP ERROR ADDR FOR           81323480
1317 1 6F00 157B          STX  L3 WTADR        * TIMEOUT                      81323490
1319 0 C286               LD    2 H4000-TB    SET-UP WAIT BUT RETURN          81323500
131A 0 D206               STO   2 SIOSW-TB     * ON ERROR                     81323510
131B 0 42EB               BSI   2 SIO-TB      GO EXECUTE                      81323520
131C 1 0DC5               DC      CC311       *INVALID COMMAND CHAIN          81323530
131D 0 C23C               LD    2 SCSX0+1-TB GET UNIT STATUS                  81323540
131E 0 100E               SLA     UNCHK        UNIT CHECK                     81323550
131F 1 4C10 133A          BNN     T46E2       ERROR NOT                       81323560
1321 0 4200         T4605 BSI   2 TLGMS-TB    WAIT FOR 30 SECONDS             81323570
1322 1 104D               DC      OP461       *FOR OPRTR TO                   81323580
1323 0 4212               BSI   2 DELAY-TB    * DISABLE INTF 'B' AND          81323590
                    *                         *  STOP/START CPU               81323600
1324 0              T4606 EQU     *                                           81323610
1324 0 C286               LD    2 H4000-TB    SET-UP RETRN ON ERROR AND       81323620
1325 0 D206               STO   2 SIOSW-TB    * WAIT FOR ENDING STATUS        81323630
1326 1 6700 1342          LDX  L3 T46E3       SET-UP TIMEOUT ADDR             81323640
1328 1 6F00 157B          STX  L3 WTADR       *                               81323650
132A 0 42EB               BSI   2 SIO-TB      GO XEQ                          81323660
132B 1 0818               DC      SEEK0       *SEEK                           81323670
132C 0 C23B               LD    2 SCSX0-TB    GET CHNL STATUS                 81323680
132D 1 4C28 1344          BN      T46E4       *ERROR IF UNIT NOT OPRTNL       81323690
132F 0 C23C               LD    2 SCSX0+1-TB GET UNIT STATUS                  81323700
1330 0 E2AB               AND   2 H00FF-TB    MASK-OFF UNIT ADDR              81323710
1331 0 F2A4               EOR   2 H000C-TB    DEV/CHNL END                    81323720
1332 1 4C20 12C7          BNZ     T45E4       ERROR NOT                       81323730
1334 0 4200               BSI   2 TLGMS-TB    PRINT OPRTR MSG. REQ TO         81323740
1335 1 1090               DC      OP462       *ENABLE INTF'B' & STOP/STRT     81323750
1336 0 4212               BSI   2 DELAY-TB    WAIT 30 SECONDS                 81323760
1337 0 7013               B       T46EN        GO TO END RTN.                 81323770
1338 0 C2B4         T46E1 LD    2 H2106-TB     ERR- ENDING STAT.NOT RCVD      81323780
1339 0 7001               B       *+1                                         81323790
133A 0 C2B9         T46E2 LD    2 H8106-TB     ERR- INCORRECT STATUS RCVD     81323800
133B 0 D001               STO     *+1                                         81323810
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133C 0 42DF               BSI   2 EROUT-TB   PRINT ERROR MSG.NO.24            81323820
133D 0 0000               DC      *-*                                         81323830
133E 0 4624               DC      /4624      SRXX                             81323840
133F 0 4203               BSI   2 TLPER-TB   LOOP ON ERROR                    81323850
1340 1 1315               DC      T4604       LOOP ON ERROR ADDRESS           81323860
1341 0 70DF               B       T4605      CONTINUATION ADDR.               81323870
                    *                                                          81323880
1342 0 C2B4         T46E3 LD    2 H2106-TB    ERR- ENDING STAT.NOT RCVD       81323890
1343 0 7001               B       *+1                                         81323900
1344 0 C2B9         T46E4 LD    2 H8106-TB    ERR- INCORRECT STATUS RCVD      81323910
1345 0 D001               STO     *+1                                         81323920
1346 0 42DF               BSI   2 EROUT-TB   PRINT ERROR MSG.NO.25            81323930
1347 0 0000               DC      *-*                                         81323940
1348 0 4625               DC      /4625      SRXX                             81323950
1349 0 4203               BSI   2 TLPER-TB   LOOP ON ERROR                    81323960
134A 1 1324               DC      T4606       LOOP ON ERROR ADDRESS           81323970
                    *                                                          81323980
                    *     GO TO NEXT ROUTINE IN SEQUENCE                      81323990
                    *                                                          81324000
134B 0 42E2         T46EN BSI   2 FREDV-TB      FREE CHANNEL                  81324010
134C 0 C2C1               LD    2 TRTNN-TB   GET RTN SWS                      81324020
134D 1 4C18 1383          BZ      T4701        GO TO NEXT RTN IN SEQ          81324030
134F 0 42DC               BSI   2 CNTRL-TB   GO TO CONTROL RTN                81324040
1350   0007         TTL46 PRNT    . SECT 4,RT 6- .                            81324050
                    *                                                          81324060
1357   0017               PRNT    .CHKS THAT INTF-B- IS NOT DSBLD WHE.        81324070
1368   0017               PRNT    .N SW DSBLD, CHNL SW SEL. TO -B-, A.        81324080
1379   0009               PRNT    .ND CLOCK OUT DOWN..                        81324090
1382 0 FFFF               DC      /FFFF                                       81324100
                    *                                                          81324110
104D 0              OP461 EQU     OP421                                       81324120
                    *                                                          81324130
1090 0              OP462 EQU     OP422                                       81324140
                    *                                                          81324150
                    ************************************************** 81324160
                    *                                                *  81324170
                    ************************************************** 81324180
1383 0              T4701 EQU     *            TEST ENTRY POINT               81324190
1383 1 7401 0815          MDX  L  TRID,1       BUMP RTN ID                    81324200
1385 1 4C18 138A          BZ      T4702        BR IF TEST NUMBER ZERO         81324210
1387 0 9297               S     2 K1-TB        DECREMENT BY ONE               81324220
1388 1 4C20 1426          BNZ     T4801        BR IF NOT THIS TEST            81324230
                    *                                                          81324240
138A 0 C283         T4702 LD    2 TSW0-TB      GET OPTION SWS                 81324250
138B 0 100A               SLA     OTTLE        PRINT TITLES                   81324260
138C 1 4C10 1390          BNN     T4703          BR IF NOT SET                81324270
138E 0 4200               BSI   2 TLGMS-TB GO TO PRINT ROUTINE                81324280
138F 1 13D5               DC      TTL47        MESSAGE ADDRESS                81324290
                    *                                                          81324300
1390 0 42E5         T4703 BSI   2 GETDV-TB     GET CHANNEL FOR RTN            81324310
                    ************************************************** 81324320
                    *                                                *  81324330
                    ************************************************** 81324340
                    *                                                          81324350
                    *                SECTION 4   ROUTINE 7                    81324360
                    * CHKS INTERFACE 'A' IS DISABLED WHEN DISABLED/           81324370
                    * ENABLED WITH CLOCK OUT UP.                              81324380
                    *                                                          81324390
                    ************************************************** 81324400
                    *                                                *  81324410
                    ************************************************** 81324420
                    *                                                          81324430
1391 0 4200         T4704 BSI   2 TLGMS-TB    REQ.OPRTR.TO DISABLE INTF       81324440
1392 1 0F48               DC      OP471       *-A- STOP/START CPU             81324450
1393 0 4212               BSI   2 DELAY-TB    WAIT 30 SECONDS                 81324460
1394 0 4200               BSI   2 TLGMS-TB    REQ.OPRTR.TO ENABLE INTF-A      81324470
1395 1 1181               DC      OP472       * NO START STOP                 81324480
1396 0 4212               BSI   2 DELAY-TB    WAIT 30 SECONDS                 81324490
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1397 0 4209                BSI   2 MODDA-TB   GET SEL.CHNL.   CHANNEL-A-  81324500
1398 0                  T4705 EQU     *                                    81324510
1398 0 C286                LD    2 H4000-TB   SETUP FOR WAIT BUT           81324520
1399 0 D2D6                STO   2 SIOSW-TB   *RTRN ON ERROR               81324530
139A 1 6700 13BD           LDX  L3 T47E1      SETUP ERROR ADDR. FOR       81324540
139C 1 6F00 157B           STX  L3 WTADR      *NO END STATUS RCVD.        81324550
139E 0 42EB                BSI   2 SIO-TB     EXECUTE SEEK                81324560
139F 1 0B18                DC       SEEK0     CCW ADDR.                   81324570
13A0 0 C23B                LD    2 SCSX0-TB   GET CHANNEL STATUS           81324580
13A1 1 4C10 13BF           BNN      T47E2     ERROR NO'UNIT NOT OPRTNL'   81324590
13A3 0 1001                SLA      1         CHECK IF U.N.O. ALONE       81324600
13A4 1 4C20 13BF           BNZ      T47E2     ERROR NOT                   81324610
13A6 0 4200             T4706 BSI   2 TLGMS-TB   REQ OPRTR TO START/STOP CP 81324620
13A7 1 1405                DC       OP473     *THE CPU                    81324630
13A8 0 4212                BSI   2 DELAY-TB                             81324640
13A9 0                  T4707 EQU     *                                    81324650
13A9 0 C286                LD    2 H4000-TB   SETUP FOR WAIT AND RETURN   81324660
13AA 0 D2D6                STO   2 SIOSW-TB   *ON ERROR                   81324670
13AB 1 6700 13C7           LDX  L3 T47E3      SETUP ERROR ADDR.FOR        81324680
13AD 1 6F00 157B           STX  L3 WTADR      *NO END STAT.RCVD.          81324690
13AF 0 42EB                BSI   2 SIO-TB     EXECUTE SEEK                81324700
13B0 1 0B18                DC       SEEK0     CCW ADDR.                   81324710
13B1 0 C23C                LD    2 SCSX0+1-TB GET UNIT STATUS             81324720
13B2 0 E2AB                AND   2 H00FF-TB   MUST BE DEV/CHNL END        81324730
13B3 0 F2A4                EOR   2 H000C-TB   *                           81324740
13B4 1 4C20 13C9           BNZ      T47E4     ERROR NOT                   81324750
13B6 0 C23B                LD    2 SCSX0-TB   GET CHNL STATUS             81324760
13B7 1 4C28 13C9           BN       T47E4     ERROR IF UNIT NOT OPRTNL.   81324770
13B9 0 1001                SLA      1         ERROR IF NOT                81324780
13BA 1 4C10 13C9           BNN      T47E4     * UNIT STATUS PENDING       81324790
13BC 0 7013                B        T47EN     GO TO END RTN.              81324800
                        *                                                 81324810
13BD 0 C2B4             T47E1 LD    2 H2106-TB   ERR- ENDING STAT.NOT RCVD  81324820
13BE 0 7001                B        *+1                                   81324830
13BF 0 C2B9             T47E2 LD    2 H8106-TB   ERR- INCORRECT STATUS RCVD 81324840
13C0 0 D001                STO      *+1                                   81324850
13C1 0 42DF                BSI   2 EROUT-TB   PRINT ERROR MSG. NO. 26     81324860
13C2 0 0000                DC       *-*                                   81324870
13C3 0 4726                DC       /4726     SRXX                        81324880
13C4 0 4203                BSI   2 TLPER-TB   LOOP ON ERROR               81324890
13C5 1 1398                DC       T4705     LOOP ON ERROR ADDRESS       81324900
13C6 0 70DF                B        T4706     CONTINUE-                   81324910
                        *                                                 81324920
13C7 0 C284             T47E3 LD    2 H2106-TB   ERR- ENDING STAT.NOT RCVD  81324930
13C8 0 7001                B        *+1                                   81324940
13C9 0 C2B9             T47E4 LD    2 H8106-TB   ERR- INCORRECT STATUS RCVD 81324950
13CA 0 D001                STO      *+1                                   81324960
13CB 0 42DF                BSI   2 EROUT-TB   PRINT ERROR MSG. NO.27     81324970
13CC 0 0000                DC       *-*                                   81324980
13CD 0 4727                DC       /4727     SRXX                        81324990
13CE 0 4203                BSI   2 TLPER-TB   LOOP ON ERROR               81325000
13CF 1 13A9                DC       T4707     LOOP ON ERROR ADDRESS       81325010
                        *                                                 81325020
                        *                                                 81325030
                        *     GO TO NEXT ROUTINE IN SEQUENCE              81325040
                        *                                                 81325050
13D0 0 42E2             T47EN BSI   2 FREDV-TB     FREE CHANNEL           81325060
13D1 0 C2C1                LD    2 TRTNN-TB   GET RTN SWS                  81325070
13D2 1 4C18 1426           BZ       T4801      GO TO NEXT RTN IN SEQ       81325080
13D4 0 42DC                BSI   2 CNTRL-TB   GO TO CONTROL RTN           81325090
13D5    0007            TTL47 PRNT     . SECT 4.RT 7- .                   81325100
                        *                                                 81325110
13DC    0017               PRNT     .CHKS INTF-A- REMAINS DSBLD WHEN SW. 81325120
13ED    0017               PRNT     .-A- GOES FROM DSBL TO ENBL WITH CL. 81325130
13FE    0006               PRNT     .OCK OUT UP. .                       81325140
1404 0 FFFF                DC       /FFFF                                81325150
0F48 0                  OP471 EQU     OP411                                81325160
                        *                                                 81325170
```



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1181 0                  OP472 EQU     OP432                                81325180
                        *                                                 81325190
1405    0018            OP473 PRNT    . 1 - STOP THE CPU WITHIN 30 SECONDS. 81325200
1417 0 00FF                DC       /00FF                                 81325210
1418    0013               PRNT     . 2 - CONTINUE THE PROGRAM .          81325220
1425 0 FFFF                DC       /FFFF                                 81325230
                        *                                                 81325240
                        ************************************************* 81325250
                        *                                               * 81325260
                        ************************************************* 81325270
1426 0                  T4801 EQU     *          TEST ENTRY POINT         81325280
1426 1 7401 0815            MDX   L   TRID,1     BUMP RTN ID              81325290
1428 1 4C18 142D            BZ        T4802      BR IF TEST NUMBER ZERO   81325300
142A 0 9297                 S      2  K1-TB      DECREMENT BY ONE         81325310
142B 1 4C20 14A8            BNZ       T4901      BR IF NOT THIS TEST      81325320
                        *                                                 81325330
142D 0 C283             T4802 LD    2 TSW0-TB    GET OPTION SWS           81325340
142E 0 100A                SLA       OTTLE      PRINT TITLES             81325350
142F 1 4C10 1433           BNN       T4803        BR IF NOT SET          81325360
1431 0 4200                BSI   2 TLGMS-TB GO TO PRINT ROUTINE           81325370
1432 1 1478                DC        TTL48      MESSAGE ADDRESS          81325380
                        *                                                 81325390
1433 0 42E5             T4803 BSI   2 GETDV-TB   GET CHANNEL FOR RTN      81325400
                        ************************************************* 81325410
                        *                                               * 81325420
                        ************************************************* 81325430
                        *                                                 81325440
                        *          SECTION 4   ROUTINE 8                  81325450
                        * CHKS INTERFACE 'B' IS DISABLED WHEN DISABLED/    81325460
                        * ENABLED WITH CLOCK OUT UP.                      81325470
                        *                                                 81325480
                        ************************************************* 81325490
                        *                                               * 81325500
                        ************************************************* 81325510
                        *                                                 81325520
1434 0 4200             T4804 BSI   2 TLGMS-TB   REQ.OPRTR.TO DISABLE INTF 81325530
1435 1 104D                DC        OP481      *-B- STOP/START CPU       81325540
1436 0 4212                BSI   2 DELAY-TB     WAIT 30 SECONDS           81325550
1437 0 4200                BSI   2 TLGMS-TB     REQ.OPRTR.TO ENABLE INTF-B 81325560
1438 1 125C                DC        OP482      * NO START STOP           81325570
1439 0 4212                BSI   2 DELAY-TB     WAIT 30 SECONDS           81325580
143A 0 420C                BSI   2 MODDB-TB     GET SEL.CHNL.   CHANNEL-B- 81325590
143B 0                  T4805 EQU     *                                    81325600
143B 0 C2B6                LD    2 H4000-TB   SETUP FOR WAIT BUT           81325610
143C 0 D2D6                STO   2 SIOSW-TB   *RTRN ON ERROR               81325620
143D 1 6700 1460           LDX  L3 T48E1      SETUP ERROR ADDR. FOR       81325630
143F 1 6F00 157B           STX  L3 WTADR      *NO END STATUS RCVD.        81325640
1441 0 42EB                BSI   2 SIO-TB     EXECUTE SEEK                81325650
1442 1 0B18                DC       SEEK0     CCW ADDR.                   81325660
1443 0 C23B                LD    2 SCSX0-TB   GET CHANNEL STATUS          81325670
1444 1 4C10 1462           BNN       T48E2     ERROR NO'UNIT NOT OPRTNL'   81325680
1446 0 1001                SLA       1         CHECK IF U.N.O. ALONE       81325690
1447 1 4C20 1462           BNZ       T48E2     ERROR NOT                   81325700
1449 0 4200             T4806 BSI   2 TLGMS-TB   REQ OPRTR TO START/STOP CP 81325710
144A 1 1405                DC        OP483      *THE CPU                    81325720
144B 0 4212                BSI   2 DELAY-TB                              81325730
144C 0                  T4807 EQU     *                                    81325740
144C 0 C2B6                LD    2 H4000-TB   SETUP FOR WAIT AND RETURN   81325750
144D 0 D2D6                STO   2 SIOSW-TB   *ON ERROR                   81325760
144E 1 6700 146A           LDX  L3 T48E3      SETUP ERROR ADDR.FOR        81325770
1450 1 6F00 157B           STX  L3 WTADR      *NO END STAT.RCVD.          81325780
1452 0 42EB                BSI   2 SIO-TB     EXECUTE SEEK                81325790
1453 1 0B18                DC       SEEK0     CCW ADDR.                   81325800
1454 0 C23C                LD    2 SCSX0+1-TB GET UNIT STATUS             81325810
1455 0 E2AB                AND   2 H00FF-TB   MUST BE DEV/CHNL END        81325820
1456 0 F2A4                EOR   2 H000C-TB   *                           81325830
1457 1 4C20 146C           BNZ       T48E4     ERROR NOT                   81325840
1459 0 C23B                LD    2 SCSX0-TB   GET CHNL STATUS             81325850
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145A 1 4C28 146C          BN     T48E4      ERROR IF UNIT NOT OPRTNL.   81325860
145C 0 1001               SLA    1          ERROR IF NOT                81325870
145D 1 4C10 146C          BNN    T48E4      * UNIT STATUS PENDING       81325880
145F 0 7013               B      T48EN      GO TO END RTN.              81325890
                     *                                                  81325900
1460 0 C284          T48E1 LD     2 H2106-TB ERR- ENDING STAT.NOT RCVD   81325910
1461 0 7001               B      *+1                                    81325920
1462 0 C289          T48E2 LD     2 H8106-TB ERR- INCORRECT STATUS RCVD  81325930
1463 0 D001               STO    *+1                                    81325940
1464 0 42DF               BSI    2 EROUT-TB PRINT ERROR MSG. NO. 26     81325950
1465 0 0000               DC     *-*                                    81325960
1466 0 4826               DC     /4826      SRXX                        81325970
1467 0 4203               BSI    2 TLPER-TB LOOP ON ERROR               81325980
1468 1 1438               DC     T4805      LOOP ON ERROR ADDRESS       81325990
1469 0 70DF               B      T4806      CONTINUE-                   81326000
                     *                                                  81326010
146A 0 C284          T48E3 LD     2 H2106-TB ERR- ENDING STAT.NOT RCVD   81326020
146B 0 7001               B      *+1                                    81326030
146C 0 C289          T48E4 LD     2 H8106-TB ERR- INCORRECT STATUS RCVD  81326040
146D 0 D001               STO    *+1                                    81326050
146E 0 42DF               BSI    2 EROUT-TB PRINT ERROR MSG. NO.27      81326060
146F 0 0000               DC     *-*                                    81326070
1470 0 4827               DC     /4827      SRXX                        81326080
1471 0 4203               BSI    2 TLPER-TB LOOP ON ERROR               81326090
1472 1 144C               DC     T4807      LOOP ON ERROR ADDRESS       81326100
                     *                                                  81326110
                     *                                                  81326120
                     *    GO TO NEXT ROUTINE IN SEQUENCE                81326130
                     *                                                  81326140
1473 0 42E2          T48EN BSI    2 FREDV-TB    FREE CHANNEL             81326150
1474 0 C2C1               LD     2 TRTNN-TB GET RTN SWS                 81326160
1475 1 4C18 14A8          BZ     T4901       GO TO NEXT RTN IN SEQ      81326170
1477 0 42DC               BSI    2 CNTRL-TB GO TO CONTROL RTN           81326180
1478   0007          TTL48 PRNT   . SECT 4.RT 8- .                       81326190
                     *                                                  81326200
147F   0017               PRNT   .CHKS INTF-B- REMAINS DSBLD WHEN SW.    81326210
1490   0017               PRNT   .-A- GOES FROM DSBL TO ENBL WITH CL.    81326220
14A1   0006               PRNT   .OCK OUT UP. .                         81326230
14A7 0 FFFF               DC     /FFFF                                  81326240
104D 0               OP481 EQU    OP421                                  81326250
                     *                                                  81326260
125C 0               OP482 EQU    OP442                                  81326270
                     *                                                  81326280
1405 0               OP483 EQU    OP473                                  81326290
                     *                                                  81326300
                     ****************************************************81326310
                     *                                                  *81326320
                     ****************************************************81326330
                     *                                                  81326340
                     *    SECTION END                                   81326350
                     *                                                  81326360
14A8 0 42DC          T4901 BSI    2 CNTRL-TB   GO TO CONTROL RTN         81326370
                     ****************************************************81326380
                     *                                                  *81326390
                     ****************************************************81326400
                     *                                                  81326410
                     *    SUBROUTINE TO GET DEVICE FROM CHANNEL A       81326420
                     *                                                  81326430
                     ****************************************************81326440
                     *                                                  *81326450
                     ****************************************************81326460
                     *                                                  81326470
14A9 0 D00F          MODEA STO      MODSV      SAVE ACC                  81326480
14AA 0 42E2               BSI    2 FREDV-TB   FREE SEL CHNL             81326490
14AB 0 C2BD               LD     2 INTFA-TB   GET INTF A ADDR AS SELCTD  81326500
14AC 0 D2D4               STO    2 DVADR-TB                             81326510
14AD 0 42E5               BSI    2 GETDV-TB   GET SEL CHNL & BUILD NEW  81326520
14AE 0 C00A               LD       MODSV       IOCC'S.  RESTORE ACC    81326530
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14AF 1 4C80 0888               B    I  MODDA      RETURN                 81326540
                     *                                                  81326550
                     ****************************************************81326560
                     *                                                  *81326570
                     ****************************************************81326580
                     *                                                  81326590
                     *    SUBROUTINE TO GET DEVICE FROM CHANNEL B       81326600
                     *                                                  81326610
                     ****************************************************81326620
                     *                                                  *81326630
                     ****************************************************81326640
                     *                                                  81326650
14B1 0 D007          MODEB STO      MODSV      SAVE ACC                  81326660
14B2 0 42E2               BSI    2 FREDV-TB   FREE SEL CHNL             81326670
14B3 0 C2BE               LD     2 INTFB-TB   GET INTF B ADDR AS SELCTD  81326680
14B4 0 D2D4               STO    2 DVADR-TB                             81326690
14B5 0 42E5               BSI    2 GETDV-TB   GET SEL CHNL & BUILD NEW  81326700
14B6 0 C002               LD       MODSV       IOCC'S.  RESTORE ACC    81326710
14B7 1 4C80 08BB          B    I  MODDB      RETURN                      81326720
                     *                                                  81326730
14B9 0 0000          MODSV DC       *-*        ACC SAVE                  81326740
                     *                                                  81326750
                     ****************************************************81326760
                     *                                                  *81326770
                     ****************************************************81326780
                     *                                                  81326790
                     * ROUTINE TO CLEAR WATSW AND SET-UP SIOSW FOR       81326800
                     * IMMEDIATE RETURN EVEN IF ERROR OCCURS             81326810
                     *                                                  81326820
                     ****************************************************81326830
                     *                                                  *81326840
                     ****************************************************81326850
                     *                                                  81326860
14BA 0 1010          CLSET SLA      16         CLEAR WAIT SWITCH         81326870
14BB 0 D276               STO    2 WATSW-TB                             81326880
14BC 0 C2BB               LD     2 HF000-TB                             81326890
14BD 0 1002               SLA      2          SET SIO RTN CONTROL SWTCH 81326900
14BE 0 D2D6               STO    2 SIOSW-TB                             81326910
14BF 1 4C80 08BE          B    I  CLRST      RETURN TO REQUESTOR         81326920
                     *                                                  81326930
                     ****************************************************81326940
                     *                                                  *81326950
                     ****************************************************81326960
                     *                                                  81326970
                     ****************************************************81326980
                     *                                                  *81326990
                     ****************************************************81327000
                     *                                                  81327010
                     * ROUTINE TO DELAY FOR 30 SECONDS BY MONITOR VISITS 81327020
                     * AND SKIPS FIVE LINES ON LOG DEVICE                81327030
                     *                                                  81327040
                     ****************************************************81327050
                     *                                                  *81327060
                     ****************************************************81327070
                     *                                                  81327080
14C1 0 6B0B          DLAYE STX    3 DLYSV+1    SAVE XR3                  81327090
14C2 0 6303               LDX    3 3                                    81327100
14C3 0 4200               BSI    2 TLGMS-TB   SKIP 3 LINES              81327110
14C4 1 080C               DC       TERM                                 81327120
14C5 0 73FF               MDX    3 -1                                   81327130
14C6 0 70FC               B        *-4                                  81327140
14C7 0 6700 3A98          LDX    L3 15000     SETUP CTR                 81327150
14C9 0 42EE          DLAYL BSI    2 STMLS-TB   VISIT MONITOR             81327160
14CA 0 73FF               MDX    3 -1                                   81327170
14CB 0 70FD               B        DLAYL      LOOP FOR 30 SECS          81327180
14CC 0 6700 0000     DLYSV LDX    L3 *-*       RESTORE XR3               81327190
14CE 1 4C80 0891          B    I  DELAY        RETURN                    81327200
                     *                                                  81327210
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                         ***************************************************** 81327220
                         *                                                   * 81327230
                         ***************************************************** 81327240
14D0 0                   GTDVE EQU    *          GET DEVICE ROUTINE            81327250
                         *                                                     81327260
14D0 0 42EE              GTDV1 BSI  2 STMLS-TB                                 81327270
14D1 0 4480 0131               BSI  I REQDV                                    81327280
14D3 1 14D0                    DC     GTDV1      BUSY RETURN                   81327290
14D4 1 0814                    DC     TSCED      SEL CHN EDIT                  81327300
14D5 1 08F7                    DC     TSCAC      SEL CHN AREA CODE             81327310
14D6 1 080C                    DC     TERM       TERMINATOR                    81327320
                         *                                                     81327330
14D7 0 C2AE                    LD   2 H0400-TB   BUILD HALT I/O IOCC           81327340
14D8 0 EA78                    OR   2 TSCAC-TB   OR IN AREA CODE               81327350
14D9 0 EAD4                    OR   2 DVADR-TB   ***                           81327360
14DA 0 D22A                    STO  2 HIOXX+1-TB ***                           81327370
                         *                                                     81327380
14DB 0 EAAC                    OR   2 H0100-TB   BUILD START I/O IOCC          81327390
14DC 0 D22E                    STO  2 SIOXX+1-TB ***                           81327400
                         *                                                     81327410
14DD 0 D228                    STO  2 TIOXX+1-TB BUILD TEST I/O IOCC           81327420
                         *                                                     81327430
14DE 0 D22C                    STO  2 SENSE+1-TB SET FOR SENSE IOCC            81327440
                         *                                                     81327450
14DF 0 C280                    LD   2 H0700-TB   BUILD SENSE CHANNEL           81327460
14E0 0 EA78                    OR   2 TSCAC-TB   *   STATUS IOCC'S             81327470
14E1 0 1808                    SRA    8                                        81327480
14E2 0 1008                    SLA    8                                        81327490
14E3 0 829B                    A    2 K6-TB                                    81327500
14E4 0 D23A                    STO  2 SCSN5+1-TB              = 06             81327510
14E5 0 8298                    A    2 K2-TB                                    81327520
14E6 0 D230                    STO  2 SCSN0+1-TB ***          = 08             81327530
14E7 0 8297                    A    2 K1-TB                                    81327540
14E8 0 D232                    STO  2 SCSN1+1-TB              = 09             81327550
14E9 0 8297                    A    2 K1-TB                                    81327560
14EA 0 D234                    STO  2 SCSN2+1-TB              = 0A             81327570
14EB 0 8297                    A    2 K1-TB                                    81327580
14EC 0 D236                    STO  2 SCSN3+1-TB              = 0B             81327590
14ED 0 8297                    A    2 K1-TB                                    81327600
14EE 0 D238                    STO  2 SCSN4+1-TB              = 0C             81327610
14EF 0 D277                    STO  2 SCISW-TB   SET INT SW                    81327620
                         *                                                     81327630
14F0 1 4C80 0864               BSC  I GETDV      RETURN                        81327640
                         ***************************************************** 81327650
                         *                                                   * 81327660
                         ***************************************************** 81327670
                         ***************************************************** 81327680
                         *                                                   * 81327690
                         ***************************************************** 81327700
                         *                                                     81327710
14F2 0 4480 0132         FRDVE BSI  I RELDV      RELEASE DEVICE                81327720
14F4 1 0814                    DC     TSCED      SEL CHN EDIT                  81327730
14F5 1 080C                    DC     TERM       TERMINATOR                    81327740
                         *                                                     81327750
14F6 0 1010                    SLA    16         RESET-                        81327760
14F7 0 D277                    STO  2 SCISW-TB   INTERRUPT SW                  81327770
14F8 1 4C80 0861               BSC  I FREDV      RETURN                        81327780
                         ***************************************************** 81327790
                         *                                                   * 81327800
                         ***************************************************** 81327810
                         *                                                     81327820
                         *     CALL **************                             81327830
                         *       * BSI 2 SIO-TB   *                            81327840
                         *       * DC    CCWADR   *                            81327850
                         *       *****************                             81327860
                         *                                                     81327870
                         ***************************************************** 81327880
                         *                                                   * 81327890
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                         ***************************************************** 81327900
14FA 0                   SIONT EQU    *          ENTRY POINT                   81327910
14FA 0 6920                    STX  1 SIOX1+1    SAVE REGS                     81327920
14FB 0 6B21                    STX  3 SIOX1+3    ***                           81327930
14FC 1 6780 086A               LDX I3 SIO        GET CALLING ADDRESS           81327940
14FE 1 7401 086A               MDX  L SIO,1      BUMP FOR RETURN               81327950
1500 0 1000                    NOP                                             81327960
1501 0 C300                    LD   3 0          GET CCW ADDRESS               81327970
1502 0 D22D                    STO  2 SIOXX-TB   SET FOR XIO                   81327980
1503 0 D2C5                    STO  2 CAWSV-TB   SAVE FOR POSSIBLE PRINTS      81327990
                         *                                                     81328000
1504 0 10A0              SIO01 SLT    32         CLEAR CSW                     81328010
1505 0 DA3B                    STD  2 SCSX0-TB   **                            81328020
1506 0 DA3D                    STD  2 SCSX0+2-TB **                            81328030
1507 0 D275                    STO  2 WIOSW-TB   CLEAR WAIT SW                 81328040
                         *                                                     81328050
1508 0 0A2D                    XIO  2 SIOXX-TB   DO THE START I/O              81328060
                         *                                                     81328070
1509 0 0A2F                    XIO  2 SCSN0-TB   GET CHANNEL STATUS            81328080
150A 0 D22F                    STO  2 SCSN0-TB   SAVE FOR LATER EXAM           81328090
                         *                                                     81328100
150B 0 7006                    MDX    SIO03      GO TEST FOR ERRORS            81328110
                         *     LOOP ON TIO UNTIL DEVICE END                    81328120
150C 0 42FD              SIO02 BSI  2 TIO-TB     GO DO A TIO                   81328130
                         *                                                     81328140
150D 0 C244                    LD   2 SCSX8+1-TB GET UNIT STATUS               81328150
150E 0 100B                    SLA    UNBZY      TEST FOR BUSY                 81328160
150F 1 4C28 150C               BN     SIO02      BR IF STILL BUSY              81328170
1511 0 70F2                    MDX    SIO01      GO DO THE SIO AGAIN           81328180
                         *                                                     81328190
1512 0 C22F              SIO03 LD   2 SCSN0-TB   GET CHAN STATUS               81328200
1513 0 1007                    SLA    SCABZ      TEST FOR BUSY                 81328210
1514 1 4C10 1529               BNN    SIO05      BRANCH IF NOT NEG             81328220
                         *     CMD ACCEPTED                                    81328230
1516 0 C2D6              SIO04 LD   2 SIOSW-TB   GET SIO SW                    81328240
1517 1 4C28 151A               BN     SIOX1        BR IF SET                   81328250
                         *                                                     81328260
1519 0 404F                    BSI    WAITT      GO WAIT FOR DE OR UNIT CHK    81328270
                         *                                                     81328280
151A 0 6500 0000         SIOX1 LDX L1 *-*        RESTORE REGS                  81328290
151C 0 6700 0000               LDX L3 *-*        ***                           81328300
151E 0 4206                    BSI  2 TLPST-TB   LOOP SIO                      81328310
151F 1 1524                    DC     ILSIO      LOOP ADDR                     81328320
1520 0 1010                    SLA    16         RESET SIO SW                  81328330
1521 0 D2D6                    STO  2 SIOSW-TB   *                             81328340
1522 1 4C80 086A               BSC  I SIO        THEN EXIT                     81328350
1524 1 74FF 086A         ILSIO MDX  L SIO,-1     RE-ADJ EP FOR PARAM           81328360
1526 0 1000                    NOP    0          64K SAFETY                    81328370
1527 1 4C00 14FA               B    L SIONT      LOOP THRU SIO AGAIN           81328380
                         *                                                     81328390
1529 0 C2D6              SIO05 LD   2 SIOSW-TB   GET CNTRL SW                  81328400
152A 0 1001                    SLA    1          TEST FOR EXIT EVEN IF ERR     81328410
152B 1 4C28 151A               BN     SIOX1        BR IF SET                   81328420
                         *                                                     81328430
152D 0 CAC9                    LDD  2 TYP2-TB     'SIO '                       81328440
152E 0 DA61                    STD  2 STSER+6-TB SET IN MSG                    81328450
152F 1 4400 197C               BSI  L TCVSR      GET SECT/RTN NUMBERS          81328460
1531 0 D265                    STO  2 STSER+10-TB                              81328470
1532 0 1090                    SLT    16                                       81328480
1533 0 D268                    STO  2 STSER+13-TB  SET IN MSG                  81328490
1534 0 C22F                    LD   2 SCSN0-TB   GET CHAN STATUS               81328500
1535 1 4C10 153F               BNN    SIO06      BR IF NOT OPER IS NOT SET     81328510
                         *     NOT OPERATIONAL                                 81328520
1537 0 C299                    LD   2 K3-TB      GET MSG NUMBER                81328530
1538 0 42F1                    BSI  2 TCVBE-TB   CONVERT TO PRNT CODE          81328540
1539 0 1090                    SLT    16         SAVE Q ONLY                   81328550
153A 0 D25B                    STO  2 STSER-TB   SET IN MSG                    81328560
153B 0 42DF                    BSI  2 EROUT-TB   PRINT ERROR MSG               81328570
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153C 0 0108              DC      /0108       TAGS AND OPTIONS          81328580
153D 1 08DA              DC      STSER       MSG ADDRESS               81328590
153E 0 7024              MDX     SI009       LOOP                      81328600
                    *                                                  81328610
153F 0 1007         SI006 SLA    SCABZ       TEST FOR ADAPTER BUSY     81328620
1540 1 4C10 154A         BNN     SI007       BR IF NOT                 81328630
1542 0 C298              LD   2  K2-TB       SET MSG NUMBER            81328640
1543 0 42F1              BSI  2  TCVBE-TB    CONVERT                   81328650
1544 0 1090              SLT     16          Q ONLY                    81328660
1545 0 D25B              STO  2  STSER-TB    SET IN MSG                81328670
1546 0 42DF              BSI  2  EROUT-TB    CALL ERROR PRINT RTN      81328680
1547 0 010C              DC      /010C       MESSAGE TAGS AND OPTIONS  81328690
1548 1 08DA              DC      STSER       MSG ADDRESS               81328700
1549 0 7019              MDX     SI009       *                         81328710
                    *                                                  81328720
154A 0 C22F         SI007 LD     2 SCSN0-TB  GET CHAN STATUS           81328730
154B 0 1001              SLA     SCUSP       UNIT STATUS PENDING       81328740
154C 1 4C10 1516         BNN     SI004       BR IF NOT SET             81328750
154E 0 42E8              BSI  2  GETSN-TB    ELSE GET SENSE INFO       81328760
154F 0 CA23              LDD  2  SNWDS-TB    GET SENSE WORDS           81328770
1550 0 109F              SLT     FSKIN       TEST FOR SEEK INCOMPLETE  81328780
1551 1 4C10 155A         BNN     SI008       BR IF NOT SET             81328790
1553 1 6780 08AC         LDX  I3 SIOXX       GET CCW ADDRESS           81328800
1555 0 C301              LD   3  1           GET FLAGS AND OP CODE     81328810
1556 0 F2A7              EOR  2  H0013-TB    TEST FOR RECALIBRATE      81328820
1557 0 1008              SLA     8                                     81328830
1558 1 4C18 1504         BZ      SI001       RETRY IF SO               81328840
                    *                                                  81328850
155A 0 C2A6         SI008 LD     2 H0011-TB  SET ERR NUMBER            81328860
155B 0 42F1              BSI  2  TCVBE-TB    CONVERT                   81328870
155C 0 1090              SLT     16          Q ONLY                    81328880
155D 0 D25B              STO  2  STSER-TB    SET IN MSG                81328890
155E 0 CAC9              LDD  2  TYP2-TB     GET 'SIO'                 81328900
155F 0 DA61              STD  2  STSER+6-TB  PUT IN MESSAGE            81328910
1560 0 42DF              BSI  2  EROUT-TB    CALL MSG RTN              81328920
1561 0 010F              DC      /010F       TAGS AND OPTIONS          81328930
1562 1 08DA              DC      STSER       MSG ADDRESS               81328940
                    *                                                  81328950
1563 0 C283         SI009 LD     2 TSW0-TB   GET SW FNC 0               81328960
1564 0 100B              SLA     ORTRY       TEST FOR RETRY SIO        81328970
1565 1 4C28 150C         BN      SI002       BR IF YES                 81328980
                    *                                                  81328990
1567 0 42F7              BSI  2  THALT-TB    GO WAIT FOR OPERATOR      81329000
1568 0 70A3              MDX     SI002       LOOP                      81329010
                    ********************************************** 81329020
                    *                                              * 81329030
                    ********************************************** 81329040
                    *                                                  81329050
                    *    WAIT FOR DEVICE END FROM START I/O            81329060
                    *                                                  81329070
1569 0 0000         WAITT DC     *-*                                   81329080
156A 0 C28D              LD   2  TERM-TB     GET COUNTER FOR LOOP      81329090
156B 0 D28F              STO  2  CNTDN-TB    SET FOR LOOP              81329100
                    *                                                  81329110
156C 0 42FD         WAIT1 BSI    2 TIO-TB    GO DO A TEST I/O          81329120
                    *                                                  81329130
156D 0 C244              LD   2  SCSX8+1-TB  GET UNIT STATUS           81329140
156E 0 100B              SLA     UNBZY       TEST FOR UNIT BUSY        81329150
156F 1 4C28 1575         BN      WAIT2       BR TO WAIT IF ON          81329160
1571 0 1010              SLA     16          ELSE CLEAR TIO SW         81329170
1572 0 D20A              STO  2  TIOSW-TB    *                         81329180
1573 1 4C80 1569         BSC  I  WAITT       EXIT IF NOT BUSY          81329190
                    *                                                  81329200
1575 0 42EE         WAIT2 BSI    2 STMLS-TB  GO TO MONITOR             81329210
1576 1 74FF 083E         MDX  L  CNTDN,-1    COUNT TIME                81329220
1578 0 70F3              MDX     WAIT1       LOOP                      81329230
1579 1 4C80 157B         BSC  I  WTADR       GO TO TIMEOUT ADDRESS     81329240
157B 0 0000         WTADR DC     *-*         TIMEOUT ADDRESS           81329250
```



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                    ********************************************** 81329260
                    *                                              * 81329270
                    ********************************************** 81329280
                    *                                                  81329290
                    *                                                  81329300
                    *                                                  81329310
                    ********************************************** 81329320
                    *                                              * 81329330
                    ********************************************** 81329340
157C 0              TIONT EQU    *           ENTRY FOR XFER VECTOR     81329350
157C 0 1010              SLA     16          CLEAR-                    81329360
157D 0 D276              STO  2  WATSW-TB    *                         81329370
157E 0 D231              STO  2  SCSN1-TB    * LOOP COUNTER            81329380
                    *    WAIT FOR ADAPTER NOT BUSY                     81329390
157F 0 0A2F         TI001 XIO    2 SCSN0-TB  GET CHAN. STATUS WORD     81329400
1580 0 1007              SLA     SCABZ       TEST FOR ADAPTER BUSY     81329410
1581 1 4C10 1594         BNN     TI002       BR IF NOT                 81329420
1583 0 0A39              XIO  2  SCSN5-TB    ALLOW POLLING             81329430
                    *                                                  81329440
1584 0 42EE              BSI  2  STMLS-TB    GO TO MONITOR             81329450
1585 1 7432 08B0         MDX  L  SCSN1,50      COUNT LOOPS             81329460
1587 0 70F7              MDX     TI001       LOOP UNTIL NOT BUSY       81329470
                    *                                                  81329480
1588 0 0A31              XIO  2  SCSN1-TB      GET CHANNEL STATUS        81329490
1589 0 D247              STO  2  SCSXC-TB      * AND SAVE FOR ERROR      81329500
158A 0 0A35              XIO  2  SCSN3-TB      * MESSAGE                 81329510
158B 0 D248              STO  2  SCSXC+1-TB    *                         81329520
158C 0 0A37              XIO  2  SCSN4-TB      *                         81329530
158D 0 D249              STO  2  SCSXC+2-TB    *                         81329540
158E 0 0A39              XIO  2  SCSN5-TB      *                         81329550
158F 0 D24A              STO  2  SCSXC+3-TB    *                         81329560
                    *                                                  81329570
1590 0 42DF              BSI  2  EROUT-TB                              81329580
1591 0 110E              DC      /110E       TAGS AND OPTIONS          81329590
1592 1 15A8              DC      TIOM1       ERROR MSG ADDRESS         81329600
                    *                                                  81329610
1593 0 70E8              MDX     TIONT       LOOP TO TRY AGAIN         81329620
                    *                                                  81329630
1594 0 0A27         TI002 XIO    2 TIOXX-TB  EXECUTE TEST I/O           81329640
                    *                                                  81329650
1595 1 6C00 0859         STX  L  TIDSW       SET TIO SW                81329660
1597 0 0A39              XIO  2  SCSN5-TB    RELIEVE POLL              81329670
                    *                                                  81329680
1598 1 4400 0988         BSI  L  TINTW       WAIT FOR INTERRUPT        81329690
159A 0 7006              MDX     TI003       BR IF DID NOT OCCUR       81329700
159B 0 C244              LD   2  SCSX8+1-TB  GET UNIT STATUS           81329710
159C 0 100A              SLA     UNCUE       TEST FOR CNTL UNIT END    81329720
159D 1 4C28 157C         BN      TIONT       RETRY IF YES              81329730
                    *                                                  81329740
159F 1 4C80 087C         BSC  I  TIO         EXIT                      81329750
                    *                                                  81329760
15A1 0 42DF         TI003 BSI    2 EROUT-TB                            81329770
15A2 0 110E              DC      /110E       TAGS AND OPTIONS          81329780
15A3 1 15B4              DC      TIOM2       ERROR MSG ADDRESS         81329790
                    *    ISSUE HALT I/O TO CLEAR CHANNEL               81329800
15A4 0 0A29              XIO  2  HIOXX-TB                              81329810
                    *                                                  81329820
15A5 0 4200              BSI  2  TLGMS-TB                              81329830
15A6 1 15C5              DC      TIOMS                                 81329840
                    *                                                  81329850
15A7 0 70D4              MDX     TIONT                                 81329860
                    *                                                  81329870
15A8   0011         TIOM1 PRNT   . 02 ADAPTER HUNG BUSY.               81329880
15B3 0 FFFF              DC      /FFFF                                 81329890
                    *                                                  81329900
15B4   0016         TIOM2 PRNT   . 06 CHANNEL HUNG AFTER TEST I/O.     81329910
15C4 0 FFFF              DC      /FFFF                                 81329920
15C5   0015         TIOMS PRNT   . A HALT I/O HAS BEEN ISSUED TO.      81329930
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15D4 0 FF00                    DC      /FF00                                  81329940
15D5   0017                    PRNT    .TRY TO RESET THE CHANNEL CONDITION.   81329950
15E6 0 FFFF                    DC      /FFFF                                  81329960
                                                                              81329970
                       *****************************************************  81329980
                       *                                                   *  81329990
                       *****************************************************  81330000
                       *                                                      81330010
                       *****************************************************  81330020
                       *                                                   *  81330030
                       *****************************************************  81330040
                       *                                                      81330050
                       *     CALL ****************                           81330060
                       *       * BSI  L  GETSN  *                            81330070
                       *       ********************                           81330080
                       *                                                      81330090
                       *****************************************************  81330100
                       *                                                   *  81330110
                       *****************************************************  81330120
15E7 0 6916            GTSNS STX    1 GTSNX+1     SAVE REGS                  81330130
15E8 0 6B17                  STX    3 GTSNX+3     ***                        81330140
15E9 0 CA47                  LDD    2 SCSXC-TB    SAVE SNS CHAN STATUS       81330150
15EA 0 DA4B                  STD    2 SCSVS-TB    **                         81330160
15EB 0 CA49                  LDD    2 SCSXC+2-TB  **                         81330170
15EC 0 DA4D                  STD    2 SCSVS+2-TB                             81330180
15ED 0 0A2B            GTSN0 XIO    2 SENSE-TB    SENSE  I/O                 81330190
15EE 0 0A2F                  XIO    2 SCSN0-TB    GET CHAN STATUS            81330200
15EF 0 D22F                  STO    2 SCSN0-TB    SAVE                       81330210
15F0 0 1007                  SLA      SCABZ                                  81330220
15F1 1 4C10 1607             BNN      GTSN2                                  81330230
                       *     SIO ACCEPTED- WAIT FOR NOT BUSY                  81330240
15F3 0 0A2F            GTSN1 XIO    2 SCSN0-TB    GET CHAN STATUS            81330250
15F4 0 1007                  SLA      SCABZ       TEST FOR BUSY              81330260
15F5 1 4C28 15F3             BN       GTSN1       BR IF SO                   81330270
                       *                                                      81330280
15F7 0 0A39                  XIO    2 SCSN5-TB    ALLOW POLLING              81330290
15F8 0 1000                  NOP                  TO ALLOW INTERRUPT         81330300
                       *                                                      81330310
15F9 0 C248                  LD     2 SCSXC+1-TB GET UNIT STATUS              81330320
15FA 0 100E                  SLA      UNCHK                                  81330330
15FB 1 4C28 1607             BN       GTSN2                                  81330340
15FD 0 6500 0000       GTSNX LDX    L1 *-*          RESTORE REGS             81330350
15FF 0 6700 0000             LDX    L3 *-*          ***                      81330360
1601 0 CA4B                  LDD    2 SCSVS-TB    RESTORE SNS CHAN STATUS    81330370
1602 0 DA47                  STD    2 SCSXC-TB    **                         81330380
1603 0 CA4D                  LDD    2 SCSVS+2-TB  **                         81330390
1604 0 DA49                  STD    2 SCSXC+2-TB  **                         81330400
1605 1 4C80 0867             BSC  I   GETSN       EXIT TO CALLER             81330410
                       *                                                      81330420
1607 1 4400 197C       GTSN2 BSI  L   TCVSR       GET SECTION / RTN NUMBERS  81330430
1609 0 D265                  STO    2 STSER+10-TB  STORE IN MSG               81330440
160A 0 1090                  SLT      16          Q TO A                     81330450
160B 0 D268                  STO    2 STSER+13-TB                            81330460
160C 0 CACB                  LDD    2 TYP3-TB     'SNS'                      81330470
160D 0 DA61                  STD    2 STSER+6-TB  SET IN MSG                 81330480
160E 0 C247                  LD     2 SCSXC-TB    GET CHAN STATSUS WORD      81330490
160F 0 1001                  SLA      SCUSP       TEST FOR UNIT STAT.PNDING  81330500
1610 1 4C10 1619             BNN      GTSN3       BR IF NOT                  81330510
                       *     UNIT STATUS PENDING                              81330520
1612 0 C2B3                  LD     2 H2100-TB    SET MSG NUMBER             81330530
1613 0 42F1                  BSI    2 TCVBE-TB    CONVERT TO EBC             81330540
1614 0 D25B                  STO    2 STSER-TB    SET IN MSG                 81330550
1615 0 42DF                  BSI    2 EROUT-TB    PRINT EROR MSG             81330560
1616 0 114E                  DC       /114E       TAGS AND OPTIONS           81330570
1617 1 08DA                  DC       STSER       MESSAGE                    81330580
1618 0 70D4                  MDX      GTSN0       GO TRY AGAIN               81330590
                       *     NOT OPERATIONAL                                  81330600
1619 0 C22F            GTSN3 LD     2 SCSN0-TB    GET CHAN STATUS            81330610
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161A 0 1007                    SLA      SCABZ       TEST FOR ADAPTER BUSY      81330620
161B 1 4C10 1625               BNN      GTSN5       BR IF NOT                  81330630
161D 0 C2AC                    LD     2 H0100-TB    SET MSG NUMBER TO 22       81330640
                                                                              81330650
                       *
161E 0 8283            GTSN4 A      2 H2100-TB    CREATE PROPER MSG NUMBER   81330660
161F 0 42F1                  BSI    2 TCVBE-TB    CONVERT                    81330670
1620 0 D25B                  STO    2 STSER-TB    SET IN MSG                 81330680
1621 0 42DF                  BSI    2 EROUT-TB    CALL ERROR MSG RTN         81330690
1622 0 114C                  DC       /114C       TAGS AND OPTIONS           81330700
1623 1 08DA                  DC       STSER       MSG ADDRESS                81330710
1624 0 70C8                  MDX      GTSN0       GO TRY AGAIN               81330720
                                                                              81330730
1625 0 C2AD            GTSN5 LD     2 H0200-TB    SET MSG NUMBER TO 23       81330740
1626 0 70F7                  MDX      GTSN4       GO TO COMMON RTN           81330750
                       *****************************************************  81330760
                       *                                                   *  81330770
                       *****************************************************  81330780
                       *     HALT ROUTINE                                     81330790
                       *          SETS BIT 15 IN TSW0 ON AND LOOPS            81330800
                       *          THRU MONITOR UNTIL BIT IS CLEARED.          81330810
                       *                                                      81330820
                       *****************************************************  81330830
                       *                                                   *  81330840
                       *****************************************************  81330850
1627 0                 THLTE EQU    *                                         81330860
1627 0 C283                  LD     2 TSW0-TB     GET OPTION SWS             81330870
1628 0 100E                  SLA      OHALT       TEST FOR HALT ON ERROR     81330880
1629 1 4C10 163A             BNN      THLTR       BR IF NO                   81330890
                                                                              81330900
162B 0 C2F7            THLTG LD     2 THALT-TB    GET CALLING ADDRESS        81330910
162C 0 42F1                  BSI    2 TCVBE-TB    CONVERT TO PRNT CODE       81330920
162D 0 D020                  STO      THLT2       SET IN MSG                 81330930
162E 0 1090                  SLT      16          Q TO A                     81330940
162F 0 D01F                  STO      THLT2+1     SET IN MSG                 81330950
1630 0 4200                  BSI    2 TLGMS-TB    GO PRINT MSG               81330960
1631 1 163C                  DC       THLTM       MESSAGE ADDRESS            81330970
                                                                              81330980
1632 0 C297                  LD     2 K1-TB       SET BIT 15                 81330990
1633 0 EA83                  OR     2 TSW0-TB     *                          81331000
1634 0 D283                  STO    2 TSW0-TB     *                          81331010
                                                                              81331020
                       *     LOOP THRU MONITOR UNTIL READY                    81331030
                       *                                                      81331040
1635 0 42EE            THLTL BSI    2 STMLS-TB    GO TO MONITRR              81331050
                       *     RETURN HERE                                      81331060
1636 0 C283                  LD     2 TSW0-TB     GET SWITCH WORD            81331070
1637 1 4C04 1635             BOD      THLTL       BR IF STILL ON             81331080
                                                                              81331090
1639 0 42EE                  BSI    2 STMLS-TB    GO TO MONITOR              81331100
163A 1 4C80 0876       THLTR BSC  I   THALT       RETURN TO CALLER           81331110
                                                                              81331120
163C   0018            THLTM PRNT     . ***HALT-- 2 CH SW DIAGNOSTIC ADRS .    81331130
164E   0002            THLT2 PRNT     .    .                                   81331140
1650 0 00FF                  DC       /00FF                                   81331150
1651   0014                  PRNT     . TO CLEAR HALT SET SWITCHES-.          81331160
165F 0 00FF                  DC       /00FF                                   81331170
1660   0011                  PRNT     . S/P 00PP PPPP. P=PID.                 81331180
166B 0 00FF                  DC       /00FF                                   81331190
166C   0012                  PRNT     . DES XXXX XXXX XXXX XXX0.              81331200
1678 0 00FF                  DC       /00FF                                   81331210
1679   0012                  PRNT     . PRESS CONSOLE INTERUPT.               81331220
1685 0 FFFF                  DC       /FFFF                                   81331230
                                                                              81331240
                       *****************************************************  81331250
                       *                                                   *  81331260
                       *****************************************************  81331270
                       *                                                      81331280
                       *     SAVE INDEX REGISTERS AND GO TO MONITOR           81331290
```

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                         *
                         ***********************************************
                         *                                             *
                         ***********************************************
1686 0                   STMLE EQU     *
1686 0 C2EE                    LD    2 STMLS-TB   GET CALLING ADDRS
1687 0 D02E                    STO     STMSA      PUT IN TEMP SAVE AREA
1688 0 692E                    STX   1 STMSA+1    PUT REGS IN SAVE AREA
1689 0 6B2E                    STX   3 STMSA+2    **
168A 1 6580 16B9               LDX  I1 STMPT      GET Q LOCATION
                         *
168C 0 C029                    LD      STMSA      GET I REG
168D 1 D500 16BB               STO  L1 STMST      PUT IN Q
168F 0 C027                    LD      STMSA+1    GET XR1
1690 1 D500 16BC               STO  L1 STMST+1    PUT IN Q
1692 0 C025                    LD      STMSA+2    GET XR3
1693 1 D500 16BD               STO  L1 STMST+2    PUT IN Q
                         *
1695 0 7103                    MDX   1 +3         BUMP Q POINTER
1696 0 6922                    STX   1 STMPT      SAVE
                         *
1697 0 C022                    LD      STMRT      SET UP MONITOR RETURN
1698 0 D28C                    STO   2 MLSC2-TB   *
1699 0 4C80 012D               BSC  I  START      GO  VISIT MONITOR
                         *
                         *       RETURN FROM MONITOR HERE
                         *
169B 1 6600 087F         STMLX LDX  L2 TB         SET UP TABLE PNTR
169D 0 C01D                    LD      STMST         GET ENTRY LOC
169E 0 D2EE                    STO   2 STMLS-TB      PUT IN RETURN
                         *
169F 0 C01C                    LD      STMST+1       GET XR1
16A0 0 D016                    STO     STMSA+1       PUT IN TEMP SAVE
16A1 0 C01B                    LD      STMST+2       GET XR2
16A2 0 D015                    STO     STMSA+2       PUT IN TEMP SAVE
                         *
16A3 0 61F7                    LDX   1 -9
                         *
16A4 1 C500 16C7         STMLL LD   L1 STMST+12   MOVE ALL SAVED
16A6 1 D500 16C4               STO  L1 STMST+9    * PARAMETERS UP 3
16A8 0 7101                    MDX   1 +1         * PLACES IN Q
16A9 0 70FA                    MDX     STMLL      *
                         *
16AA 1 74FD 16B9               MDX  L  STMPT,-3   DECREMENT Q POINTER
16AC 0 7006                    MDX     STMPS      IF NOT 0,CONTINUE
                         *
16AD 1 6580 16B7         STMSE LDX  I1 STMSA+1    ELSE RESTORE PARAMETERS
16AF 1 6780 16B8               LDX  I3 STMSA+2    *
16B1 1 4C80 086D               BSC  I  STMLS      RETURN
                         *     GET HERE IF ENTRYS NEED SERVICING
16B3 0 C006              STMPS LD      STMRT      SET UP RETURN TO
16B4 0 D28C                    STO   2 MLSC2-TB   * STMLS ROUTINE
16B5 0 70F7                    MDX     STMSE      EXIT
                         *
                         *     TEMPORARY SAVE AREA
                         *
16B6 0 0000              STMSA DC      *-*
16B7 0 0000                    DC      *-*
16B8 0 0000                    DC      *-*
                         *
16B9 0 0000              STMPT DC      0          Q POINTER
16BA 1 169B              STMRT DC      STMLX      RE-ENTRY LOCATION
                         *
                         *     QUEUED SAVE AREA
                         *
16BB 0 0000              STMST DC      *-*         I    1
16BC 0 0000                    DC      *-*         XR1  1
16BD 0 0000                    DC      *-*         XR3  1
```



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                         *
16BE 0 0000                    DC      *-*         I    2
16BF 0 0000                    DC      *-*         XR1  2
16C0 0 0000                    DC      *-*         XR3  2
                         *
16C1 0 0000                    DC      *-*
16C2 0 0000                    DC      *-*
16C3 0 0000                    DC      *-*
                         *
16C4 0 0000                    DC      *-*
16C5 0 0000                    DC      *-*
16C6 0 0000                    DC      *-*
                         ***********************************************
                         *                                             *
                         ***********************************************
                         *
                         *     CALL *************************
                         *       *  BSI 2 EROUT-TB          *
                         *       *  DC     /0127  CNTRL TAGS *
                         *       *  DC     /ABCD  ERR NUMBER *
                         *       *             (SECT,RT,ER) *
                         *       ***************************
                         *
                         ***********************************************
                         *                                             *
                         ***********************************************
                         *
                         *     EQUATES FOR EROUT TAGS
                         *
0000 0                   OECX0 EQU     0          CSW=SCSX0
0001 0                   OECX4 EQU     1          CSW=SCSX4
0002 0                   OECX8 EQU     2          CSW=SCSX8
0003 0                   OECXC EQU     3          CSW=SCSXC
0006 0                   OEXIT EQU     6          EXIT TO ERADR
0007 0                   OEPBL EQU     7          PRINT A BLANK LINE
0009 0                   OEBYP EQU     9          BYPASS HALT LOOP
000A 0                   OEGSN EQU     10         GET SENSE BYTES
000B 0                   OEL1B EQU     11         BYPASS LINE 1
000C 0                   OEERR EQU     12         PRINT ERROR MSG
000D 0                   OECAW EQU     13         PRINT CAW
000E 0                   OECSW EQU     14         *     CSW
000F 0                   OESNS EQU     15         *     SNS
                         ***********************************************
                         *                                             *
                         ***********************************************
16C8   0000              ERMSG BSS  E  0
16C8   0006                    PRNT    . **ER-XXXX  .
16CE   003C              PRINT BSS  E  60         PRINT BUFFER
170A 0                   ERTNE EQU     *          ENTRY POINT
170A 0 C2D9                    LD    2 STKSW-TB   GET RE-ENTRY SWITCH
170B 1 4C20 171D               BNZ     ERTN2      BR IF SET
170D 1 6D00 17DA               STX  L1 ERT17+1    SAVE REGS
170F 1 6F00 17DC               STX  L3 ERT17+3    **
1711 1 C480 085E               LD   I  EROUT      GET FLAGS
1713 0 100A                    SLA     OEGSN      GET SENSE BYTES
1714 1 4C10 171D               BNN     ERTN2        BR IF NO
1716 0 C2DF                    LD    2 EROUT-TB   GET RETURN ADDRS
1717 0 D2D9                    STO   2 STKSW-TB   SET SW
1718 0 42E8                    BSI   2 GETSN-TB   GET SENSE BYTES
1719 0 C2D9                    LD    2 STKSW-TB   GET SAVED ADDRESS
171A 0 D2DF                    STO   2 EROUT-TB   SET FOR RETURN
171B 0 1010                    SLA     16         CLEAR SWITCH
171C 0 D2D9                    STO   2 STKSW-TB
                         *
171D 1 6780 085E         ERTN2 LDX  I3 EROUT      SET REG
171F 0 C300                    LD    3 0          GET OPTIONS/FLAGS
1720 0 1007                    SLA     OEPBL      PRINT BLANK LINE FIRST
1721 1 4C10 1725               BNN     ERTN3      BR IF NOT
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1723 0 4200              BSI   2 TLGMS-TB    PRINT BLANK LINE                81332660
1724 1 080C              DC     TERM         /FFFF                           81332670
                    *                                                       81332680
1725 0 C300         ERTN3 LD    3 0          GET TAGS                        81332690
1726 0 100B              SLA     OEL1B        BYPASS LINE 1 PRINT             81332700
1727 1 4C28 175D         BN      ERT10          BR IF YES                     81332710
1729 0 1001              SLA     OEERR-OEL1B  ERROR MSG                       81332720
172A 1 4C10 173D         BNN     ERTN6          BR IF NOT                     81332730
                    *                                                       81332740
172C 0 6100              LDX   1 0            SET COUNT TO ZERO               81332750
172D 0 C301              LD    3 1            GET MSG ADDRESS                 81332760
172E 0 D001              STO     ERTN4+1      SET FOR LOAD INSTRUCTION        81332770
172F 0 C500 0000    ERTN4 LD    L1 *-*         GET WORD TO MOVE                81332780
1731 0 F28D              EOR   2 TERM-TB      IS IT END OF MSG                81332790
1732 1 4C18 1739         BZ      ERTN5          BR YES                        81332800
1734 0 F28D              EOR   2 TERM-TB        RESTORE DATA WORD             81332810
1735 1 D500 16CB         STO   L1 ERMSG+3       STORE IN TABLE                81332820
1737 0 7101              MDX   1 1            COUNT                           81332830
1738 0 70F6              MDX     ERTN4        LOOP                            81332840
                    *                                                       81332850
1739 1 7500 16CB    ERTN5 MDX   L1 ERMSG+3     POINT TO NEXT WORD              81332860
173B 0 1000              NOP                                                 81332870
173C 0 7009              MDX     ERTN7                                       81332880
                    *                                                       81332890
173D 0 C301         ERTN6 LD    3 1            GET MSG NUMBER                  81332900
173E 0 42F1              BSI   2 TCVBE-TB     CONVERT TO 43 CODE              81332910
173F 0 D08B              STO     ERMSG+3      STORE                           81332920
1740 0 1800              XCH                  SWAP A-Q                        81332930
1741 0 D08A              STO     ERMSG+4                                      81332940
1742 0 1010              SLA     16             SET IN TWO BLANKS             81332950
1743 0 D089              STO     ERMSG+5        **                            81332960
1744 1 6500 16CE         LDX   L1 PRINT       SET POINTER                     81332970
                    *                                                       81332980
1746 0 C2D4         ERTN7 LD    2 DVADR-TB     GET DEVICE ADDRESS              81332990
1747 0 42F1              BSI   2 TCVBE-TB     CONVERT TO 43 CODE              81333000
1748 0 1090              SLT     16           LOW ORDER TWO BYTES ONLY        81333010
1749 0 D26E              STO   2 UNADR+3-TB   STORE FOR PRINT                 81333020
174A 0 C20F              LD    2 EROUT-TB     GET CALLING ADDRESS             81333030
174B 0 9297              S     2 K1-TB        POINT TO CALLING INSTRUCTN      81333040
174C 0 42F1              BSI   2 TCVBE-TB     CONVERT TO HEX                  81333050
174D 0 D272              STO   2 UNADR+7-TB                                   81333060
174E 0 1090              SLT     16                                           81333070
174F 0 D273              STO   2 UNADR+8-TB                                   81333080
1750 0 6904              STX   1 ERTN8+3      SAVE REG IN INSTRUCTION         81333090
1751 0 6100              LDX   1 0            SET COUNT                       81333100
                    *                                                       81333110
1752 1 C500 08EA    ERTN8 LD    L1 UNADR       GET WORD TO MOVE                81333120
1754 0 D500 0000         STO   L1 *-*         STORE IN NEW LOC'N              81333130
1756 0 F28D              EOR   2 TERM-TB      TEST FOR END OF MSG             81333140
1757 1 4C18 175B         BZ      ERTN9          BR IF YES                     81333150
1759 0 7101              MDX   1 1            BUMP COUNT                      81333160
175A 0 70F7              MDX     ERTN8        LOOP                            81333170
                    *                                                       81333180
175B 0 4200         ERTN9 BSI   2 TLGMS-TB     GO PRINT MSG                    81333190
175C 1 16C8              DC      ERMSG        ADDRESS OF MESSAGE              81333200
                    *     --CAW--   ADDRESS OF CCW CHAIN                     81333210
175D 0 C300         ERT10 LD    3 0            GET TAGS                        81333220
175E 0 100D              SLA     OECAW        TEST FOR CAW,CSW,SNS            81333230
175F 1 4C18 17D2         BZ      ERT15          BR IF NONE                    81333240
1761 1 6500 16CE         LDX   L1 PRINT       SET POINTER TO AREA             81333250
1763 1 4C10 176F         BNN     ERT11        BR IF NO CAW                    81333260
1765 0 10A0              SLT     32                                           81333270
1766 0 D900              STD   1 0                                            81333280
1767 0 7102              MDX   1 2                                            81333290
1768 0 CACD              LDD   2 PCAW-TB      GET HEADER                      81333300
1769 0 D900              STD   1 0            STORE IN AREA                   81333310
176A 0 C2C5              LD    2 CAWSV-TB     GET CCW ADDRESS FOR SIO         81333320
176B 0 42F1              BSI   2 TCVBE-TB     CONVERT TO EBC                  81333330
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176C 0 D902              STD   1 2            STORE IN AREA                   81333340
176D 0 7104              MDX   1 4            BUMP POINTER                    81333350
176E 0 1000              NOP                                                  81333360
                    *     --CSW--   CHANNEL DSW WORDS                        81333370
176F 0 C300         ERT11 LD    3 0            GET TAGS                        81333380
1770 0 100E              SLA     OECSW        TEST FOR CSW TO BE PRINTED      81333390
1771 1 4C10 17A1         BNN     ERT12          BR IF NOT                     81333400
1773 0 C300              LD    3 0            GET OPTION WORD                 81333410
1774 1 6700 08BA         LDX   L3 SCSX0       POINT TO CSW SAVE AREA 0        81333420
1776 0 180C              SRA     12           SAVE BITS 0-3                   81333430
1777 0 100C              SLA     12           ***                             81333440
1778 0 4830              SKP     Z-                                           81333450
1779 0 7304              MDX   3 4            BUMP TO NEXT SAVE AREA          81333460
177A 0 1001              SLA     1            TEST NEXT BIT                   81333470
177B 0 4830              SKP     Z-                                           81333480
177C 0 7304              MDX   3 4            BUMP TO NEXT SAVE AREA          81333490
177D 0 1001              SLA     1            TEST NEXT BIT                   81333500
177E 0 4830              SKP     Z-                                           81333510
177F 0 7304              MDX   3 4            BUMP TO NEXT SAVE AREA          81333520
1780 0 1001              SLA     1            TEST NEXT BIT                   81333530
1781 0 4830              SKP     Z-                                           81333540
1782 0 7304              MDX   3 4            BUMP TO NEXT SAVE AREA          81333550
1783 0 CACF              LDD   2 PCSW-TB      GET 'CSW '                      81333560
1784 0 D902              STD   1 2            SET IN MSG                      81333570
1785 0 C300              LD    3 0            GET CHANNEL STATUS WORD         81333580
1786 0 42F1              BSI   2 TCVBE-TB     CONVERT                         81333590
1787 0 D904              STD   1 4            STORE                           81333600
1788 0 C301              LD    3 1            GET UNIT STATUS WORD            81333610
1789 0 42F1              BSI   2 TCVBE-TB     CONVERT                         81333620
178A 0 D107              STO   1 7            STORE                           81333630
178B 0 1090              SLT     16                                           81333640
178C 0 D108              STO   1 8            STORE                           81333650
178D 0 C302              LD    3 2            GET CSW ADDRESS WORD            81333660
178E 0 42F1              BSI   2 TCVBE-TB     CONVERT                         81333670
178F 0 D90A              STD   1 10           STORE                           81333680
1790 0 C303              LD    3 3            GET BYTE COUNT                  81333690
1791 0 42F1              BSI   2 TCVBE-TB     CONVERT                         81333700
1792 0 D10D              STO   1 13           STORE                           81333710
1793 0 1090              SLT     16           Q TO A                          81333720
1794 0 D10E              STO   1 14           STORE                           81333730
1795 0 C2D3              LD    2 SPACE-TB     GET SPACES                      81333740
1796 0 D100              STO   1 0            **                              81333750
1797 0 D101              STO   1 1            **                              81333760
1798 0 D106              STO   1 6            SET IN BETWEEN                  81333770
1799 0 D109              STO   1 9            SET IN BETWEEN                  81333780
179A 0 D10C              STO   1 12           SET IN BETWEEN                  81333790
179B 0 D10F              STO   1 15                                           81333800
179C 0 D111              STO   1 17           CLEAR NEXT SLOT TOO             81333810
179D 0 710F              MDX   1 15           BUMP POINTER                    81333820
179E 0 1000              NOP                                                  81333830
179F 1 6780 085E         LDX   I3 EROUT       RESTORE REG                     81333840
                    *     --SNS--   GET 2311 SENSE INFORMATION                81333850
17A1 0 C300         ERT12 LD    3 0            GET TAGS                        81333860
17A2 0 100F              SLA     OESNS        TEST FOR SNS INFO               81333870
17A3 1 4C10 17CB         BNN     ERT14          BR IF NO                      81333880
17A5 0 CAD1              LDD   2 PSNS-TB      GET HEADER WORDS                81333890
17A6 0 D100              STO   1 0            STORE                           81333900
17A7 0 1090              SLT     16                                           81333910
17A8 0 D101              STO   1 1            STORE                           81333920
17A9 0 7103              MDX   1 3            BUMP POINTER                    81333930
17AA 0 1000              NOP                                                  81333940
17AB 0 C29C              LD    2 K8-TB                                        81333950
17AC 0 D0A8              STO     ERTN8+3      SAVE TEMPORARILY                81333960
17AD 0 CA23              LDD   2 SNWDS-TB     GET SENSE INFO                  81333970
                    *                                                       81333980
17AE 0 18DC         ERT13 RTE     28           MOVE AROUND                     81333990
17AF 0 DAC7              STD   2 ERTSV-TB     SAVE FOR LOOP                   81334000
17B0 0 108C              SLT     12                                           81334010
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1800-2841 TWO CHANNEL SWITCH FUNCTION TEST

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17B1 0 1010             SLA      16                                      81334020
17B2 0 1081             SLT      1                                       81334030
17B3 0 1003             SLA      3                                       81334040
17B4 0 1081             SLT      1                                       81334050
17B5 0 1003             SLA      3                                       81334060
17B6 0 1081             SLT      1                                       81334070
17B7 0 1003             SLA      3                                       81334080
17B8 0 1081             SLT      1                                       81334090
17B9 0 42F1             BSI    2 TCVBE-TB    CONVERT TO HEX              81334100
17BA 0 D100             STO    1 0           STORE IN TBLE               81334110
17BB 0 1090             SLT      16          Q TO A                      81334120
17BC 0 D101             STO    1 1           STORE                       81334130
17BD 0 7102             MDX    1 2           BUMP POINTER                81334140
17BE 0 1000             NOP                                              81334150
17BF 0 C095             LD       ERTN8+3     FETCH COUNTER               81334160
17C0 0 8297             A      2 K1-TB       ADD ONE                     81334170
17C1 1 4C04 17C7        BOD      *+4         BRANCH IF ODD               81334180
17C3 0 C2D3             LD     2 SPACE-TB    FETCH SPACE CHARACTERS      81334190
17C4 0 D100             STO    1 0           PLACE IN PRINT LINE         81334200
17C5 0 7101             MDX    1 1           ADVANCE PRINT LINE POINTER  81334210
17C6 0 1000             NOP                                              81334220
17C7 0 CAC7             LDD    2 ERTSV-TB    GET SENSE INFO BACK         81334230
17C8 1 74FF 1755        MDX    L ERTN8+3,-1  COUNT                       81334240
17CA 0 70E3             MDX      ERT13       LOOP UNTIL FINISHED         81334250
                  *                                                      81334260
17CB 0 C28D       ERT14 LD     2 TERM-TB       SET /FFFF AT END          81334270
17CC 0 D100             STO    1 0           **                          81334280
17CD 0 4200             BSI    2 TLGMS-TB    PRINT MESSAGE               81334290
17CE 1 16CE             DC       PRINT                                   81334300
17CF 0 C2D9             LD     2 STKSW-TB    GET SWITCH                  81334310
17D0 1 4C20 17DF        BNZ      ERT18       EXIT IF SET                 81334320
                  *                                                      81334330
17D2 0 C300       ERT15 LD     3 0           GET TAGS                    81334340
17D3 0 1009             SLA      OEBYP                                   81334350
17D4 1 4C28 17D7        BN       ERT16       BR IF NOT HALT              81334360
17D6 0 42F7             BSI    2 THALT-TB    WAIT FOR OPERATOR           81334370
                  *                                                      81334380
17D7 0 C300       ERT16 LD     3 0           GET TAGS                    81334390
17D8 0 1006             SLA      OEXIT       TEST FOR OTHER EXIT         81334400
17D9 0 6500 0000  ERT17 LDX   L1 *-*         RELOAD REGS                 81334410
17DB 0 6700 0000        LDX   L3 *-*         ***                         81334420
17DD 1 4CA8 17E3        BN     I ERADR       BR IF YES                   81334430
                  *                                                      81334440
17DF 1 7402 085E  ERT18 MDX    L EROUT,2     BUMP RETURN BY TWO          81334450
17E1 1 4C80 085E        BSC    I EROUT       EXIT                        81334460
17E3 0 0000       ERADR DC       *-*         RETURN ADDRESS PUT HERE     81334470
                  ************************************************* 81334480
                  *                                               * 81334490
                  ************************************************* 81334500
                  ************************************************* 81334510
                  *                                               * 81334520
                  ************************************************* 81334530
                  *                                                 81334540
                  *                                                 81334550
                  ************************************************* 81334560
                  *                                               * 81334570
                  ************************************************* 81334580
17E4 0            TLGME EQU      *            ENTRY POINT                81334590
17E4 0 C2D5             LD     2 LGBSY-TB     GET LOG BUSY SW            81334600
17E5 1 4C18 17E9        BZ       TLGNB       BR IF NOT BUSY              81334610
17E7 0 42EE             BSI    2 STMLS-TB     GO VISIT MONITOR           81334620
17E8 0 70FB             B        TLGME       ELSE LOOP                   81334630
                  *                                                      81334640
17E9 0 C200       TLGNB LD     2 TLGMS-TB     GET CALLING ADDRS          81334650
17EA 0 D2D5             STO    2 LGBSY-TB     SET LOG BUSY SW            81334660
17EB 1 D400 18CE        STO    L LEXIT+1      SET RETURN ADDRS           81334670
17ED 1 6F00 18C8        STX   L3 TLGX3+1      SAVE REG                   81334680
17EF 1 6D00 18CA        STX   L1 TLGX3+3      SAVE REG                   81334690
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1800-2841 TWO CHANNEL SWITCH FUNCTION TEST

```
17F1 0 C283             LD     2 TSW0-TB     GET OPTION SWS              81334700
17F2 0 100D             SLA      OBYPR                                   81334710
17F3 1 4C28 18C5        BN       TLGEN       BR IF BYPASS PRNTOUT        81334720
17F5 0 C294             LD     2 TLGED-TB    GET EDIT FOR PRINTER        81334730
17F6 1 4C10 17F9        BNN      TLG01       BR IF NOT SELECTED          81334740
                  ************************************************* 81334750
17F8 0 70FF             MDX      *-1         TRAP STOP                   81334760
                  ************************************************* 81334770
                  *     RELEASE SC IN CASE SHARED CHANNEL                81334780
17F9 0 C295       TLG01 LD     2 TSCED-TB    GET DDEF                    81334790
17FA 1 4C10 1808        BNN      TLG02       BR IF NOT SEL               81334800
                  *                                                      81334810
17FC 0 1010             SLA      16         CLEAR CHANNEL FREED SW       81334820
17FD 1 D400 18CF        STO    L FRESW       *                           81334830
17FF 0 C29F             LD     2 K20-TB         SET COUNTER FOR DELAY    81334840
1800 0 D231             STO    2 SCSN1-TB       **                       81334850
1801 0 42EE             BSI    2 STMLS-TB       GO TO MONITOR            81334860
1802 1 74FF 08B0        MDX    L SCSN1,-1         DECR. COUNTER          81334870
1804 0 70FC             MDX      *-4              LOOP UNTIL FINISHED    81334880
                  *                                                      81334890
1805 0 42E2             BSI    2 FREDV-TB FREE SEL CHNL                  81334900
1806 1 6C00 18CF        STX    L FRESW       SET SC FREED SW             81334910
1808 0 4480 0131  TLG02 BSI    I REQDV       REQUEST DEVICE              81334920
180A 1 181F             DC       TLG03          BUSY RETURN              81334930
180B 1 0813             DC       TLGED      EDIT FOR PRINTED             81334940
180C 1 1893             DC       TLGDA      AREA CODE GIVEN BACK         81334950
180D 1 080C             DC       TERM        TERMINATOR                  81334960
                  *                                                      81334970
180E 0 C2DB             LD     2 T45SW-TB    GET 43/53 SW                81334980
180F 1 4C04 1816        BOD      TLG40       BR IF 43                    81334990
                  *                                                      81335000
1811 0 C2AC             LD     2 H0100-TB    ELSE BUILD WRITE IOCC       81335010
1812 1 EC00 1893        OR     L TLGDA       *                           81335020
1814 0 D254             STO    2 TLGWR+1-TB *                            81335030
1815 0 7003             MDX      TLGCM       GO TO COMMON ROUTINE        81335040
                  *                                                      81335050
1816 0 C2AF       TLG40 LD     2 H0500-TB    CREATE WRITE IOCC           81335060
1817 0 E87B             OR       TLGDA     OR IN AREA CODE               81335070
1818 0 D254             STO    2 TLGWR+1-TB                              81335080
1819 0 C2B0       TLGCM LD     2 H0700-TB    CREATE SENSE IOCC           81335090
181A 0 E878             OR       TLGDA     OR IN AREA CODE               81335100
181B 0 D256             STO    2 TLGSN+1-TB                              81335110
181C 0 EA97             OR     2 K1-TB    SET RESET BIT                  81335120
181D 0 D25A             STO    2 TLGSR+1-TB    ***                       81335130
181E 0 7002             MDX      TLG04        GO TO PRINT                81335140
                  *                                                      81335150
181F 0 42EE       TLG03 BSI    2 STMLS-TB     GO TO MONITOR              81335160
1820 0 70E7             MDX      TLG02        LOOP TO TRY AGAIN          81335170
                  *                                                      81335180
1821 1 6580 18CE  TLG04 LDX   I1 LEXIT+1   GET CALLING RTN ADDR          81335190
1823 0 C100             LD     1 0            GET MSG ADDRESS            81335200
1824 0 D001             STO      *+1          SET FOR LOAD INDEX         81335210
1825 0 6500 0000        LDX   L1 *-*          LOAD REG                   81335220
1827 1 6D00 18D2        STX   L1 TLGCH+2     SAVE IN 'GET CHAR' RTN      81335230
1829 1 6780 08D2        LDX   I3 TLGWR        GET WRD COUNT ADDRESS      81335240
182B 0 6B16             STX    3 TLGBP+1      SET FOR BUMPING            81335250
                  *                                                      81335260
182C 0 C100             LD     1 0         GET FIRST DATA  ORD           81335270
182D 0 F28D             EOR    2 TERM-TB   COMPARE WITH /FFFF            81335280
182E 1 4C18 1834        BZ       TLG05      BR IF YES                    81335290
                  *                                                      81335300
1830 0 C280             LD     2 TPID-TB    GET PID                      81335310
1831 0 E2B7             AND    2 H7FFF-TB   DROP SELECT BIT              81335320
1832 0 42F1             BSI    2 TCVBE-TB   CONVERT TO 1443 CODE         81335330
1833 0 DB02             STD    3 2          SET IN MSG                   81335340
                  *                                                      81335350
1834 0 1010       TLG05 SLA      16         CLEAR 1ST/2ND CHAR SWITCH    81335360
1835 0 D258             STO    2 TLGSW-TB         ***                    81335370
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1836 0 D259              STO   2 TLGSW+1-TB                          81335380
1837 0 D05A              STO     TLGIS          CLEAR  INT.  SW     81335390
1838 0 C299              LD    2 K3-TB           **                  81335400
1839 0 D300              STO   3 0                                   81335410
183A 0 7301              MDX   3 1            BUMP TO PT TO BUFFER   81335420
                     *                                               81335430
183B 1 4400 18D0 TLG06 BSI  L  TLGCH          GET A CHARACTER        81335440
183D 0 700F              MDX     TLG07         COME HERE FOR HEX FF   81335450
183E 0 1008              SLA     8             PUT IN HIGH ORDER BYTE 81335460
183F 0 EA55              OR    2 TLGSP-TB       SET LOW ORDER TO SP   81335470
1840 0 D303              STO   3 3             STORE IN BUFFER        81335480
1841 0 7401 0000 TLGBP MDX  L  *-*,1           BUMP WORD COUNT        81335490
1843 1 4400 18D0         BSI  L  TLGCH         GET ANOTHER CHARACTRR  81335500
1845 0 7007              MDX     TLG07          IF CHARACTER IS HEX FF 81335510
1846 0 1888              SRT     8             CHARACTER TO Q         81335520
1847 0 C303              LD    3 3             GET LAST CHARACTER     81335530
1848 0 1808              SRA     8             BYTE TO LOW POSITION   81335540
1849 0 1088              SLT     8             COMBINED BYTES IN A    81335550
184A 0 D303              STO   3 3             STORE IN BUFFER        81335560
184B 0 7301              MDX   3 1             BUMP SINK              81335570
184C 0 70EE              MDX     TLG06          LOOP UNTIL HEX FF     81335580
                     *                                               81335590
                     *                                               81335600
                     *     TEST FOR 1443. IF YES GO TO XIO           81335610
                     *     IF 1053 DO A CARRIAGE RETURN              81335620
184D 0 C2DB          TLG07 LD    2 T45SW-TB    GET 43/53 SW           81335630
184E 1 4C04 187A           BOD     TLG42        BR IF 1443             81335640
                     *     PUT TERMINATOR IN MESSAGE                 81335650
1850 0 C259              LD    2 TLGSW+1-TB GET 1ST/2ND CHAR SW       81335660
1851 1 4C18 1855         BZ      TLG08         BR IF 2ND CHAR         81335670
1853 0 C28C              LD    2 HFF00-TB     ELSE GET TERM           81335680
1854 0 D303              STO   3 3             PUT IN MESSAGE         81335690
1855 0 C2AB          TLG08 LD    2 H00FF-TB    GET TERMINATOR          81335700
1856 0 E803              OR    3 3             PUT IN MESSAGE         81335710
1857 0 D303              STO   3 3             *                      81335720
1858 1 6500 18EF         LDX  L1 TLGBA+1       SET UP BUFFER POINTER  81335730
185A 0 6936              STX   1 TLGSV         SAVE                   81335740
185B 0 1010              SLA     16            CLEAR -                81335750
185C 0 D258              STO   2 TLGSW-TB     * 2ND CHAR SW           81335760
                     *     START LINE WITH A **CARRIAGE RETURN**     81335770
185D 0 C032              LD      TLGCR         GET CR CHARACTER       81335780
185E 1 D400 18EE         STO  L  TLGBA         PUT IN OUTPUT AREA     81335790
1860 0 7023              MDX     TLG43         GO PRINT               81335800
                     *     COME FROM INTERRUPT ROUTINE IF 1053       81335810
1861 1 6580 1891 TLGPR LDX  I1 TLGSV          RESTORE POINTER        81335820
1863 0 C258              LD    2 TLGSW-TB      GET 2ND CHAR SW        81335830
1864 1 4C18 186D         BZ      TLG09         BR IF 0 (CHAR 1)       81335840
1866 0 1010              SLA     16            ELSE RESET SW          81335850
1867 0 D258              STO   2 TLGSW-TB     *                       81335860
1868 0 C100              LD    1 0             GET CHARACTERS         81335870
1869 0 1008              SLA     8             SAVE 2ND CHAR          81335880
186A 0 7101              MDX   1 1             BUMP POINTER           81335890
186B 0 6925              STX   1 TLGSV         SAVE                   81335900
186C 0 7005              MDX     TLG10         GO TO COMMON RTN       81335910
                     *     GET HERE IF PRINTING CHAR 1               81335920
186D 0 C100          TLG09 LD    1 0             GET CHARACTERS       81335930
186E 0 1808              SRA     8             *                      81335940
186F 0 1008              SLA     8             *                      81335950
1870 1 6C00 08D7         STX  L  TLGSW         SET 2ND CHAR SW        81335960
                     *     GET HERE IF PRINTING CHARACTER 2          81335970
1872 0 928C          TLG10 S     2 HFF00-TB    TEST FOR END 0' LINE   81335980
1873 1 4C18 18B0         BZ      TLGX2         BR IF YES              81335990
1875 0 828C              A     2 HFF00-TB      ELSE RESTORE CHARACTER 81336000
1876 0 1808              SRA     8             RIGHT JUSTIFY CHAR     81336010
1877 1 4400 199B         BSI  L  TCV45         CONVERT TO 1816 CODE   81336020
1879 0 D074              STO     TLGBA         PUT IN OUTPUT AREA     81336030
                     *                                               81336040
                     *     DO XIO WRITE -                            81336050
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                     *          PRINT A LINE (1443)                  81336060
                     *          PRINT A CHARACTER (1053)             81336070
                     *                                               81336080
187A 0 0A55          TLG42 XIO   2 TLGSN-TB    SENSE DSW              81336090
187B 0 18D0              RTE       16          A TO Q                 81336100
187C 0 C2DB              LD    2 T45SW-TB                             81336110
187D 0 4804              SKP       E           SKP IF 53              81336120
187E 0 108A              SLT       10          SHIFT 31 FOR 43        81336130
187F 0 1095              SLT       21          SLT 21 FOR 1053/1826   81336140
1880 1 4C10 1884         BNN     TLG43         BR IF READY            81336150
1882 0 42EE              BSI   2 STMLS-TB      GO TO MONITOR          81336160
1883 0 70F6              MDX     TLG42         LOOP UNTIL READY       81336170
                     *                                               81336180
1884 0 0A53          TLG43 XIO   2 TLGWR-TB                          81336190
1885 0 680C              STX       TLGIS       SET INT SW             81336200
1886 0 C28D              LD    2 TERM-TB       GET /FFFF              81336210
1887 0 D257              STO   2 TLGCT-TB      SET LOOP COUNT         81336220
                     *                                               81336230
1888 0 42EE          TLG11 BSI   2 STMLS-TB    GO TO MONITOR          81336240
1889 0 C008              LD        TLGIS       TEST FOR INT           81336250
188A 1 4C18 18AC         BZ        TLGXR       BR IF IT HAPPENED      81336260
188C 1 74FF 08D6         MDX  L  TLGCT,-1      DECR COUNT             81336270
188E 0 70F9              MDX     TLG11         LOOP                   81336280
                     ********************************************** 81336290
188F 0 70FF              MDX     *-1           TRAP STOP              81336300
                     ********************************************** 81336310
                     *                                               81336320
                     ********************************************** 81336330
                     *                                            * 81336340
                     ********************************************** 81336350
                     *                                               81336360
                     *     PRINT INTERRUPT ROUTINE                   81336370
                     *                                               81336380
1890 0 8100          TLGCR DC        /8100       CARRIAGE*RETURN    81336390
1891 0 0000          TLGSV DC        *-*         SAVE BUFFER POINTER  81336400
1892 0 0000          TLGIS DC        0           INT SW               81336410
1893 0 0000          TLGDA DC        *-*         AREA CODE PUT HERE BY MON 81336420
1894 0 0000          TLGIN DC        *-*         INTERRUPT ENTRY POINT  81336430
1895 0 C0FC              LD          TLGIS       GET INT SWITCH       81336440
1896 0 4818              SKP         +-          SKIP IF NONZERO      81336450
                     ********************************************** 81336460
1897 0 70FF              MDX         *-1         TRAP STOP            81336470
                     ********************************************** 81336480
1898 1 0C00 08D8         XIO  L      TLGSR       SENSE RESET DSW      81336490
189A 1 4C28 18A0         BN          TLG12       BR IF XFER COMPLETE  81336500
189C 0 1002              SLA         2           TEST FOR PRINT COMPLETE 81336510
189D 1 4C28 18A8         BN          TLG13       BR IF YES            81336520
                     ********************************************** 81336530
189F 0 70FF              MDX         *-1         TRAP STOP            81336540
                     ********************************************** 81336550
                     *                                               81336560
18A0 0 18D0          TLG12 RTE       16          SAVE DSW             81336570
18A1 0 C2DB              LD      2 T45SW-TB      GET 43/53 SW         81336580
18A2 0 F297              EOR     2 K1-TB         TEST FOR 1443        81336590
18A3 1 4C20 18A8         BNZ       TLG13         BR IF 1053           81336600
18A5 0 1092              SLT       18            GET DSW (PRINT COMPL) 81336610
18A6 1 4C10 18AA         BNN       TLG13+2                            81336620
                     *                                               81336630
18A8 0 1010          TLG13 SLA       16                             81336640
18A9 0 D0E8              STO         TLGIS       CLEAR INT SWITCH     81336650
18AA 1 4C80 1894         BSC  I      TLGIN       EXIT INT ROUTINE     81336660
                     *                                               81336670
                     ********************************************** 81336680
                     *                                            * 81336690
                     ********************************************** 81336700
                     *                                               81336710
                     *     MONITOR COMES HERE FROM INT RTN           81336720
                     *                                               81336730
```

```
                18AC 0 C041          TLGXR LD      TLGBA      GET WORD COUNT              81336740
                18AD 0 1E08                SRA     8         TEST FOR 1053 CHAR          81336750
                18AE 1 4C20 1861           BNZ     TLGPR      BR IF 1053                 81336760
                                     *                                                   81336770
                18B0 1 6780 08D2     TLGX2 LDX  I3 TLGWR      GET BUFFER ADDRESS          81336780
                18B2 0 6B8F                STX   3 TLGBP+1    SET  PTR TO WORD COUNT     81336790
                18B3 0 C299                LD    2 K3-TB      SET WRD CNT=3              81336800
                18B4 0 D300                STO   3 0          ***                        81336810
                18B5 0 7301                MDX   3 1          BUMP POINTER               81336820
                18B6 0 10A0                SLT     32         SET PID=BLANKS IN MESSAGE  81336830
                18B7 0 DB01                STD   3 1          *                          81336840
                18B8 0 D258                STO   2 TLGSW-TB   CLEAR 2ND CHAR SW          81336850
                18B9 0 4016                BSI     TLGCH      GET A CHARACTER            81336860
                18BA 0 7001                MDX     TLG15      HERE IF HEX /00FF          81336870
                18BB 0 7082                MDX     TLG06+3    ELSE LOOP                  81336880
                                     *                                                   81336890
                18BC 0 4480 0132     TLG15 BSI  I   RELDV      GO RELEASE DEVICE          81336900
                18BE 1 0813                DC      TLGED     ADDRS OF EDIT WRD           81336910
                18BF 1 080C                DC      TERM                                  81336920
                18C0 0 C00E                LD      FRESW     GET CHNL RELS SW            81336930
                18C1 0 4820                BSC     Z         SKIP IF NOT SET             81336940
                18C2 0 42E5                BSI   2 GETDV-TB ELSE GET CHNL               81336950
                                     *                                                   81336960
                18C3 0 1010                SLA     16        RESET-                    81336970
                18C4 0 D00A                STO     FRESW     * CHNL RELS SW            81336980
                                     *                                                   81336990
                18C5 1 7401 18CE     TLGEN MDX  L   LEXIT+1,1 BUMP RETURN BY 1          81337000
                18C7 0 6700 0000     TLGX3 LDX  L3  *-*        RESTORE REG              81337010
                18C9 0 6500 0000           LDX  L1  *-*        RESTORE REG              81337020
                18CB 0 1010                SLA     16        RESET LOG BUSY SW         81337030
                18CC 0 D2D5                STO   2 LGBSY-TB   *                        81337040
                18CD 0 4C00 0000     LEXIT BSC  L   *-*        EXIT PRINT RTN           81337050
                                     *                                                   81337060
                18CF 0 0000          FRESW DC       0         CHNL RELEASED SW         81337070
                                     ************************************************** 81337080
                                     *                                                * 81337090
                                     ************************************************** 81337100
                                     *                                                   81337110
                                     *     FETCH ONE CHARACTER FROM SOURCE MESSAGE       81337120
                                     *                                                   81337130
                18D0 0 0000          TLGCH DC       *-*        ENTRY POINT              81337140
                18D1 0 6500 0000           LDX  L1  *-*        SET UP POINTER           81337150
                18D3 0 C259                LD    2 TLGSW+1-TB GET 1/2 CHARACTER SW     81337160
                18D4 1 4C20 18DB           BNZ     TLG16      BR IF SET                81337170
                18D6 1 6C00 08D8           STX  L  TLGSW+1    SET SW                   81337180
                18D8 0 C100                LD    1 0          GET TWO CHARACTERS       81337190
                18D9 0 1808                SRA     8          KEEP HIGH ORDER ONE      81337200
                18DA 0 7007                MDX     TLG17      GO TO COMMON RTN         81337210
                                     *                                                   81337220
                18DB 0 1010          TLG16 SLA      16        CLEAR 1ST/2ND CHAR SW    81337230
                18DC 0 D259                STO   2 TLGSW+1-TB *                        81337240
                18DD 0 C100                LD    1 0          GET TWO CHARACTERS       81337250
                18DE 0 1008                SLA     8          KEEP LOW ORDER ONE       81337260
                18DF 0 1808                SRA     8          ****                     81337270
                18E0 0 7101                MDX   1 1          BUMP SOURCE POINTER      81337280
                18E1 0 69F0                STX   1 TLGCH+2    SAVE                     81337290
                                     *                                                   81337300
                18E2 1 4C20 18E5     TLG17 BNZ      TLG18      SET TO SPACE IF ZERO     81337310
                18E4 0 C255                LD    2 TLGSP-TB     ***                   81337320
                18E5 0 F2AB          TLG18 EOR    2 H00FF-TB   TEST FOR HEX FF         81337330
                18E6 1 4C98 18D0           BZ   I   TLGCH     EXIT IF HEX FF           81337340
                18E8 0 F2AB                EOR    2 H00FF-TB RE-INVERT IT             81337350
                18E9 1 7401 18D0           MDX  L   TLGCH,1   BUMP RETURN ADDRESS      81337360
                18EB 1 4C80 18D0           BSC  I   TLGCH     EXIT THIS RTN            81337370
                                     *                                                   81337380
                18EE   0000                BSS  E 0                                    81337390
                18EE 0 0000          TLGBA DC       *-*        WORD COUNT FOR PRNT LINE 81337400
                18EF   0003                PRNT     • XXXX•  PID GOES HERE            81337410
```



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                18F2   0037                BSS     55         LENGTH OF BUFFER         81337420
                                     ************************************************** 81337430
                                     *                                                * 81337440
                                     ************************************************** 81337450
                                     ************************************************** 81337460
                                     *                                                * 81337470
                                     ************************************************** 81337480
                                     *                                                   81337490
                                     *      CONVERT HEX WORD TO 1443 CODE                81337500
                                     *                                                   81337510
                                     ************************************************** 81337520
                                     *                                                * 81337530
                                     ************************************************** 81337540
                1929 0               TCVBN EQU      *          ENTRY POINT              81337550
                                     *                                                   81337560
                1929 0 18D0                RTE     16                                   81337570
                192A 0 400E                BSI     TCV01      GET NEXT CHARACTER        81337580
                192B 0 1008                SLA     8                                    81337590
                192C 0 D2C3                STO   2 TCVS1-TB                            81337600
                192D 0 400B                BSI     TCV01      GET NEXT CHARACTER        81337610
                192E 0 EAC3                OR    2 TCVS1-TB                            81337620
                192F 0 D2C3                STO   2 TCVS1-TB                            81337630
                                     *                                                   81337640
                                     *                                                   81337650
                1930 0 4008                BSI     TCV01      GET NEXT CHARACTER        81337660
                1931 0 1008                SLA     8                                    81337670
                1932 0 D2C4                STO   2 TCVS2-TB                            81337680
                1933 0 4005                BSI     TCV01      GET NEXT CHARACTER        81337690
                1934 0 EAC4                OR    2 TCVS2-TB                            81337700
                1935 0 1890                SRT     16                                   81337710
                1936 0 C2C3                LD    2 TCVS1-TB                            81337720
                1937 1 4C80 0870           BSC  I  TCVBE                               81337730
                                     *                                                   81337740
                1939 0 0000          TCV01 DC       *-*        ENTRY                    81337750
                193A 0 1010                SLA     16                                   81337760
                193B 0 1084                SLT     4                                    81337770
                193C 1 4C20 1941           BNZ     TCV02      BR IF NOT ZERO           81337780
                193E 0 C2A2                LD    2 H000A-TB     0=/0A                 81337790
                193F 1 4C80 1939           BSC  I  TCV01      EXIT                     81337800
                                     *                                                   81337810
                1941 0 929D          TCV02 S      2 K9-TB      SUBTRACT 9               81337820
                1942 0 4830                SKP     Z-                                   81337830
                1943 0 82A9                A     2 H0027-TB   ADD BACK A CONSTANT       81337840
                1944 0 829D                A     2 K9-TB                               81337850
                                     *                                                   81337860
                1945 1 4C80 1939           BSC  I  TCV01      EXIT                     81337870
                                     *                                                   81337880
                                     ************************************************** 81337890
                                     *                                                * 81337900
                                     ************************************************** 81337910
                                     *                                                   81337920
                                     *   CONVERT HEX TO DECIMAL, A REG TO A REG          81337930
                                     *                                                   81337940
                                     *     *** CALL - BSI    2 TCVHD-TB ***              81337950
                                     ************************************************** 81337960
                                     *                                                * 81337970
                                     ************************************************** 81337980
                                     *                                                   81337990
                1947 1 4CA8 0873     THEXD BN   I   TCVHD      EXIT IF NEG              81338000
                1949 0 1890                SRT     16                                   81338010
                194A 0 AAA1                D     2 K1000-TB   MOST SIGNIFICANT DIGIT    81338020
                194B 0 100C                SLA     12         POSITION DIGIT           81338030
                194C 0 D00D                STO     THEXS                               81338040
                194D 0 1004                SLA     4          CLEAR A REG              81338050
                                     *                                                   81338060
                194E 0 AAA0                D     2 K100-TB    NEXT SIGNIFICANT DIGIT   81338070
                194F 0 1008                SLA     8          POSITION DIGIT           81338080
                1950 0 E809                OR      THEXS                               81338090
```

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1951 0 D008                STO     THEXS                                  81338100
1952 0 1008                SLA     8           CLEAR A REG                81338110
                           *                                              81338120
1953 0 AA9E                D     2 K10-TB      NEXT SIGNIFICANT DIGIT     81338130
1954 0 108C                SLT     12          COMBINE LAST TWO DIGITS    81338140
1955 0 180C                SRA     12          ***                        81338150
1956 0 1084                SLT     4           ***                        81338160
1957 0 E802                OR      THEXS                                  81338170
1958 1 4C80 0873           BSC   I TCVHD                                  81338180
                           *                                              81338190
195A 0 0000                THEXS DC      0     TEMP STORAGE               81338200
                           *                                              81338210
                           ************************************************ 81338220
                           *                                              * 81338230
                           ************************************************ 81338240
                           *                                              81338250
                           ************************************************ 81338260
                           *                                              * 81338270
                           ************************************************ 81338280
                           *                                              * 81338290
                           *     TERLP IS CALLED BY A **BSI  2 TLPER-TB**   * 81338300
                           *           TO TEST THE LOOP ERROR OPTION AND    * 81338310
                           *           BR TO THE LOOP ADDR IF BIT 12 IS SET * 81338320
                           *                                              * 81338330
                           ************************************************ 81338340
                           *                                              * 81338350
                           ************************************************ 81338360
                           *                                              81338370
195B 0 C283                TERLP LD    2 TSW0-TB     GET OPTION SWS       81338380
195C 0 100C                      SLA     OLPER       TEST LOOP ON ERROR   81338390
195D 1 4C28 1963                 BN      TER01       YES                  81338400
                           *                                              81338410
195F 1 7401 0882                 MDX   L TLPER,1     NO,BUMP RETURN       81338420
1961 1 4C80 0882                 BSC   I TLPER       CONTINUE             81338430
                           *                                              81338440
1963 1 C480 0882           TER01 LD    I TLPER       GET LOOP ADDRESS     81338450
1965 0 D001                      STO     TER02+1     PUT IN RETURN        81338460
1966 0 4C00 0000           TER02 BSC   L *-*         CONTINUE             81338470
                           *                                              81338480
                           ************************************************ 81338490
                           *                                              * 81338500
                           ************************************************ 81338510
                           *                                              * 81338520
                           *     TSTLP IS CALLED BY A **BSI  2 TLPST-TB**   * 81338530
                           *           TO TEST THE LOOP START I/O OPTION    * 81338540
                           *           AND BR TO THE LOOP ADDR IF BIT       * 81338550
                           *           8 IS SET                             * 81338560
                           *                                              81338570
                           ************************************************ 81338580
                           *                                              * 81338590
                           ************************************************ 81338600
                           *                                              81338610
1968 0 C283                TSTLP LD    2 TSW0-TB     GET OPTION SWS       81338620
1969 0 1008                      SLA     OLPST       TEST LOOP SIO        81338630
196A 1 4C28 1970                 BN      TST01       YES                  81338640
                           *                                              81338650
196C 1 7401 0885                 MDX   L TLPST,1     NO,BUMP RETURN       81338660
196E 1 4C80 0885                 BSC   I TLPST       CONTINUE             81338670
                           *                                              81338680
1970 1 C480 0885           TST01 LD    I TLPST       GET LOOP ADDRESS     81338690
1972 0 D001                      STO     TST02+1     PUT IN RETURN        81338700
1973 0 4C00 0000           TST02 BSC   L *-*         CONTINUE             81338710
                           *                                              81338720
1975 1 74FD 0885           TST03 MDX   L TLPST,-3    GO BACK              81338730
1977 1 C400 0885                 LD    L TLPST                            81338740
1979 0 D001                      STO     TST04+1                          81338750
197A 0 4C00 0000           TST04 BSC   L *-*                              81338760
                           ************************************************ 81338770
```



```
                           *                                              * 81338780
                           ************************************************ 81338790
                           *                                              81338800
                           *     CALL     BSI L TCVSR                     81338810
                           *     GET AQ = SPACE/SECT/SPACE/RTN            81338820
                           *                                              81338830
                           ************************************************ 81338840
                           *                                              * 81338850
                           ************************************************ 81338860
197C 0 0000                TCVSR DC      *-*                              81338870
197D 0 680A                      STX   3 TCVSZ+1     SAVE REG             81338880
197E 1 6780 0815                 LDX   I3 TRID       GET ROUTINE NUMBER   81338890
1980 1 C700 198B                 LD    L3 DIGIT      GT PRINTABLE CODE    81338900
1982 0 1890                      SRT     16          A TO Q               81338910
1983 1 6780 0800                 LDX   I3 TSID       GET SECT NUMBER      81338920
1985 1 C700 198A                 LD    L3 DIGIT-1    GET PRINTABLE CODE   81338930
1987 0 6700 0000           TCVSZ LDX   L3 *-*        RESTORE REG          81338940
1989 1 4C80 197C                 BSC   I TCVSR       EXIT                 81338950
                           *                                              81338960
198B   0016                DIGIT PRNT    . 0 1 2 3 4 5 6 7 8 9 A B C D E F. 81338970
                           ************************************************ 81338980
                           *                                              * 81338990
                           ************************************************ 81339000
                           *                                              81339010
                           *     CONVERT 1443 CODE TO 1816/1053 CODE      81339020
                           *                                              81339030
                           ************************************************ 81339040
                           *                                              * 81339050
                           ************************************************ 81339060
199B 0 0000                TCV45 DC      *-*                              81339070
199C 0 6845                      STX   3 TCVSV+1                          81339080
199D 0 D043                      STO     TCVSV       SAVE 1443 CHAR       81339090
199E 1 6700 19B4                 LDX   L3 TCVTB      SET UP POINTER       81339100
19A0 0 10A0                      SLT     32           CLEAR AQ            81339110
19A1 0 C300                TCV03 LD      3 0          PICK UP NEXT ENTRY IN TBL 81339120
19A2 0 18C8                      RTE     8            DELETE TR CHAR       81339130
19A3 0 F03D                      EOR     TCVSV       TEST CHAR            81339140
19A4 1 4C18 19AD                 BZ      TCV04        CHAR COMPARES        81339150
                           *                                              81339160
19A6 0 1088                      SLT     8           RESTORE Q REG=0      81339170
19A7 0 E2AB                      AND   2 H00FF-TB SET UP TO TEST          81339180
19A8 0 F2AB                      EOR   2 H00FF-TB * FOR TERMINATOR        81339190
19A9 1 4C18 19AF                 BZ      TCVEN       GO TO END ROUTINE    81339200
                           *                                              81339210
19AB 0 7301                      MDX   3 1            INC POINTER         81339220
19AC 0 70F4                      MDX     TCV03        RETURN TO LOOP      81339230
                           *                                              81339240
19AD 0 18D0                TCV04 XCH                  RESTORE TR CHAR      81339250
19AE 0 4818                      SKP     +-          EXIT                 81339260
                           *                                              81339270
19AF 0 C030                      LD      TCVSP       SET UP SPACE         81339280
19B0 1 6700 19E2                 LDX   L3 TCVSV+1    RESTORE XR3          81339290
19B2 1 4C80 199B                 BSC   I TCV45       EXIT                 81339300
                           ************************************************ 81339310
                           *                                              * 81339320
                           ************************************************ 81339330
1984 0 313E                TCVTB DC      /313E       A(1443,TILT-ROTATE)  81339340
1985 0 321A                      DC      /321A       B                    81339350
1986 0 331E                      DC      /331E       C                    81339360
1987 0 3432                      DC      /3432       D                    81339370
1988 0 3536                      DC      /3536       E                    81339380
1989 0 3612                      DC      /3612       F                    81339390
198A 0 3716                      DC      /3716       G                    81339400
198B 0 3826                      DC      /3826       H                    81339410
198C 0 3922                      DC      /3922       I                    81339420
198D 0 217E                      DC      /217E       J                    81339430
198E 0 225A                      DC      /225A       K                    81339440
198F 0 235E                      DC      /235E       L                    81339450
```

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19C0 0 2472              DC     /2472     M                    81339460
19C1 0 2576              DC     /2576     N                    81339470
19C2 0 2652              DC     /2652     O                    81339480
19C3 0 2756              DC     /2756     P                    81339490
19C4 0 2866              DC     /2866     Q                    81339500
19C5 0 2962              DC     /2962     R                    81339510
19C6 0 129A              DC     /129A     S                    81339520
19C7 0 139E              DC     /139E     T                    81339530
19C8 0 14B2              DC     /14B2     U                    81339540
19C9 0 15B6              DC     /15B6     V                    81339550
19CA 0 1692              DC     /1692     W                    81339560
19CB 0 1796              DC     /1796     X                    81339570
19CC 0 18A6              DC     /18A6     Y                    81339580
19CD 0 19A2              DC     /19A2     Z                    81339590
                    *                                          81339600
19CE 0 01FC              DC     /01FC     1(1443,TILT-ROTATE)  81339610
19CF 0 02D8              DC     /02D8     2                    81339620
19D0 0 03DC              DC     /03DC     3                    81339630
19D1 0 04F0              DC     /04F0     4                    81339640
19D2 0 05F4              DC     /05F4     5                    81339650
19D3 0 06D0              DC     /06D0     6                    81339660
19D4 0 07D4              DC     /07D4     7                    81339670
19D5 0 08E4              DC     /08E4     8                    81339680
19D6 0 09E0              DC     /09E0     9                    81339690
19D7 0 0AC4              DC     /0AC4     0                    81339700
                    *                                          81339710
19D8 0 0021              DC     /0021     SP(1443,TILT-ROTATE) 81339720
19D9 0 2CD6              DC     /2CD6     *                    81339730
19DA 0 1CFE              DC     /1CFE     (                    81339740
19DB 0 3CF6              DC     /3CF6     )                    81339750
19DC 0 11BC              DC     /11BC     /                    81339760
19DD 0 2084              DC     /2084     -                    81339770
19DE 0 0BC2              DC     /0BC2     =                    81339780
19DF 0 00FF         TCVTC DC    /00FF     TERM                 81339790
19E0 0 2100         TCVSP DC    /2100     SPACE                81339800
19E1 0 0000         TCVSV DC    0         TEMP STORAGE         81339810
19E2 0 0000               DC    0                              81339820
19E2 0              PEND  EQU   *-1       PROGRAM END          81339830
19E4   09C0               END   BGIN                           81339840
  NO STATEMENTS FLAGGED IN THE ABOVE ASSEMBLY
```



```
BEGIN   012C  09C0
BGIN    09C0  19E4
CAWSV   0844  1503 176A
CCWSN   0BFA  0B49 0C3A 0D1D 0D2B 0DFB 0E09
CCWTS   0BF7  0D0C 0DE8
CC311   0DC5  0D02 129F 131C
CC321   0EA3  0DE0
CLRST   088E  0B3C 0B47 0B62 0C2D 0C38 0C53 0D00 0D0A 0D0D 0D1B 0D29 0D38 0DDE
              0DE6 0DEB 0DF9 0E07 0E16 14BF
CLSET   14BA  088F
CNTDN   083E  156B 1576
CNTRL   085B  0A6A 0AF7 0B1E 0BBF 0CB0 0CE2 0D93 0E71 0EA9 0F14 1019 1120 11FB
              12D2 134F 13D4 1477 14A8
CRCK    0133
CUU11   0A83  0A35
CUU22   0A85  0A39
CYHDA   0B1B  0B1A
CYHDB   0BFD  0BF3 0BF6 0DC7 0DCA 0EA5 0EA8
DELAY   0891  0ED9 0EEB 0FDE 0FF0 10E4 10F7 11BF 11D2 12A6 1289 1323 1336 1393
              1396 13A8 1436 1439 144B 14CE
DIGIT   198B  1980 1985
DLAYE   14C1  0892
DLAYL   14C9  14CB
DLYSV   14CC  14C1
DVADR   0853  0908 0A32 0D3C 0E1A 14AC 14B4 14D9 1746
END     012E  0EBC
EPA     0808
ERADR   17E3  0B39 0C2A 0CFD 0DDB 17DD
ERASE   0011
ERMSG   16C8  1735 1739 173F 1741 1743 175C
EROUT   085E  0973 0AE4 0AEE 0B78 0B7F 0B87 0B8E 0B96 0B9C 0BA3 0BAB 0BB2 0BB8
              0C69 0C70 0C78 0C7F 0C87 0C8D 0C94 0C9C 0CA3 0CA9 0D43 0D4A 0D52
              0D59 0D61 0D68 0D70 0D77 0D7F 0D86 0D8C 0E21 0E28 0E30 0E37 0E3F
              0E46 0E4E 0E55 0E5D 0E64 0E6A 0F01 0F0B 1006 1010 110D 1117 11E8
              11F2 12BF 12C9 133C 1346 13C1 13CB 1464 146E 153B 1546 1560 1590
              15A1 1615 1621 1711 1716 171A 171D 174A 179F 17DF 17E1
ERROR   0130
ERTNE   170A  085F
ERTN2   171D  170B 1714
ERTN3   1725  1721
ERTN4   172F  172E 1738
ERTN5   1739  1732
ERTN6   173D  172A
ERTN7   1746  173C
ERTN8   1752  1750 175A 17AC 17BF 17C8
ERTN9   175B  1757
ERTSV   0846  17AF 17C7
ERT10   175D  1727
ERT11   176F  1763
ERT12   17A1  1771
ERT13   17AE  17CA
ERT14   17CB  17A3
ERT15   17D2  175F
ERT16   17D7  17D4
ERT17   17D9  170D 170F
ERT18   17DF  17D0
FBRST   0004
FDRDY   0018
FECYL   001D
FEOCY   000A
FLCCH   0040
FLDCH   0080
FLPCI   0010
FLSKP   0008
FLSLI   0020  0B19 0DC9 0EA7
FNORC   000C
FONLN   0019
FOVRN   0005
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FRDVE   14F2  0862
FREDV   0861  0A1E 0AF3 0BBB 0CAC 0D8F 0E6D 0F10 1015 111C 11F7 12CE 134B 13D0
              1473 14AA 14B2 14F8 1805
FRESW   18CF  09C9 17FD 1806 18C0 18C4
FSERD   0012
FSKCK   0007
FSKIN   001F  1550
FTROV   0009
FUNSF   0010
FUNSI   001A
FUNSL   0015
GETDV   0864  0A1D 0AC1 0B36 0C27 0CFA 0DD8 0ED6 0FDB 10E0 11BB 1296 1313 1390
              1433 14AD 14B5 14F0 18C2
GETSN   0867  154E 1605 1718
GTDVE   14D0  0865
GTDV1   14D0  14D3
GTSNS   15E7  0868
GTSNX   15FD  15E7 15E8
GTSN0   15ED  1618 1624
GTSN1   15F3  15F5
GTSN2   1607  15F1 15FB
GTSN3   1619  1610
GTSN4   161E  1626
GTSN5   1625  161B
HA      08CE
HFF00   0838  09D2 1853 1872 1875
HF00    083A  14BC
HIOXX   08A8  091D 0948 14DA 15A4
H0A00   0830
H00FF   082A  0A2B 0A48 0ACC 0ADA 0B42 0B4D 0B68 0B73 0C33 0C3E 0C59 0C64 0D06
              0D13 0D21 0D2F 0DE2 0DF1 0DFF 0E0D 0EF8 0FFD 10F1 1104 11CC 11DF
              1283 1330 13B2 1455 1855 18E5 18E8 19A7 19A8
H000A   0821  193E
H000C   0823  0ACD 0ADB 0B43 0B69 0C34 0C5A 0D14 0D30 0DF2 0E0E 0EF9 0FFE 10F2
              1105 11CD 11E0 12B4 1331 13B3 1456
H000E   0822
H0010   0824  0B4E 0C3F
H0011   0825  155A
H0013   0826  1556
H0020   0827  0D3E 0E1C
H0027   0828  1943
H0050   0829  0D22 0E00
H0100   082B  14DB 161D 1811
H0200   082C  1625
H0400   082D  14D7
H0500   082E  1816
H0700   082F  14DF 1819
H1206   0831  0B7B 0B8A 0B9F 0BAE 0C6C 0C7B 0C90 0C9F 0D46 0D55 0D64 0D73 0D82
              0E24 0E33 0E42 0E51 0E60
H2100   0832  1612 161E
H2106   0833  0AE0 0AEA 0EFD 0F07 1002 100C 1109 1113 11E4 11EE 1288 12C5 1338
              1342 13BD 13C7 1460 146A
H3000   0834  0A18
H4000   0835  0AC3 0AD1 0EDB 0EEC 0FE0 0FF1 10E5 10F8 11C0 11D3 129C 12A7 1319
              1324 1398 13A9 143B 144C
H7FFF   0836  1831
H8010   0837  0D34 0E12
H8106   0838  0AE2 0AEC 0B7D 0B8C 0BA1 0BB0 0C6E 0C7D 0C92 0CA1 0D48 0D57 0D66
              0D84 0E26 0E35 0E44 0E62 0EFF 0F09 1004 100E 110B 1115 11E6 11F0
              128D 12C7 133A 1344 13BF 13C9 1462 146C
H8107   0839  0D75 0E53
ILSIO   1524  151F
INTFA   083C  0A31 14AB
INTFB   083D  0A2C 0A36 14B3
IPA     0806
K1      0816  09D4 09EF 0A1A 0A1B 0A5A 0AB8 0B2D 0C1E 0CF1 0DCF 0ECD 0FD2 10D7
              11B2 128D 130A 1387 142A 14E7 14E9 14EB 14ED 1632 174B 17C0 181C
              18A2
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K100    081F  194E
K1000   0820  194A
K2      0817  0D07 0DE3 14E5 1542
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K4      0819  0B74 0C65
K6      081A  14E3
K8      081B  0940 0B60 0C51 0D18 0D26 0DF6 0E04 17AB
K9      081C  1941 1944
LEXIT   18CD  17EB 1821 18C5
LGBSY   0854  09CB 17E4 17EA 18CC
LOG     012F
LPA     0807
MAT0    0134
MLSCF   0809
MLSC0   0809  0955
MLSC1   080A
MLSC2   080B  09DA 1698 16B4
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MODDB   088B  0AD0 0846 0B6C 0C2C 0C4F 0D17 0D37 0DDD 0E03 0FDF 11BC 1314 143A
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MODEB   14B1  088C
MODSV   14B9  14A9 14AE 14B1 14B6
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              0E23 0E32 0E41 0E50 0E5F
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OCHLT   000F
OEBYP   0009  17D3
OECAW   000D  175E
OECSW   000E  1770
OECXC   0003
OECX0   0000
OECX4   0001
OECX8   0002
OEERR   000C  1729
OEGSN   000A  1713
OEL1B   000B  1726 1729
OEPBL   0007  1720
OESNS   000F  17A2
OEXIT   0006  17D8
OHALT   000E  1628
OLPER   000C  195C
OLPST   0008  1969
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OPRD    0002
OPRRS   000A
OPSNS   0004  089F 08F8
OPTIC   0008
OPTIO   0000  089B 08F8
OPWR    0001
OP411   0F48  0ED8
OP412   0F8B  0EEA
OP421   104D  0FDD
OP422   1090  0FEF
OP431   1154  10E3
OP432   1181  10F6
OP441   122F  11BE
OP442   125C  11D1
OP451   0F48  12A5
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OP461   104D  1322
OP462   1090  1335
OP471   0F48  1392
OP472   1181  1395
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        OP482   125C  1438
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        OTTLE   000A  0ABC 0B31 0C22 0CF5 0DD3 0ED1 0FD6 10DB 11B6 1291 130E 138B 142E
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        PCSW    084E  1783
        PEND    19E2  080D
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        PSCNT   0857  09D5 0A3A 0EB9
        PSNS    0850  17A5
        RCAL    0013  0898
        RDCKD   001E
        RDCNT   0012
        RDDAT   0006
        RDHA    001A
        RDHMT   009A
        RDKD    000E
        RDRO    0016
        RECAL   0897
        RELDV   0132  09E1 09E8 09F9 0A00 0A12 14F2 18BC
        RELSE   0BF4  0B64 0C55
        REQDV   0131  0A0C 14D1 1808
        RESRV   0BF1  0B3E 0C2F
        SCABZ   0007  1513 153F 1580 15F0 15F4 161A
        SCDCK   0004
        SCICC   0005
        SCILG   0006
        SCIMS   0978  0972
        SCINA   096D  095E
        SCINB   0962  096E
        SCINC   0912  0909
        SCINT   08F8  096B
        SCINX   0927  090F 0917 091C
        SCIN0   091D  0902 0913
        SCIN1   0928  0925
        SCIN2   0936  0946
        SCIN3   0947  091E 0939
        SCIN4   0953  08FE 090C 0911 0942
        SCIN5   0959  092A 0932 094D 0950
        SCIN6   095B  0952
        SCIN7   0967  08FA
        SCIN8   096F  0953
        SCISW   08F6  08FD 0B52 0B59 0C43 0C4A 14EF 14F7
        SCPCI   0002
        SCPCK   0003
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        SCSN1   0880  095B 098A 098F 0992 09A3 09A7 09AA 14E8 157E 1585 1588 1800 1802
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        SCSN3   0884  0960 0994 09AC 14EC 158A
        SCSN4   0856  0920 0921 0924 092D 0938 0963 0996 09AE 14EE 158C
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        SCSXC   08C6  0930 0993 0995 0997 0999 09AB 09AD 09AF 09B1 1589 158B 158D 158F
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                      1282 131D 132C 132F 13A0 13B1 13B6 1443 1454 1459 1505 1506 1774
        SCSX4   08BE  0957
        SCSX8   08C2  0927 150D 156D 159B
        SCUNO   0000
        SCUOP   0008
        SCUSP   0001  154B 160F
        SEEKB   0008
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        SFILM   001F  0DC6 0EA4
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        SIONT   14FA  086B 1527
        SIOSW   0855  09EE 0AC4 0AD2 0EDC 0EED 0FE1 0FF2 10E6 10F9 11C1 11D4 129D 12A8
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        SIO02   150C  150F 1565 1568
        SIO03   1512  150B
        SIO04   1516  154C
        SIO05   1529  1514
        SIO06   153F  1535
        SIO07   154A  1540
        SIO08   155A  1551
        SIO09   1563  153E 1549
        SKHD    001B
        SNCCW   089E  08AA
        SNWDS   08A2  08A0 0BFC 0D33 0E11 154F 17AD
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        SNWD1   08A3
        SNWD2   08A4
        SNWD3   08A5
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        SRCHA   0039
        SRCID   0031
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        STKSW   0858  09ED 170A 1717 1719 171C 17CF
        STMLE   1686  086E
        STMLL   16A4  16A9
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        STMPT   16B9  09D0 168A 1696 16AA
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        STMSE   16AD  16B5
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0E15 0E16 0E17 0E18 0E1A 0E1C 0E1D 0E21 0E24 0E26 0E28 0E2B 0E2D
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1944 194A 194E 1953 195B 1968 19A7 19A8
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TER02  1966  1965
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THLTL  1635  1637
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THLTR  163A  1629
THLT2  164E  162D 162F
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TIO02  1594  1581
TIO03  15A1  159A
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TLG06   183B  184C 18BB
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TRID    0815  0A58 0AB4 0B29 0C1A 0CED 0DCB 0EC9 0FCE 10D3 11AE 1289 1306 1383
              1426 197E
TRTNN   0840  0A46 0AAC 0AF4 0B21 0BBC 0CAD 0CE5 0D90 0E6E 0EAF 0F11 1016 111D
              11F8 12CF 134C 13D1 1474
TSAD    0801  0A55 0A5C
TSCAC   08F7  14D5 14D8 14E0
TSCCW   089A  08A6
TSCED   0814  09E5 09EA 09FD 0A02 14D4 14F4 17F9
TSCTN   083F  0A4A 0EAC
TSID    0800  09F0 0A51 0A59 0A5B 0A5E 1983
TSTLP   1968  0886
TST01   1970  196A
TST02   1973  1972
TST03   1975
TST04   197A  1979
TSWDS   089D  089C 0937 0945 0BF9
TSW0    0802  09CE 0ABB 0B30 0C21 0CF4 0DD2 0ED0 0FD5 10DA 11B5 1290 130D 138A
              142D 1563 1627 1633 1634 1636 17F1 195B 1968
TSW1    0803  09CF 0A43 0A47 0A62
TSW2    0804  09D3 0A1F 0A26 0A2A 0A2D
TSW3    0805
TTLER   0A8D  0A64 0A66 0A68
TTL00   0A70  0A40
TTL01   0A87  0A3E
TTL11   0AF8  0AC0
TTL21   0BC0  0B35
TTL22   0C81  0C26
TTL31   0D94  0CF9
TTL32   0E72  0DD7
TTL41   0F15  0ED5
TTL42   101A  0FDA
TTL43   1121  100F
TTL44   11FC  11BA
TTL45   1203  1295
```



```
TTL46   1350  1312
TTL47   13D5  138F
TTL48   1478  1432
TYP2    0848  152D 155E
TYP3    084A  160C
T10NT   0AAC  0A6C
T10PR   0AAA  0AAF 0AB2
T11EN   0AF3  0ADE
T11E1   0AE0  0AC5
T11E2   0AE2  0ACE
T11E3   0AEA  0AD3
T11E4   0AEC  0ADC
T1101   0AB4  0AAD 0AB3
T1102   0ABB  0AB6
T1103   0AC1  0ABD
T1104   0AC2  0AE8
T1105   0AD0  0AE9 0AF2
T1201   0B1E  0AB9 0AF5
T20NT   0B21  0A6D
T20PR   0B1F  0B24 0B27
T21EA   0BB5
T21EB   0BB8  0B86 0B95
T21EN   0BB8  0B37 0B77 0BB7
T21E1   0B78  0B40
T21E2   0B7D  0B44
T21E3   0B87  0B4B
T21E4   0B8C  0B4F
T21E5   0B96  0B5C
T21E6   0B9C  0B66
T21E7   0BA1  0B6A
T21E8   0BA8  0B71
T21E9   0BB0  0B75
T2101   0B29  0B22 0B28
T2102   0B30  0B2B
T2103   0B36  0B32
T2104   0B3B  0B83 0B85 0B94 0B9A 0BA9 0BB6
T2105   0B46  0B92
T2106   0B51
T2107   0B56  0B58
T2108   0B5E  0B9B 0BA7
T2109   0B6C  0BAA
T22EA   0CA6
T22EB   0CA9  0C77 0C86
T22EN   0CAC  0C28 0C68 0CA8
T22E1   0C69  0C31
T22E2   0C6E  0C35
T22E3   0C78  0C3C
T22E4   0C7D  0C40
T22E5   0C87  0C4D
T22E6   0C8D  0C57
T22E7   0C92  0C5B
T22E8   0C9C  0C62
T22E9   0CA1  0C66
T2201   0C1A  0B2E 0BBD
T2202   0C21  0C1C
T2203   0C27  0C23
T2204   0C2C  0C74 0C76 0C85 0C8B 0C9A 0CA7
T2205   0C37  0C83
T2206   0C42
T2207   0C47  0C49
T2208   0C4F  0C8C 0C98
T2209   0C5D  0C9B
T2301   0CE2  0C1F 0CAE
T30NT   0CE5  0A6E
T30PR   0CE3  0CE8 0CEB
T31EA   0D84  0D40
T31EB   0D8C  0D51 0D60
T31EN   0D8F  0CFB 0D42 0D8B
```

```
T31E1  0D43  0D04
T31E2  0D48  0D08
T31E3  0D52  0D11
T31E4  0D57  0D15
T31E5  0D61  0D1F
T31E6  0D66  0D23
T31E7  0D70  0D2D
T31E8  0D75  0D31 0D35
T31E9  0D7F  0D3B
T3101  0CED  0CE6 0CEC
T3102  0CF4  0CEF
T3103  0CFA  0CF6
T3104  0CFF  0D4E 0D50 0D5F 0D6E 0D7D 0D8A 0E2E
T3105  0D0A  0D5D
T3106  0D18  0D6C
T3107  0D25  0D9F 0D7B
T3108  0D37  0D7E
T32EA  0E62  0E1E
T32EB  0E6A  0E2F 0E3E
T32EN  0E6D  0DD9 0E20 0E69
T32E1  0E21  0DEA
T32E2  0E26  0DE4
T32E3  0E30  0DEF
T32E4  0E35  0DF3
T32E5  0E3F  0DFD
T32E6  0E44  0E01
T32E7  0E4E  0E0B
T32E8  0E53  0E0F 0E13
T32E9  0E5D  0E19
T3201  0DCB  0CF2 0D91
T3202  0DD2  0DCD
T3203  0DD8  0DD4
T3204  0DDD  0E2C 0E3D 0E4C 0E5B 0E68
T3205  0DE6  0E3B
T3206  0DF6  0E4A
T3207  0E03  0E4D 0E59
T3208  0E15  0E5C
T3301  0EA9  0DD0 0E6F
T40EN  0EB7  0EAD
T40ER  0EBE  0E88
T40NT  0EAC  0A6F
T40PR  0EAA  0EB2 0EB5
T41EN  0F10  0EFC
T41E1  0EFD  0EDD
T41E2  0EFF  0EE4 0EE7
T41E3  0F07  0EEE
T41E4  0F09  0EF5 0EFA
T4101  0EC9  0EB0 0EB6
T4102  0ED0  0ECB
T4103  0ED6  0ED2
T4104  0ED7
T4105  0EDB  0F05
T4106  0EE1
T4107  0EE9  0F06
T4108  0EEC  0F0F
T4109  0EF2
T42EN  1015  1001
T42E1  1002  0FE2
T42E2  1004  0FE9 0FEC
T42E3  100C  0FF3
T42E4  100E  0FFA 0FFF
T4201  0FCE  0ECE 0F12
T4202  0FD5  0FD0
T4203  0FDB  0FD7
T4204  0FDC
T4205  0FE0  100A
T4206  0FE6
T4207  0FEE  100B
```



```
T4208  0FF1  1014
T4209  0FF7
T43EN  111C  1108
T43E1  1109  10E7 10EE
T43E2  110B  10F3
T43E3  1113  10FA
T43E4  1115  1101 1106
T4301  10D3  0FD3 1017
T4302  10DA  10D5
T4303  10E0  10DC
T4304  10E2
T4305  10E5  1111
T4307  10F5  1112
T4308  10F8  111B
T44EN  11F7  11E3
T44E1  11E4  11C2 11C9
T44E2  11E6  11CE
T44E3  11EE  11D5
T44E4  11F0  11DC 11E1
T4401  11AE  10D8 111E
T4402  11B5  11B0
T4403  11BB  11B7
T4404  11BD
T4405  11C0  11EC
T4407  11D0  11ED
T4408  11D3  11F6
T45EN  12CE  128A
T45E1  12BB  1298
T45E2  12BD  12A2
T45E3  12C5  12A9
T45E4  12C7  12B0 12B5 1332
T45SW  085A  0A08 0A1C 180E 184D 187C 18A1
T4501  1289  11B3 11F9
T4502  1290  128B
T4503  1296  1292
T4504  1298  12C3
T4505  12A4  12C4
T4506  12A7  12CD
T46EN  134B  1337
T46E1  1338  1315
T46E2  133A  131F
T46E3  1342  1326
T46E4  1344  132D
T4601  1306  128E 12D0
T4602  130D  1308
T4603  1313  130F
T4604  1315  1340
T4605  1321  1341
T4606  1324  134A
T47EN  13D0  13BC
T47E1  13BD  139A
T47E2  13BF  13A1 13A4
T47E3  13C7  13AB
T47E4  13C9  13B4 13B7 13BA
T4701  1383  130B 134D
T4702  138A  1385
T4703  1390  138C
T4704  1391
T4705  1398  13C5
T4706  13A6  13C6
T4707  13A9  13CF
T48EN  1473  145F
T48E1  1460  143D
T48E2  1462  1444 1447
T48E3  146A  144E
T48E4  146C  1457 145A 145D
T4801  1426  1388 13D2
T4802  142D  1428
```

1800-2841 TWO CHANNEL SWITCH FUNCTION TEST

```
        T4803   1433   142F
        T4804   1434
        T4805   143B   1468
        T4806   1449   1469
        T4807   144C   1472
        T4901   14A8   142B 1475
        UNADR   08EA   1749 174D 174F 1752
        UNATN   0008
        UNBZY   000B   0916 150E 156E
        UNCHE   000C
        UNCHK   000E   094F 12A1 131E 15FA
        UNCUE   000A   0908 159C
        UNDVE   000D   094C 094F
        UNEXC   000F
        UNSMD   0009
        WAITS   0879   09B3 09B7 09B9 0B3F 0B4A 0B65 0B70 0C30 0C3B 0C56 0C61 0D03 0D10
                       0D1E 0D2C 0D3A 0DE9 0DEE 0DFC 0E0A 0E18
        WAITT   1569   1519 1573
        WAIT1   156C   1578
        WAIT2   1575   156F
        WATSW   08F5   0929 098B 099F 09CD 14BB 157D
        WIOSW   08F4   08F9 09A4 09B6 09BD 09CC 0B53 0B5B 0B6E 0C44 0C4C 0C5F 1507
        WRCKD   001D
        WRDAT   0005
        WRHA    0019
        WRKD    000D
        WRR0    0015
        WTADR   157B   0AC7 0AD5 0EDF 0EF0 0FE4 0FF5 10E9 10FC 11C4 11D7 129A 12AB 1317
                       1328 139C 13AD 143F 1450 1579
        ZEPA    09F3   0808 0A04
        ZEPA1   09FD   09F7
        ZEPA2   0A04   09FE
        ZIPA    09C3   0806 09C4
        ZLPA    09D7   0807 09C5 09D6 09F1
        ZLPA1   09E5   09DF
        ZLPA2   09EC   09E6
        END OF ASSEMBLY
```

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

TABLE OF CONTENTS . . . . . PAGE

1. PURPOSE

1.1 INTENT

THE INTENT OF THIS PROGRAM IS TO FUNCTIONALLY TEST THE 2841 FILE CONTROL UNIT OPTIONAL FEATURE, TWO-CHANNEL SWITCH, WITH ANY 2311. THE PROGRAM CHECKS THAT THE FILE CONTROL UNIT CAN BE SHARED BY TWO CHANNELS, AND ALSO THAT THE INDIVIDUAL ACCESS MECHANISMS CAN BE RESERVED TO, AND RELEASED FROM, A CHANNEL. THE TWO CHANNELS ARE ATTACHED TO A SINGLE PROCESSOR.

THIS PROGRAM CONSISTS OF FOUR SECTIONS, THREE SEQUENTIAL AND ONE OPTIONAL. THERE ARE A TOTAL OF 13 ROUTINES IN THE FOUR SECTIONS.

1.2 BRIEF DESCRIPTION OF TEST ROUTINES

1.2.1 SECT 1, RTN 1.
THIS ROUTINE CHECKS THAT AN ACCESS CAN BE ADDRESSED VIA BOTH INTERFACE -A- AND INTERFACE -B-.

1.2.2 SECT 2, RTN 1.
THIS ROUTINE TESTS THE DEVICE ALLOCATION COMMAND. AN ACCESS IS RESERVED TO INTERFACE -A-, THEN RELEASED.

SECT 2, RTN 2.
THIS ROUTINE TESTS THE DEVICE ALLOCATION COMMAND. AN ACCESS IS RESERVED TO INTERFACE -B-, THEN RELEASED.

1.2.3 SECT 3, RTN 1.
THIS ROUTINE TESTS THAT THE CHANNEL SELECTOR SWITCH DOES NOT RETURN TO NEUTRAL WHEN THE ENDING STATUS CONTAINS 'UNIT CHECK', INTERFACE -A-.

SECT 3, RTN 2.
THIS ROUTINE TESTS THAT THE CHANNEL SELECTION SWITCH DOES NOT RETURN TO NEUTRAL WHEN THE ENDING STATUS CONTAINS 'UNIT CHECK', INTERFACE -B-.

1.2.4 SECT 4, RTN 1. (OPTIONAL)
THIS ROUTINE TESTS THAT FILE CONTROL INTERFACE -A- CAN BE DISABLED WHEN THE SWITCH CONTROLLING INTERFACE -A- IS PLACED IN THE 'DISABLE' POSITION WHILE CLOCK-OUT IS 'DOWN'.

SECT 4, RTN 2. (OPTIONAL)
THIS ROUTINE TESTS THAT FILE CONTROL INTERFACE -B- CAN BE DISABLED WHEN THE SWITCH CONTROLLING INTERFACE -B- IS PLACED IN THE 'DISABLE' POSITION WHILE CLOCK-OUT IS 'DOWN'.

SECT 4, RTN 3. (OPTIONAL)
THIS ROUTINE TESTS THAT FILE CONTROL INTERFACE -A- IS NOT DISABLED WHEN THE SWITCH CONTROLLING INTERFACE -A- IS PLACED IN THE 'DISABLE' POSITION WHILE CLOCK-OUT IS 'UP'.

SECT 4, RTN 4. (OPTIONAL)
THIS ROUTINE TESTS THAT FILE CONTROL INTERFACE -B- IS NOT DISABLED WHEN THE SWITCH CONTROLLING INTERFACE -B- IS PLACED IN THE 'DISABLE' POSITION WHILE CLOCK-OUT IS 'UP'.

SECT 4, RTN 5. (OPTIONAL)
THIS ROUTINE TESTS THAT FILE CONTROL INTERFACE -A- IS NOT DISABLED WHEN THE SWITCH CONTROLLING INTERFACE -A- IS PLACED IN THE 'DISABLE' POSITION WHEN CLOCK-OUT IS 'DOWN' AND THE CHANNEL SELECTION SWITCH IS SELECTED TO INTERFACE -A-.

SECT 4, RTN 6. (OPTIONAL)
THIS ROUTINE TESTS THAT FILE CONTROL INTERFACE -B- IS NOT DISABLED WHEN THE SWITCH CONTROLLING INTERFACE -B- IS PLACED IN THE 'DISABLE' POSITION WHEN CLOCK-OUT IS 'DOWN' AND THE CHANNEL SELECTION SWITCH IS SELECTED TO INTERFACE -B-.

SECT 4, RTN 7. (OPTIONAL)
THIS ROUTINE TESTS THAT FILE CONTROL INTERFACE - A- REMAINS 'DISABLED' WHEN THE SWITCH CONTROLLING INTERFACE -A- GOES FROM THE 'DISABLE' POSITION TO THE 'ENABLE' POSITION WHEN CLOCK-OUT IS 'UP'.

SECT 4, RTN 8. (OPTIONAL)
THIS ROUTINE TESTS THAT FILE CONTROL INTERFACE -B- REMAINS 'DISABLED' WHEN THE SWITCH CONTROLLING INTERFACE -B- GOES FROM THE 'DISABLE' POSITION TO THE 'ENABLE' POSITION WHEN CLOCK-OUT IS 'UP'.

2. REQUIREMENTS

2.1 PROGRAM

THIS PROGRAM IS RUN UNDER CONTROL OF THE 1800 D.M.
THE ROUTINES SHOULD BE EXECUTED IN SEQUENTIAL ORDER FOR CORRECT INDICATION.

2.2 EQUIPMENT

2841 FILE CONTROL UNIT WITH THE 2-CHANNEL SWITCH FEATURE,
CONNECTED TO ONE CPU WITH BOTH FILE CONTROL INTERFACES ATTACHED TO THE SAME CHANNEL. THE CONTROL UNIT ADDRESS OF EACH INTERFACE MUST BE DIFFERENT.

ONE I/O MONITOR BOX

ONE 2311 ACCESS MECHANISM.

ONE HARD COPY OUTPUT DEVICE.

ONE LOADING DEVICE.

ONE 2311 DISK PACK WITH STANDARD HOME ADDRESSES.

3. OPERATING PROCEDURE

3.1 LOADING

THE STANDARD LOADING PROCEDURE AS DESCRIBED IN THE DIAGNOSTIC MONITOR USE PROCEDURE IS UTILIZED.

NOTE DO NOT INCLUDE DEVICE ADDR ON D.M. EDIT.
THE 2311 DISK DRIVE ADDRESS IS ENTERED IN SWITCH FNCT 2 AFTER **SELECT OPTIONS** HAS BEEN PRINTED. SEE SECTION 3.2.2

3.2 OPERATION

3.2.1 JUMPER CABLE CONNECTIONS

CABLE CONNECTION FOR SINGLE CPU, ONE CHANNEL CONNECTION

WHEN TESTING THE 2-CHANNEL SWITCH FEATURE, THE ONE CPU METHOD OF CABLE JUMPERING AT THE 2841 IS REQUIRED. THE TABLE BELOW INDICATES THE PROPER JUMPER AND TERMINATOR COMBINATIONS.

	INTF A	INTF B
BUS IN	E	A
TAG IN	F	B
BUS OUT	G	C
TAG OUT	H	D

IF SYS A# 1 ONLY*	BUS OUT CONNECTION G-TO-A BUS IN	TERMINATOR OR CHAN CABLE TO NEXT DEV C
	TAG OUT CONNECTION H-TO-B TAG IN	D
IF SYS B# 2 ONLY*	BUS OUT CONNECTION C-TO-E BUS IN	TERMINATOR OR CHAN CABLE TO NEXT DEV G
	TAG OUT CONNECTION D-TO-F TAG IN	H

USE CABLES P/N 5353920 -24 INCH FIXED LENGTH- B/M 5373074

THIS PLACES BOTH FILE CONTROL INTERFACES ON THE SAME SELECTOR CHANNEL. IT SHOULD BE NOTED THAT THE TWO FILE INTERFACE ADDRESSES MUST BE DIFFERENT. FOR EXAMPLE, ASSUME CHANNEL 1 IS TO BE USED AND THE CONTROL UNIT ADDRESSES OF THE TWO INTERFACES ARE CHANNEL -A- AND CHANNEL -B-. THIS CONNECTION CAN BE MADE WITH THESE INTERFACES. HOWEVER, IF BOTH CONTROL UNIT ADDRESSES WERE IDENTICAL, THIS CONNECTION CANNOT BE MADE.

3.2.2 PROGRAM OPERATION

1) INSTALL CE PACK OR SCRATCH PACK WITH STANDARD HOME ADDRESSES ON THE ACCESS TO BE TESTED.

2) PROGRAM OPTION SWITCHES SW FNC 0. (NORMAL RUN, WITH ALL SWITCHES, GIVES ERROR PRINTOUTS, CONTINUE ON ERROR, AND BYPASS OPTIONAL ROUTINES.)

NOTE- 'TURN ON' OPTION SWS IMPLIES SETTING THE SPECIFIED BITS 'ON' IN THE INDICATED SWITCH FUNCTION BY SETTING UP THE S/P AND D/E SWS AND PERFORMING A 'CONSOLE INTERRUPT'.

THE PROGRAM FUNCTION SWITCHES SHOWN BELOW ARE IN THE MONITOR INTERFACE TABLE IN THE PROGRAM LISTING. BITS ARE ZERO WHEN 'OFF' AND 'ONE' WHEN ON.

2-CHANNEL SWITCH DFT FUNCTION 0
----CONTROL FUNCTION----

```
*********************   1. SET FUNCTION 00 IN S/P SWS 0 AND 1
*  SENSE/PROGRAM    *   2. SET PID IN S/P SWS 2-THRU-7.
*  0 1 2 3 4 5 6 7  *   3. SET DESIRED CONTROL OPTIONS IN D/E
*                   *          SWS 8-15, AS SHOWN.
*  0 0 0 1 0 0 1 1  *   4. PRESS CONSOLE INTERRUPT.
*********************************************************************
*      DATA ENTRY SWITCHES                          DESCRIPTION     *
*  0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15                            *
*                                                                   *
*                                    1. . EXIT ERR HALT LOOP        *
*                                  1 . . . HALT-ON-ERROR            *
*                                1. . . . BYPASS ALL PRINTOUTS      *
*                              1 . . . . . LOOP-ON-ERROR            *
*                                                                   *
*                          1 . . . . . . . . PRINT RTN TITLES       *
*                                                                   *
*                      1. . . . . . . . . . LOOP START I/O          *
*                                           (TIGHT SCOPE LOOP)      *
*                                                                   *
*********************************************************************
```

NOTE THE OBJECT OF OPTION SW 8 IS TO PROVIDE A SCOPING OR TROUBLE-SHOOTING LOOP THAT CONSTANTLY REPEATS A SINGLE SIO PERTAINING TO A CCW CHAIN. THE MOST EFFECTIVE WAY TO USE THIS SENSE SW IS IN CONJUNCTION WITH THE OPTION SW 14 --HALT-ON-ERROR--. WHEN AN ERROR MESSAGE IS PRINTED BY A RTN, A HALT OCCURS IF THE HALT-ON-ERROR SWITCH (SW FNC 0, BIT 14) IS ON. IF DURING THIS HALT, SW 8 WERE TURNED ON, THE CHAIN THAT CAUSED THE ERROR IS LOOPED WHEN THE PROGRAM EXECUTION IS RESUMED.

3) ROUTINE SELECTION SWITCHES- SW FNC 1. THIS SWITCH IS USED TO SELECT ROUTINES FOR EXECUTION. THE FORMAT OF THE SWITCHES IS 00SR, WHERE 'S' IS THE SELECTED SECTION AND 'R' IS THE SELECTED ROUTINE WITHIN THAT SECTION. IF R=0 ALL ROUTINES IN THE SELECTED SECTION WILL BE RUN. IF S=0 ALL NORMAL SECTIONS (1-3) WILL BE RUN.

**NOTE WHENEVER A SECTION OR A ROUTINE IS INDIVIDUALLY SPECIFIED, THAT SECTION OR ROUTINE WILL BE LOOPED.

TO RUN OPTIGNAL ROUTINES IN SECTION 4, SELECT S=4 AND THE DESIRED ROUTINE, OR ENTER R=0 TO RUN ALL OPTIONAL ROUTINES IN THAT SECTION. WHEN SPECIFYING ALL OF SECT 4, IT IS ADVISABLE TO ALSO SELECT THE 'PRINT-ROUTINE-TITLES' OPTION TO PROVIDE AN INDICATION OF WHEN THE SECTION HAS BEEN COMPLETED, SINCE IT WILL BE LOOPED.

2-CHANNEL SWITCH DFT FUNCTION 1
----ROUTINE SELECTION FUNCTION----

```
*********************   1. SET FUNCTION 01 IN S/P SWS 0 AND 1.
*  SENSE/PROGRAM    *   2. SET PID IN S/P SWS 2-THRU-7.
*  0 1 2 3 4 5 6 7  *   3. SET DESIRED SECT/RTN CONFIGURATION
*                   *         IN D/E SWS 8-11, 12-15, RESPECTIVELY
*  0 1 0 1 0 0 1 1  *   4. DEPRESS CONSOLE INTERRUPT.
*********************************************************************
*      DATA ENTRY SWITCHES                          DESCRIPTION     *
*  0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15                            *
*                                                                   *
*                                R  R  R  R. . ROUTINE # IN HEX     *
*                                                 (0=RUN ALL RTNS)  *
*                      S  S  S  S. . . . . . . . SECTION # IN HEX    *
*                                                 (0=RUN ALL SECTS) *
*                                                                   *
*********************************************************************
```

4) DEVICE SELECTION. SW FNC 2 IS USED TO SELECT THE DEVICE UNDER TEST. THE UNIT ADDRESS IS PLACED IN THE 4 LOW-ORDER BITS OF THE D/E SWS (BITS 12-15). THE INTERFACE -A- FILE CONTROL ADDRESS IS INSERTED IN BITS 4-7. THE INTERFACE -B- FILE CONTROL ADDRESS IS INSERTED IN BITS 8-11.

2-CHANNEL SWITCH DFT FUNCTION 2
----DEVICE SELECTION FUNCTION----

```
*********************
*  SENSE PROGRAM    *   1. SET FUNCTION 10 IN S/P SWS 0 AND 1.
*  0 1 2 3 4 5 6 7  *   2. SET PID IN S/P SWS 2-THRU-7.
*                   *   3. SET 2841/2311 ADDRESS INTO D/E SWS
*                   *        4-15. AS SHOWN.
*  1 0 0 1 0 0 1 1  *   4. PRESS CONSOLE INTERRUPT.
*********************************************************************
*      DATA ENTRY SWITCHES                          DESCRIPTION     *
*  0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15                            *
*                                                                   *
*                                U  U  U  U. . 2311 UNIT TO BE USED *
*                      B  B  B  B. . . . . . . INTERFACE -B- ADDR   *
*            A  A  A  A. . . . . . . . . . . . INTERFACE -A- ADDR   *
*                                                                   *
*********************************************************************
```

3.3 PROGRAM HALTS.

1300 *** SELECT OPTIONS ***

THIS HALT LOOP OCCURS PRIOR TO PROGRAM EXECUTION TO ALLOW SETTING OF THE FUNCTION (OPTION) SWITCHES. IF OPTIONS ARE DESIRED THEY MUST BE ENTERED BEFORE ENTERING FUNCTION SW 2 (INTERFACE-DEVICE SELECT), AS PROGRAM EXECUTION BEGINS AT THIS TIME.

```
1300 ***HALT-- 2 CH SW DIAGNOSTIC ADRS AAAA
        --TO CLEAR HALT SET SWITCHES
        S/P 00PP PPPP, P=PID
        DES XXXX XXXX XXXX XXX0
        -PRESS CONSOLE INTERRUPT
```

HALT AFTER ERROR, UNLESS BYPASSED, IS A LOOP THAT ALLOWS SELECTION AND LOOP EXIT USING THE SAME SWITCH FUNCTION (.NC 0). BESIDES THE NORMAL HALT AFTER ERROR DESCRIBED ABOVE, THERE ARE SEVERAL ERROR CONDITIONS IN WHICH THE PROGRAM CANNOT CONTINUE. (EXAMPLE ACCESS NOT READY, HANG UP BUSY, ETC.) THE ERROR MESSAGE WILL IDENTIFY SUCH CONDITIONS.

```
*************************************************
*   ** NOTE **  A SELECTOR CHANNEL RESET WITH   *
*               THE I/O MONITOR BOX IS COMPUL-  *
*               SORY WHEN CHANNEL STATUS IS     *
*               'ADAPTER BUSY' OR 'PROGRAM      *
*               CHECK'.  IT IS ADVISABLE TO     *
*               RESET AFTER -ALL- ERRORS.       *
*************************************************
```

NECESSARY INSTRUCTION TO EXIT THE ERROR HALT LOOP ACCOMPANY ENTRY TO THE LOOP VIA A PRINTOUT. WHILE IN THE LOOP VARIOUS SWITCH FUNCTION 0 OPTIONS CAN BE ENTERED ALONG WITH BIT 15=0, WHICH PROVIDES THE EXIT. BIT 15=0 ALONE WILL RESULT IN A NORMAL EXIT, IN MOST CASES THE ROUTINE WILL TERMINATE.

1) SETTING BIT 12 WILL EXIT TO THE SEQUENCE THAT PRODUCED THE ERROR. THIS WILL USUALLY BE THE START OF THE ROUTINE.

2) SETTING BIT 8 WITH 13 WILL EXIT TO THE FAILING FUNCTION AND LOOP ON THE FUNCTION CAUSING THE ERROR WITHOUT ERROR PRINTOUTS. (TIGHT SCOPE LOOP)

3) SETTING BIT 13 WITH 12 WILL EXIT TO THE FAILING SEQUENCE AND LOOP THROUGH THE ROUTINE WITHOUT PRINTING ERRORS OR HALTING ON THE ERROR. (LONG SCOPE LOOP) THESE OPTIONS SHOULD BE THE MOST USEFUL. SEE TABLE OF OPTIONS FOR OTHER APPLICATIONS.

NOTE THIS PROGRAM IS DESIGNED TO BE THE MOST EFFECTIVE WHEN RUNNING UNDER HALT-AFTER-ERROR-PRINTOUT MODE. IF THE USER WISHES TO RUN IN THIS MODE, SW FUNCTION 0, BIT 14 MUST BE 'ON'.

NOTE IF THE SELECTOR CHANNEL AND THE LOG DEVICE SHARE A DATA CHANNEL, CAUSING A CONSOLE INTERRUPT MAY RESULT IN MONITOR 'WAIT 9'. (3009)

3.4 PROGRAM TERMINATION.

1300 **END OF DFT**

END-OF-DFT MESSAGE IS PRINTED AT COMPLETION OF NORMAL TEST. PROGRAM WILL TERMINATE UNLESS MONITOR SW FNC 0 LOOP PROGRAMS OPTION (BIT 11) IS SELECTED.

4. PRINTOUTS

MESSAGE FORMATS

ERROR MESSAGES

THE PRIMARY MESSAGE FROM THIS PROGRAM IS AN ERROR NUMBER. THE PURPOSE OF THE NUMBER IS TO REFER THE USER TO A DESCRIPTION OF THE ERROR CONDITION IN THIS DOCUMENT. (SECT 4.2) THE ERROR DESCRIPTION PROVIDES DIAGNOSTIC INFORMATION ABOUT THE ERROR AND SCOPE-LOOP OPTIONS.

ERROR NUMBER FORMAT

1) SIO, TIO, SENSE I/O ERRORS--

```
1300 **ERR- ERROR ON SIO, SECTION S, ROUTINE R, UNIT UU ADRS AAAA
```

2) ERROR NUMBER WITH MESSAGE.

```
1300 **ER XX ......MESSAGE...... UNIT UU ADRS AAAA
```

3) NORMAL ERROR NUMBER PRINTOUT.

```
1300 **ER SRXX UNIT UU ADRS AAAA
```

4) THE SECOND LINE OF AN ERROR PRINTOUT GIVES VARIABLE DATA ON MACHINE CONDITIONS. SENSE BYTES WILL USUALLY NOT BE PRINTED.

```
CAW KKKK  CSW YYYY UUZZ ADRS CNTR  SNS B-B B-B B-B B-B
```

5) LEGEND OF CHARACTERS-

S	SECTION NUMBER
R	ROUTINE NUMBER
XX	SEQUENTIAL ERROR NUMBER WITHIN EACH ROUTINE
UU	CHANNEL AND DEVICE ADDRESS ADDRESS IN HEX
AAAA	ADDRESS OF ERROR BRANCH & STORE I-REG INSTR IN PROGRAM LISTING.
KKKK	CHANNEL ADDRESS WORD FOR THE CCW CHAIN
ADRS	CHANNEL CCW ADDRESS REGISTER
YYYY	CHANNEL STATUS IN HEX
UUZZ	UNIT ADDRESS/UNIT STATUS IN HEX
CNTR	CHANNEL BYTE COUNT REGISTER
B-B	SENSE BYTES IN BINARY

4.1 OPERATOR MESSAGES

4.1.1 1300 1 - PLACE 2841 ENABLE SW ON INTF -A- TO --DISABLE--
2 - STOP CPU WITHIN 30 SECONDS-
3 - CONTINUE PROGRAM AFTER THIS IS PERFORMED-

THE INTERFACE -A- SWITCH OF THE FILE CONTROL UNIT IS TO BE PLACED IN THE DISABLE POSITION AND THE CPU 'STOPPED/STARTED' WITHIN 30 SECONDS AFTER THE MESSAGE IS PRINTED.

4.1.2 1300 1 - PLACE 2841 ENABLE SW ON INTF -A- TO --ENABLE--
2 - STOP CPU WITHIN 30 SECONDS-
3 - CONTINUE PROG AFTER THIS IS PERFORMED-

THE INTERFACE -A- SWITCH OF THE FILE CONTROL UNIT IS TO BE PLACED IN THE ENABLE POSITION AND THE CPU 'STOPPED/STARTED' WITHIN 30 SECONDS AFTER MSG IS PRINTED.

4.1.3 1300 1 - PLACE 2841 ENABLE SW ON INTF -A- TO --DISABLE--
2 - PGM WILL WAIT FOR 30 SECONDS

THE INTERFACE -A- SWITCH OF THE FILE CONTROL UNIT IS TO BE PLACED IN THE DISABLE POSITION. THE PROGRAM WILL TIME-OUT FOR 30 SECONDS, THEN CONTINUE.

4.1.4 1300 1 - PLACE 2841 ENABLE SW ON INTF -A- TO --ENABLE--
2 - PGM WILL WAIT FOR 30 SECONDS

THE INTERFACE -A- SWITCH OF THE FILE CONTROL UNIT IS TO BE PLACED IN THE ENABLE POSITION. THE PROGRAM WILL TIME-OUT FOR 30 SECONDS, THEN CONTINUE. (ASSUMING THAT STEP 1 HAS BEEN PERFORMED.)

4.1.5 1300 1 - PLACE 2841 ENABLE SW ON INTF -B- TO --DISABLE--
2 - STOP CPU WITHIN 30 SECONDS-
3 - CONTINUE PROG AFTER THIS IS PERFORMED-

THE INTERFACE -B- SWITCH OF THE FILE CONTROL UNIT IS TO BE PLACED IN THE DISABLE POSITION AND THE CPU 'STOPPED/STARTED' WITHIN 30 SECONDS AFTER THE MSG IS PRINTED.

4.1.6 1300 1 - PLACE 2841 ENABLE SW ON INTF -B- TO --ENABLE--
2 - STOP CPU WITHIN 30 SECONDS
3 - CONTINUE PROG AFTER THIS IS PERFORMED

THE INTERFACE -B- SWITCH OF THE FILE CONTROL UNIT IS TO BE PLACED IN THE ENABLE POSITION AND THE SPU 'STOPPED/STARTED' WITHIN 30 SECONDS AFTER THE MSG IS PRINTED.

4.1.7 1300 1 - PLACE 2841 ENABLE SW ON INTF -B- TO --DISABLE--
2 - PGM WILL WAIT FOR 30 SECONDS

THE INTERFACE -B- SWITCH OF THE FILE CONTROL UNIT IS TO BE PLACED IN THE ENABLE POSITION. THE PROGRAM WILL TIME-OUT FOR 30 SECONDS, THEN CONTINUE.

4.1.8 1300 1 - PLACE 2841 ENABLE SW ON INTF -B- TO --ENABLE--
2 - PGM WILL WAIT FOR 30 SECONDS

THE INTERFACE -B- SWITCH OF THE FILE CONTROL UNIT WI TO BE PLACED IN THE DISABLE POSITION. THE PROGRAM WILL TIME-OUT FOR 30 SECONDS, THEN CONTINUE.

4.1.9 1300 1 - STOP THE CPU WITHIN 30 SECONDS.
2 - CONTINUE THE PROGRAM.

THE CPU IS TO BE 'STOPPED/STARTED' WITHIN 30 SECONDS AFTER THE MESSAGE IS PRINTED.

4.2 STATUS MESSAGES

4.2.1 2-DIGIT ERROR NUMBERS (ERXX)

THESE ERRORS ARE DETECTED AND PRINTED BY THE HOUSEKEEPING (COMMON) SUBROUTINES OF THE PROGRAM.

1300 **ER00 UNEXPECTED INTERRUPT

AN INTERRUPT OCCURRED ON THE SELECTOR CHANNEL WHILE THIS PROGRAM DID NOT 'OWN' THE CHANNEL, OR THE INTERRUPT WAS NOT FROM THE UNIT UNDER TEST. EXAMINE THE CSW FOR FURTHER INFORMATION.

1300 **ER02 ADAPTER HUNG BUSY

AN ADAPTER BUSY CONDITION WAS DETECTED ON THE TEST I/O AT THE BEGINNING OF THE START I/O SUBROUTINE.

'ADAPTER BUSY' INDICATES CHANNEL OR SUB-CHANNEL BUSY. THIS INDICATES MISSING DEVICE END ON PREVIOUS OPERATION. CAW PRINTOUT INDICATES PREVIOUSLY EXECUTED COMMAND CHAIN. RECOMMEND PLUGGING DISPLAY PORTION OF CE I/O MONITOR BOX.

USER SHOULD DO A RESET-RESTART TO CLEAR BUSY CHANNEL.

1300 **ER06 CHANNEL HUNG AFTER TEST I/O

THE CAW AND CSW ARE PRINTED WITH THIS MESSAGE. THIS MESSAGE INDICATES THAT AN ADAPTER BUSY CONDITION WAS DETECTED BY THE TEST I/O ROUTINE AFTER THE TEST I/O WAS ISSUED.

IF CONTROL UNIT IS HUNG-UP TRY RESET-RESTART.

1300 **ER21 ERROR ON SNS SECT X, RTN X

PROGRAM DETECTED UNIT CHECK ON A SENSE I/O IN THE SENSE I/O SUBROUTINE. TEST I/O AND START I/O HAVE ALREADY BEEN TESTED. SHOULD NOT GET THIS ERROR EXCEPT ON INTERMITTENT FAILURES. THE SECTION AND ROUTINE BEING EXECUTED WHEN THE ERROR OCCURED IS PRINTED WITH ERROR NUMBER. EXAMINE ACCUMULATED STATUS DATA IN CSW FOR CLUES TO FAILURES.

1300 **ER22 ERROR ON SNS SECT X, RTN X

PROGRAM EXECUTED A SENSE I/O AND RECEIVED A BUSY CONDITION. PRINTOUT GIVES SECTION AND ROUTINE BEING EXECUTED WHEN THE ERROR OCCURED.

DETERMINE WHY CONTROL UNIT WENT BUSY. SHOULD BE RELATED TO THE ROUTINE BEING EXECUTED. CAW PRINTOUT INDICATES PREVIOUSLY EXECUTED COMMAND CHAIN.

1) USER SHOULD DO A RESET-RESTART TO CLEAR BUSY CONDITION.
2) CONTROL UNIT HUNG UP - PROBABLY CAN'T LOOP.
3) TRY LOOPING IN ROUTINE.

1300 **ER23 ERROR ON SNS SECT X, RTN X

NOT OPERATIONAL ON SENSE I/O -

1300 **ER28 -UNEXPECTED INTRPT NOT RECEIVED- -RTN ABORT
PENDING- UNIT UU ADRS AAAA

.....THE ABOVE MSG APPEARS ON ONE PRINTER LINE.....

THIS ERROR IS DETECTED AND INDICATED BY ROUTINES 1 AND 2 OF SECTIONS 2 AND 3. THE PROGRAM HAS FAILED TO RECEIVED AN INTERRUPT AFTER WAITING FOR APPROXIMATELY .6 SECONDS. NO STATUS INFORMATION WILL ACCOMPANY THIS MESSAGE, HOWEVER, ANOTHER ERROR MESSAGE IMMEDIATELY FOLLOWS, WHICH IS REDEFINED AS BEING CAUSED BY 'EXPECTED I/R NOT RECEIVED'. IT'S ASSOCIATED STATUS INFORMATION, IF NOT 'ADAPTER BUSY' OR 'PROGRAM CHECK', HAS PROBABLY BEEN RETAINED FROM THE PREVIOUS OPERATION AND IS NOT VALID FOR THE CURRENT OPERATION, IN WHICH CASE IT MUST BE DISREGARDED. THE CURRENT ROUTINE WILL BE ABORTED WHEN THE PROGRAM CONTINUES. IF HALT OPTION RESULTED IN A 'HALT' AFTER THIS ERROR, IT IS RECOMMENDED THAT A SELECTOR CHANNEL RESET BE PERFORMED WITH THE I/O MONITOR BOX PRIOR TO PROGRAM CONTINUATION.

NOTE** LOOP ON ERROR AND SCOPE LOOPS ARE NOT AVAILABLE.

4.3 TITLE MESSAGES

4.3.1 PROGRAM TITLE MESSAGE

1300 2 CHNL SW DIAGNOSTIC TEST ON UNITS CUU CUU
PASS- XX

4.3.2 ROUTINE TITLE MESSAGES

TITLE MESSAGES ARE PRINTED PRIOR TO ESECUTION OF EACH ROUTINE IF BIT 10 OF SW FNC 0 IS ON.

EACH MESSAGE LISTED BELOW WILL APPEAR ON ONE PRINTER LINE.

1300 SECT 1, RTN1 -ADDR DEV FROM INTF-A- AND INTF-B- WITH SEEK CCW.

1300 SECT 2, RTN1 -RESERVE TO INTF-A-, ADDR ON INTF-B-, RELEASE FROM INTF-A-, CLR DEV END FROM INTF-B-.

1300 SECT 2, RTN2 -RESERVE TO INTF-B-, ADDR ON INTF-A-, RELEASE FROM INTF-B-, CLR DEV END FROM INTF-A-.

1300 SECT 3, RTN1 -CHKS CHNL SEL SW DOES NOT RTRN TO NEUTRAL WHEN END STATUS ON INTF-A- WAS UNIT CHK.

1300 SECT 3, RTN2 -CHKS THAT CHNL SEL SW DOES NOT RTRN TO NEUTRAL WHEN END STATUS ON INTF-B- WAS UNIT CHK.

1300 SECT 4, RTN1 -CHKS THAT INTF-A- IS DSBLD WHEN SW. DSBLD, CHNL SEL. SW. NEUTRAL, AND CLOCK OUT DOWN.

1300 SECT 4, RTN2 -CHKS THAT INTF-B- IS DSBLD WHEN SW. DSBLD, CHNL SEL. SW. NEUTRAL, AND CLOCK OUT DOWN.

1300 SECT 4, RTN3 -CHKS THAT INTF-A- IS NOT DSBLD WHEN SW DSBLD, CHNL SEL. SW. NEUTRAL, AND CLOCK OUT UP.

1300 SECT 4, RTN4 -CHKS THAT INTF-B- IS NOT DSBLD WHEN SW DSBLD, CHNL SEL. SW NEUTRAL, AND CLOCK OUT UP.

1300 SECT 4, RTN5 -CHKS THAT INTF-A- IS NOT DSBLD WHEN SW DSBLD, CHNL SW SEL. TO -A-, AND CLOCK OUT DOWN.

1300 SECT 4, RTN6 -CHKS THAT INTF-B- IS NOT DSBLD WHEN SW DSBLD, CHNL SW SEL. TO -B-, AND CLOCK OUT DOWN.

1300 SECT 4, RTN7 -CHKS INTF-A- REMAINS DSBLD WHEN SW -A- GOES FROM DSBL TO ENBL WITH CLOCK OUT UP.

1300 SECT 4, RTN8 -CHKS INTF-B- REMAINS DSBLD WHEN SW -B- GOES FROM DSBL TO ENBL WITH CLOCK OUT UP.

5. COMMENTS

**NOTE THROUGHOUT THIS SECTION OF THE DOCUMENT THE FILE CONTROL INTERFACES ARE REFERRED TO AS INTERFACE -A- AND INTERFACE -B-. THIS IS MERELY CONVENIENT TERMINOLOGY USED BY THIS DOCUMENT AND DOES NOT NECESSARILY REFER TO THE ACTUAL FILE INTERFACES AS LABELED ON THE INTERFACE 'ENABLE/DISABLE' SWITCHES.

THE ERROR NUMBERS ARE OCCASIONALLY REFERRED TO AS SRXX IN THE FOLLOWING ROUTINE DESCRIPTIONS. THE MESSAGES ARE DESCRIBED INDIVIDUALLY IN THE COMMENTS ON ERROR NUMBERS SECTION. THE 'XX' PORTION OF THESE MESSAGES MUST NOT BE CONFUSED WITH THE 2-DIGIT MESSAGE NUMBERS 'XX', WHICH ARE COMMON TO ALL SECTIONS/ROUTINES.

EACH ROUTINE ASSUMES THE FILE CONTROL SWITCH IS INITIALLY IN THE NEUTRAL POSITION. IF, DUE TO AN ERROR CONDITION, THE CHANNEL OR SWITCH 'HANGS', IT WILL BE NECESSARY TO PERFORM A SYSTEM 'RESET/START' IN ORDER TO RESTART PROGRAM EXECUTION.

5.1 COMMENTS BY SECTION, ROUTINE.

5.1.1 SECTION 1, ROUTINE 1

PURPOSE

THE FUNCTION OF THIS ROUTINE IS TO ADDRESS AN ACCESS VIA BOTH CHANNEL INTERFACES OF THE FILE CONTROL SWITCH TO MAKE CERTAIN PROPER RESPONSE IS RECEIVED. THE ERROR NUMBER ASSOCIATED WITH THIS ROUTINE IS SR03.

METHOD

AN ACCESS IS SEEKED TO CYLINDER 0, HEAD 0 VIA EACH FILE CONTROL INTERFACE, THEREFORE THE ACCESS IS ADDRESSED TWICE. ERROR NUMBER SR03 IS PRINTED IF UNEXPECTED RESULTS ARE RECEIVED. UNIT STATUS OF DEVICE END AND CHANNEL END IS EXPECTED.

5.1.2 SECTION 2, ROUTINE 1

PURPOSE

THE DEVICE-ALLOCATION COMMANDS ARE CHECKED BY THIS ROUTINE. AN ACCESS IS RESERVED TO FILE CONTROL INTERFACE -A- AND ADDRESSED ON INTERFACE -B-. A DEVICE BUSY IS EXPECTED FROM INTERFACE -B-. THE ACCESS IS THEN RELEASED FROM INTERFACE -A-. POLLING IS RELIEVED AND A DEVICE END STATUS IS EXPECTED FROM THE ACCESS VIA INTERFACE -B-. THE ERROR NUMBERS ASSOCIATED WITH ROUTINE ARE SR05, SR09, SR10, SR11, SR12, AND SR13.

METHOD

AN ACCESS IS RESERVED TO INTERFACE -A-. IF AN ERROR OCCURS WHEN ATTEMPTING TO RESERVE THE ACCESS AN ERROR NUMBER SR09 IS PRINTED. AFTER THE ACCESS HAS BEEN RESERVED TO INTERFACE -A-, IT IS ADDRESSED ON INTERFACE -B- WITH A SENSE COMMAND. THE INITIAL STATUS RESPONSE SHOULD BE DEVICE BUSY WHEN THE ACCESS IS ADDRESSED. IF AN ERROR OCCURS WHILE THIS IS PERFORMED, AN ERROR NUMBER SR11 IS PRINTED. IF NO ERRORS OCCUR, THE PROGRAM TIMES-OUT FOR APPROXIMATELY ONE SECOND. NO OTHER INTERRUPTS SHOULD OCCUR. IF AN ACCESS DOES CAUSE AN INTERRUPT AN ERROR NUMBER SR12 IS PRINTED, INDICATING WHICH UNIT CAUSED THE INTERRUPT. THE ACCESS IS NOW RELEASED FROM INTERFACE -A-. IF AN ERROR OCCURS WHEN ATTEMPTING TO RELEASE THE ACCESS AN ERROR NUMBER SR10 IS PRINTED. POLLING IS RELIEVED AND THE PROGRAM EXPECTS A DEVICE END INTERRUPT FROM THE ACCESS VIA INTERFACE -B-. IF THE ACCESS FAILS TO INTERRUPT, OR IF INCORRECT STATUS IS RECEIVED FROM THE ACCESS, AN SR13 ERROR NUMBER IS PRINTED. WHEN THIS HAS COMPLETED, A ROUTINE EXIT IS PERFORMED.

5.1.3 SECTION 2, ROUTINE 2

SAME AS ROUTINE 1 EXCEPT THE FUNCTIONS PERFORMED ON THE INTERFACES ARE REVERSED.

5.1.4 SECTION 3, ROUTINE 1

PURPOSE

THIS ROUTINE CHECKS THAT THE CHANNEL SELECTION SWITCH DOES NOT RETURN TO NEUTRAL WHEN THE ENDING STATUS CONTAINS UNIT CHECK. THE ASSOCIATED ERROR NUMBERS ARE SR05, SR15, SR16, SR17, SR18, AND SR19.

METHOD

THE UNIT CHECK ENDING STATUS IS ACCOMPLISHED ON INTERFACE -A- BY ISSUING A SET FILE MASK CHAINED TO A DEVICE RESERVE COMMAND. ANY UNEXPECTED RESULTS ARE INDICATED WITH ASSOCIATED ERROR NUMBERS OF SR15 AND SR05. IF UNEXPECTED RESULTS ARE ENCOUNTERED AT THIS TIME THE ROUTINE IS ABORTED. IF NO ERRORS ARE ENCOUNTERED A TEST I/O AND A NO-OPERATION ARE PERFORMED TO THE SAVE DEVICE ON INTERFACE -A-. THE RESERVATION OF THE SWITCH TO INTERFACE -A- SHOULD NOT BE RESET. IF AN ERROR OCCURS ON THE NO-OPERATION IT IS INDICATED WITH ERROR NUMBERS OF SR16, AND SR05. IF AN ERROR IS ENCOUNTERED THE ROUTINE IS ABORTED. AFTER THIS HAS BEEN SUCCESSFULLY COMPLETED THE FILE CONTROL IS ADDRESSED WITH A SENSE COMMAND ON INTERFACE -A-. THE RESPONSE SHOULD BE CONTROL UNIT BUSY. IF CONTROL UNIT BUSY IS NOT PRESENTED, OR IF ANY OTHER UNUSUAL CONDITION IS DETECTED, AN ERROR NUMBER SR18 IS PRINTED. A SENSE COMMAND IS NOW PERFORMED ON INTERFACE -A- TO INSURE THAT THE SENSE DATA HAS NOT BEEN RESET. THE SENSE DATA SHOULD INDICATE COMMAND REJECT AND INVALID SEQUENCE. IF AN ERROR IS DETECTED AN ERROR NUMBER SR17 IS PRINTED. POLLING IS RELIEVED AND A CONTROL UNIT END INTERRUPT SHOULD OCCUR VIA INTERFACE -B-. THE I/O ADDRESS ASSOCIATED WITH THE INTERRUPT SHOULD BE THAT OF FILE CONTROL UNIT BASE ADDRESS. ANY UNUSUAL CONDITIONS ARE INDICATED BY AN ERROR NUMBER SR19 MESSAGE. WHEN THIS HAS BEEN COMPLETED A ROUTINE EXIT IS PERFORMED.

5.1.5 SECTION 3, ROUTINE 2

SAVE AS ROUTINE 1 EXCEPT THE FUNCTIONS PERFORMED ON THE INTERFACES ARE REVERSED.

5.1.6 SECTION 4, ROUTINE 1

NOTE THIS SECTION IS OPTIONAL. IF IT IS DESIRED TO RUN THIS ENTIRE SECTION, SECTION 4, ROUTINE 0 MUST BE SPECIFIED IN SW FNC 1.

PURPOSE

THIS ROUTINE CHECKS THAT FILE CONTROL INTERFACE -A- CAN BE DISABLED. THE INTERFACE -A- SWITCH IS PLACED IN THE DISABLE POSITION WHILE CLOCK-OUT IS DOWN, AND WHILE THE CHANNEL SELECTION SWITCH IS IN THE NEUTRAL POSITION. THIS ROUTINE IS NORMALLY NOT RUN. IF IT IS DESIRED TO RUN THIS ROUTINE, SECTION 4, ROUTINE 1 MUST BE SPECIFIED IN SW FNC 1. THE ERROR NUMBERS ASSOCIATED WITH THIS ROUTINE ARE SR20 AND SR21.

METHOD

A MESSAGE IS GIVEN INSTRUCTION THE USER TO PLACE INTERFACE -A- SWITCH TO DISABLE, STOP, THEN START THE PROCESSOR, CONTINUING THE PROGRAM. THE CHANNEL SELECTION SWITCH IN NEUTRAL, CLOCK-OUT DOWN, AND THE INTERFACE -A- SWITCH IN THE DISABLE POSITION SHOULD DISABLE FILE CONTROL INTERFACE -A-. THE FILE CONTROL UNIT IS ADDRESSED ON INTERFACE -A- WITH A SEEK COMMAND. SELECT-OUT SHOULD BE PROPAGATED BY THE FILE CONTROL WHICH SHOULD CAUSE THE CHANNEL TO SET UNIT NOT OPERATIONAL. THIS INDICATES THAT THE INTERFACE -A- SWITCH IS FUNCTIONING PROPERLY. UNEXPECTED RESULTS ARE INDICATED BY A MESSAGE WITH ERROR NUMBER SR20.
A MESSAGE IS THEN GIVEN INSTRUCTING THE USER TO PLACE THE INTERFACE -A- SWITCH TO ENABLE, STOP, THEN START THE PROCESSOR, CONTINUING THE PROGRAM. A SEEK IS NOW PERFORMED TO INSURE THAT INTERFACE -A- IS ENABLED. ANY ERRORS DETECTED WHEN EXECUTING THIS SEEK COMMAND ARE INDICATED BY AN ERROR NUMBER SR21 PRINTOUT.
WHEN THIS IS COMPLETED A ROUTINE EXIT IS PERFORMED.

5.1.7 SECTION 4, ROUTINE 2

SAVE AS ROUTINE 1 EXCEPT THE OPPOSITE INTERFACE SWITCH IS TESTED.

5.1.8 SECTION 4, ROUTINE 3

PURPOSE
THIS ROUTINE CHECKS THAT FILE CONTROL INTERFACE -A- IS NOT DISABLED WHEN THE INTERFACE -A- SWITCH IS PLACED IN THE DISABLE POSITION WHEN CLOCK-OUT IS UP. THIS ROUTINE IS NORMALLY NOT RUN. IF IT IS DESIRED TO RUN THIS ROUTINE, THE USER MUST SELECT SECTION 4, ROUTINE 3 IN SW FNC 1. THE ERROR NUMBERS ASSOCIATED WITH THIS ROUTINE ARE SR22 AND SR23.

METHOD

A MESSAGE IS GIVEN INSTRUCTING THE USER TO PLACE THE INTERFACE -A- SWITCH TO THE DISABLE POSITION. THE PROGRAM THEN TIMES-OUT FOR 30 SECONDS, ALLOWING TIME FOR THE SWITCH TO BE PLACED IN THE DISABLE POSITION WITHOUT DROPPING THE CLOCK-OUT LINE. A SEEK COMMAND IS GIVEN VIA INTERFACE -A-, WHICH SHOULD BE EXECUTED. ANY ERRORS ARE INDICATED BY AN ERROR NUMBER SR22 MESSAGE.

NEXT, THE USER IS INSTRUCTED TO PLACE INTERFACE -A- SWITCH TO THE ENABLE POSITION. THE PROGRAM AGAIN TIMES-OUT FOR 30 SECONDS, ALLOWING TIME FOR THE INTERFACE -A- SWITCH TO BE PLACED IN THE ENABLE POSITION WITHOUT DROPPING THE CLOCK-OUT LINE. ANOTHER SEEK COMMAND IS INITIATED TO THE DEVICE ON THE SAME INTERFACE -A-, WHICH SHOULD ALSO BE EXECUTED IN A NORMAL MANNER. ANY ERROR IS INDICATED BY AN ERROR NUMBER SR24 MESSAGE. WHEN THIS IS ACCOMPLISHED A ROUTINE EXIT IS PERFORMED.

5.1.9 SECTION 4, ROUTINE 4

SAME AS ROUTINE 3 EXCEPT THE OPPOSITE INTERFACE SWITCH IS TESTED.

5.1.10 SECTION 4, ROUTINE 5

PURPOSE

THIS ROUTINE CHECKS THAT FILE CONTROL INTERFACE -A- IS NOT DISABLED WHEN THE INTERFACE -A- SWITCH IS PLACED IN THE DISABLE POSITION WHEN CLOCK-OUT IS DOWN AND THE CHANNEL SELECTION SWITCH IS SELECTED TO THAT INTERFACE. THIS ROUTINE IS NORMALLY NOT RUN. IF IT IS DESIRED TO RUN THIS ROUTINE, SECTION 4, ROUTINE 5 MUST BE SPECIFIED IN SW FNC 1. THE ERROR NUMBERS ASSOCIATED WITH THIS ROUTINE ARE SR24 AND SR25.

METHOD

A SET-FILE-MASK COMMAND CHAINED TO A RESERVE COMMAND IS EXECUTED. THIS SHOULD CAUSE A UNIT CHECK STATUS TO BE GENERATED. THE UNIT CHECK STATUS CAUSES THE SWITCH TO RETAIN ITS SELECTION TO INTERFACE -A-. THE USER IS INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH TO DISABLE, STOP, THEN START, THE PROCESSOR, CONTINUING THE PROGRAM. STOPPING THE PROCESSOR ALLOWS CLOCK-OUT TO DROP WHILE THE INTERFACE -A- SWITCH IS IN THE DISABLE POSITION. THE SELECTION TO THIS INTERFACE SHOULD BE MAINTAINED BECAUSE THE UNIT CHECK STATUS RETAINS THE SELECTION UNTIL A SENSE OR A COMMAND OTHER THAN TEST I/O OR NO-OP IS PERFORMED. A SEEK COMMAND IS ISSUED AND IT SHOULD BE PERFORMED IN A NORMAL MANNER. THE USER IS NOW INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH TO ENABLE, STOP, THEN START THE PROCESSOR, CONTINUING THE PROGRAM. WHEN THIS IS ACCOMPLISHED, A ROUTINE EXIT IS PERFORMED.

UNEXPECTED RESULTS FROM THE ILLEGAL COMMAND CHAIN ARE INDICATED BY AN ERROR NUMBER SR24 MESSAGE.
UNEXPECTED RESULTS FROM THE SEEK COMMAND ARE INDICATED BY AN ERROR NUMBER SR25 MESSAGE.

5.1.11 SECTION 4, ROUTINE 6

SAME AS ROUTINE 5 EXCEPT THE OPPOSITE INTERFACE SWITCH IS TESTED.

5.1.12 SECTION 4, ROUTINE 7

PURPOSE

THIS ROUTINE CHECKS THAT INTERFACE -A- REMAINS DISABLED WHEN THE INTERFACE -A- SWITCH GOES FROM THE DISABLED POSITION TO THE ENABLED POSITION WITH CLOCK-OUT UP. THE ERROR NUMBERS ASSOCIATED WITH THIS ROUTINE ARE SR26 AND SR27.

METHOD

THE USER IS INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH TO DISABLE, STOP, THEN START THE PROCESSOR, CONTINUING THE PROGRAM. THIS SHOULD DISABLE FILE CONTROL INTERFACE -A-. NEXT, THE USER IS INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH TO ENABLE. THE PROGRAM IS NOT STOPPED, BUT TIMES-OUT FOR 30 SECONDS FOR THE SWITCH TO BE DISABLED. THIS DOES NOT ALLOW CLOCK-OUT TO DROP. A SEEK COMMAND IS ISSUED BUT SHOULD NOT BE PERFORMED. SELECT-OUT SHOULD BE PROPAGATED BY THIS FILE CONTROL INTERFACE, CAUSING A UNIT-NOT-OPERATIONAL TO BE SET BY THE CHANNEL. ANY ERRORS DETECTED AT THIS TIME ARE INDICATED BY AN ERROR NUMBER SR26 MESSAGE. THE USER IS NEXT INSTRUCTED TO STOP, THEN START THE PROCESSOR, CONTINUING THE PROGRAM. THIS SHOULD ENABLE FILE INTERFACE -A- BECAUSE INTERFACE -A- SWITCH IS IN THE ENABLE POSITION AND CLOCK-OUT IS DOWN. A SEEK COMMAND IS ISSUED AT THIS TIME, WHICH SHOULD BE ACCEPTED AND EXECUTED NORMALLY. ANY ERRORS ARE INDICATED BY AN ERROR NUMBER SR27 MESSAGE. WHEN THIS IS ACCOMPLISHED A ROUTINE EXIT IS PERFORMED.

5.1.13 SECTION 4, ROUTINE 8

SAME AS ROUTINE 7 EXCEPT THE OPPOSITE INTERFACE SWITCH IS TESTED.

5.2 COMMENTS BY ERROR NUMBERS

NOTE ONLY THE FIRST ERROR NUMBER WITHIN A SERIES SHOULD BE RELIED UPON FOR VALID INFORMATION. IN OTHER WORDS, ALLOWING THE PROGRAM TO CONTINUE AFTER THE FIRST ERROR MAY RESULT IN MEANINGLESS ERROR INDICATIONS.

**ER28 -EXPECTED INTRPT NOT RCVD- -RTN ABORT PENDING-

THE ABOVE MESSAGE MAY PRECEED ERROR MESSAGE NUMBERS 2109, 2110, 2111, 2113, 2209, 2210, 2211, 2213, 3115, 3116, 3117, 3118, 3119, 3215, 3216, 3217, OR 3219. IF THIS OCCURS CONSULD THE ERROR 28 MESSAGE DESCRIPTION, SINCE THE CAUSE OF THE ERROR IS 'REDEFINED' AND THE USER OPTIONS ARE NOW DIFFERENT. REFER TO SECTION 4.2.1 OF THIS DOCUMENT.

ERROR #	COMMENTS
SRXX	
1103	THIS IS AN ERROR DETECTED BY ROUTINE 1 OF SECTION 1. AN ERROR WAS ENCOUNTERED ON A SEEK COMMAND TO AN ACCESS. THE SEEK COMMAND SHOULD BE EXECUTED WITHOUT ERROR TO CYLINDER 0, HEAD 0.
2105	THIS ERROR MESSAGE INDICATES THAT THE ROUTINE IS BEING ABNORMALLY TERMINATED BECAUSE OF A PREVIOUSLY-ENCOUNTERED ERROR. THE ERROR IN QUESTION IS PRINTED IN THE MESSAGE IMMEDIATELY PRECEEDING. THIS MESSAGE WILL NOT APPEAR UNLESS THE PROGRAM WAS ALLOWED TO CONTINUE PAST THE PRECEEDING ERROR.
2109	THIS ERROR IS DETECTED BY ROUTINE 1 OF SECTION 2. A RESERVE TO INTERFACE -A- COMMAND WAS GIVEN TO THE DEVICE INDICATED. AN ERROR WAS DETECTED. THE PROGRAM EXPECTED A DEVICE STATUS OF CHANNEL END AND DEVICE END. THIS ERROR WILL RESULT IN ROUTINE TERMINATION IF THE PGM IS ALLOWED TO CONTINUE.
2110	THIS ERROR WAS DETECTED BY ROUTINE 1 OF SECTION 2. A DEVICE WAS RESERVED TO INTERFACE -A-, ADDRESSED FROM INTERFACE -B-, AND RELEASED FROM INTERFACE -A-. AN ERROR WAS DETECTED WHEN RELEASING THE INDICATED DEVICE. THE PROGRAM EXPECTED A CSW STATUS OF CHANNEL END AND DEVICE END AND SENSE DATA OF ZERO.
2111	THIS ERROR IS DETECTED BY ROUTINE 1 OF SECTION 2. A DEVICE WAS RESERVED TO INTERFACE -A-, THEN ADDRESSED FROM INTERFACE -B-. THE INITIAL STATUS SHOULD CONTAIN DEVICE BUSY WHEN THE ACCESS IS ADDRESSED WITH THE SEEK COMMAND, BUT AN ERROR OCCURRED. THE PROGRAM EXPECTED TO FIND A CHANNEL STATUS OF UNIT STATUS PENDING AND A DEVICE STATUS OF DEVICE BUSY. THIS ERROR WILL RESULT IN ROUTINE TERMINATION IF THE PGM IS ALLOWED TO CONTINUE.
2112	THIS IS AN ERROR DETECTED BY ROUTINE 1 OF SECTION 2. A DEVICE WAS RESERVED TO INTERFACE -A-, THEN ADDRESSED VIA INTERFACE -B- WITH A SEEK COMMAND, WITH AN INITIAL STATUS OF DEVICE BUSY. THE PROGRAM WAITED FOR APPROXIMATELY ONE SECOND AND AN INTERRUPT WAS RECEIVED VIA INTERFACE -B-. THIS SHOULD NOT HAVE OCCURRED BECAUSE THE ACCESS SHOULD HAVE BEEN RESERVED TO INTERFACE -A-. REFER TO THE UNEXPECTED I/R MESSAGE PRECEEDING THIS MESSAGE TO OBTAIN CHANNEL STATUS AND UNIT ADDRESS. NO SCOPE LOOP (OPTION SW 8) IS AVAILABLE.
2113	THIS IS AN ERROR DETECTED BY ROUTINE 1 OF SECTION 2. A DEVICE WAS RESERVED TO INTERFACE -A-, THEN ADDRESSED VIA INTERFACE -B- WITH A SEEK COMMAND, WITH INITIAL STATUS OF DEVICE BUSY. THE PROGRAM WAITED FOR APPROXIMATELY ONE SECOND AND NO OTHER INTERRUPTS OCCURRED, WHICH IS CORRECT. THE ACCESS WAS RELEASED FROM INTERFACE -B- AND POLLING WAS RELIEVED. THE PROGRAM EXPECTED A DEVICE END INTERRUPT FROM THE ACCESS VIA INTERFACE -B-, BUT THE INTERRUPT RECEIVED FOR THE DEVICE IN QUESTION HAD UNEXPECTED DATA IN ITS CSW. THE ACTUAL CHANNEL STATUS WORDS AND UNIT ADDRESS OF THE ACCESS ARE PRINTED. NO SCOPE LOOP (OPTION SW 8) IS AVAILABLE.

2205 THIS ERROR MESSAGE INDICATES THAT THE ROUTINE IS BEING ABNORMALLY TERMINATED BECAUSE OF A PREVIOUSLY-ENCOUNTERED ERROR. THE ERROR IN QUESTION IS PRINTED IN THE MESSAGE IMMEDIATELY PRECEEDING. THIS MESSAGE WILL NOT APPEAR UNLESS THE PROGRAM WAS ALLOWED TO CONTINUE PASSED THE PRECEEDING ERROR.

2209 THIS ERROR IS DETECTED BY ROUTINE 2 OF SECTION 2. A RESERVE TO INTERFACE -B- COMMAND WAS GIVEN TO THE DEVICE INDICATED. AN ERROR WAS DETECTED. THE PROGRAM EXPECTS A DEVICE STATUS OF CHANNEL END AND DEVICE END. THIS ERROR WILL RESULT IN ROUTINE TERMINATION IF THE PGM IS ALLOWED TO CONTINUE.

2210 THIS ERROR IS DETECTED BY ROUTINE 2 OF SECTION 2. A DEVICE WAS RESERVED TO INTERFACE -B-, ADDRESSED VIA INTERFACE -A-, THEN RELEASED FROM INTERFACE -B-. AN ERROR WAS DETECTED WHEN RELEASING THE INDICATED DEVICE. THE PROGRAM EXPECTED A CSW STATUS OF CHANNEL END AND DEVICE END AND SENSE DATA OF ZERO.

2211 THIS ERROR IS DETECTED BY ROUTINE 2 OF SECTION 2. A DEVICE WAS RESERVED TO INTERFACE -B-, ADDRESSED VIA INTERFACE -A-, WITH AN EXPECTED INITIAL STATUS OF DEVICE BUSY WHEN THE ACCESS IS ADDRESSED WITH THE SEEK COMMAND. HOWEVER, WHEN THIS WAS DONE, AN ERROR OCCURRED. THE PROGRAM EXPECTED A CHANNEL STATUS OF UNIT STATUS PENDING AND A DEVICE STATUS OF DEVICE BUSY. THIS ERROR WILL RESULT IN ROUTINE TERMINATION IF PGM IS ALLOWED TO CONTINUE.

2212 THIS IS AN ERROR DETECTED BY ROUTINE 2 OF SECTION 2. A DEVICE WAS RESERVED TO INTERFACE -B-, ADDRESSED VIA INTERFACE -A-, WITH AN INITIAL STATUS OF DEVICE BUSY. THE PGM WAITED APPROXIMATELY ONE SECOND AND AN INTERRUPT WAS RECEIVED VIA INTERFACE -A-. THIS SHOULD NOT HAVE OCCURRED BECAUSE THE ACCESS SHOULD BE RESERVED TO INTERFACE -B-. REFER TO THE UNEXPECTED I/R MESSAGE PRECEEDING THIS MESSAGE TO OBTAIN CHANNEL STATUS AND UNIT ADDRESS. NO SCOPE LOOP (OPTION SW8) IS AVAILABLE.

2213 THIS IS AN ERROR DETECTED BY ROUTINE 2 OF SECTION 2. A DEVICE WAS RESERVED TO INTERFACE -B-, ADDRESS VIA INTERFACE -A-, WITH INITIAL STATUS OF DEVICE BUSY. THE PROGRAM WAITED APPROXIMATELY ONE SECOND AND NO OTHER INTERRUPTS OCCURRED, WHICH IS CORRECT. THE ACCESS WAS RELEASED FROM INTERFACE -B- AND THE PROGRAM WAITED FOR APPROXIMATELY ONE SECOND, EXPECTING A DEVICE END INTERRUPT FROM THE ACCESS VIA INTERFACE -A-, BUT THE INTERRUPT RECEIVED FROM THE DEVICE IN QUESTION HAD UNEXPECTED STATUS. THE ACTUAL CHANNEL STATUS WORDS AND UNIT ADDRESS OF THE ACCESS ARE PRINTED. NO SCOPE LOOP (OPTION SW 8) IS AVAILABLE.

3105 THIS ERROR MESSAGE INDICATES THAT THE ROUTINE IS BEING ABNORMALLY TERMINATED BECAUSE OF A PREVIOUSLY-ENCOUNTERED ERROR. THE ERROR IN QUESTION IS PRINTED IN THE MESSAGE IMMEDIATELY PRECEEDING. THIS MESSAGE WILL NOT APPEAR UNLESS THE PROGRAM WAS ALLOWED TO CONTINUE PASSED THE PRECEEDING ERROR.

3115 THIS ERROR IS INDICATED BY ROUTINE 1 OF SECTION 3. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS EXECUTED, ADDRESSING THE ACCESS VIA INTERFACE -A-. THE PGM EXPECTED AN INTERRUPT, STORING A UNIT STATUS WORD CONTAINING UNIT CHECK. UNEXPECTED RESULTS WERE ENCOUNTERED. THIS ERROR MESSAGE WILL BE FOLLOWED BY ERROR NUMBER SR05 IF PGM IS ALLOWED TO CONTINUE, INDICATING ROUTINE IS BEING ABORTED BECAUSE OF THIS ERROR.

3116 THIS ERROR IS INDICATED BY ROUTINE 1 OF SECTION 3. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS EXECUTED, ADDRESSING THE ACCESS ON INTERFACE -A-. THIS SHOULD CAUSE A UNIT CHECK STATUS TO BE GENERATED. THE PGM RECEIVED THE UNIT CHECK ENDING STATUS AND THEN EXECUTED A TEST I/O AND A CONTROL NO-OPERATION. NEITHER THE TEST I/O NOR THE NO-OP SHOULD RESET THE SENSE DATA OF COMMAND REJECT AND INVALID SEQUENCE. UNEXPECTED RESULTS WERE RECEIVED, HOWEVER, WHEN THE CONTROL NO-OP WAS EXECUTED. THE PROGRAM EXPECTED AN INITIAL STATUS OF CHANNEL END AND DEVICE END, WHICH SHOULD STORE STATUS IN THE CSW. THIS ERROR MESSAGE WILL BE FOLLOWED BY ERROR NUMBER SR05 MESSAGE IF THE PGM IS ALLOWED TO CONTINUE AFTER THIS ERROR, INDICATING THIS ROUTINE IS BEING ABORTED BECAUSE OF THIS ERROR.

3117 THIS ERROR IS INDICATED BY ROUTINE 1 OF SECTION 3. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS EXECUTED, ADDRESSING THE ACCESS VIA INTERFACE -A-. THIS CAUSES A UNIT CHECK STATUS TO BE GENERATED. THE PROGRAM RECEIVED THE UNIT CHECK ENDING STATUS AND EXECUTED A TEST I/O AND A CONTROL NO-OPERATION TO THE SAME DEVICE. THE FILE CONTROL UNIT WAS THEN ADDRESSED VIA INTERFACE -B-, WITH AN INITIAL STATUS OF CONTROL UNIT BUSY. OPERATION TO THIS POINT HAS BEEN AS EXPECTED. A SENSE COMMAND WAS THEN ISSUED VIA INTERFACE -A- TO THE INDICATED DEVICE. UNEXPECTED RESULTS WERE ENCOUNTERED AT THIS TIME. THE PROGRAM EXPECTED SENSE DATA OF COMMAND REJECT AND INVALID SEQUENCE AND A DEVICE STATUS WORD CONTAINING CHANNEL END AND DEVICE END.

3118 THIS ERROR IS INDICATED BY ROUTINE 1 OF SECTION 3. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS EXECUTED, ADDRESSING THE ACCESS VIA INTERFACE -A-. THIS CAUSES A UNIT CHECK STATUS TO BE GENERATED. THE PROGRAM RECEIVED THE UNIT CHECK ENDING STATUS AND EXECUTED A TEST I/O AND A CONTROL NO-OPERATION TO THE SAME DEVICE. THE FILE CONTROL UNIT WAS THEN ADDRESSED VIA INTERFACE -B-, EXPECTING TO RECEIVE A CONTROL UNIT BUSY INITIAL STATUS. AN ERROR OCCURRED WHEN THIS WAS DONE. A SENSE COMMAND IS USED TO ADDRESS THE CONTROL UNIT. THE PROGRAM EXPECTED A CHANNEL STATUS WORD CONTAINING CONTROL UNIT BUSY STATUS. THE UNEXPECTED RESULTS ARE PRINTED IN THE MESSAGE.

3119 THIS ERROR IS INDICATED BY ROUTINE 1 OF SECTION 3. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS EXECUTED, ADDRESSING THE ACCESS VIA INTERFACE -A-. THIS CAUSES A UNIT CHECK STATUS TO BE GENERATED. THE PROGRAM RECEIVED THE UNIT CHECK ENDING STATUS AND EXECUTED A TEST I/O AND A CONTROL NO-OPERATION TO THE SAME DEVICE. THE FILE CONTROL UNIT WAS THEN ADDRESSED VIA INTERFACE -B-, RECEIVING A CONTROL UNIT BUSY INITIAL STATUS. A SENSE COMMAND WAS THEN ISSUED VIA INTERFACE -A- TO THE SAME DEVICE. THIS SHOULD CAUSE THE FILE CONTROL SWITCH TO RETURN TO NEUTRAL. THE PROGRAM WAITED FOR APPROXIMATELY ONE SECOND, EXPECTING A CONTROL UNIT END INTERRUPT VIA INTERFACE -B-. AN ERROR OCCURRED AT THIS POINT. NO SCOPE LOOP (OPTION SW 8) IS AVAILABLE.

3205 THIS ERROR MESSAGE INDICATES THAT THE ROUTINE IS BEING ABNORMALLY TERMINATED BECAUSE OF A PREVIOUSLY-ENCOUNTERED ERROR. THE ERROR IN QUESTION IS PRINTED IN THE MESSAGE IMMEDIATELY PRECEEDING. THIS MESSAGE WILL NOT APPEAR UNLESS THE PROGRAM WAS ALLOWED TO CONTINUE PASSED THE PRECEEDING ERROR.

3215 THIS ERROR IS INDICATED BY ROUTINE 2 OF SECTION 3. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS ISSUED, ADDRESSING THE ACCESS ON INTERFACE -B-. THE PROGRAM EXPECTED AN INTERRUPT, STORING A UNIT STATUS WORD CONTAINING UNIT CHECK. UNEXPECTED RESULTS WERE ENCOUNTERED. THIS ERROR MESSAGE WILL BE FOLLOWED BY AN ERROR NUMBER SR05 MESSAGE IF PGM IS ALLOWED TO CONTINUE, INDICATING THIS ROUTINE IS BEING ABORTED BECAUSE OF THIS ERROR.

3216 THIS ERROR IS INDICATED BY ROUTINE 2 OF SECTION 3. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS ISSUED, ADDRESSING THE ACCESS VIA INTERFACE -B-. THIS SHOULD CAUSE A UNIT CHECK STSTUS TO BE GENERATED. THE PROGRAM RECEIVED THE UNIT CHECK ENDING STATUS AND THEN EXECUTED A TEST I/O AND A CONTROL NO-OPERATION. NEITHER THE TEST I/O NOR THE NO-OP SHOULD RESET THE SENSE DATA OF COMMAND REJECT AND INVALID SEQUENCE. UNEXPECTED RESULTS WERE RECEIVED, HOWEVER, WHEN THE CONTROL NO-OP WAS EXECUTED. THE PGM EXPECTED AN INITIAL STATUS OF CHANNEL END AND DEVICE END, WHICH SHOULD STORE STATUS IN THE CSW. THIS ERR MESSAGE WILL BE FOLLOWED BY AN ERROR NUMBER SR05 MESSAGE IF THE PGM IS IS ALLOWED TO CONTINUE, INDICATING THIS ROUTINE IS BEING ABORTED BECAUSE OF THIS ERROR.

3217 THIS ERROR IS INDICATED BY ROUTINE 2 OF SECTION 3. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS EXECUTED, ADDRESSING THE ACCESS VIA INTERFACE -B-. THIS CAUSES A UNIT CHECK STATUS TO BE GENERATED. THE PROGRAM RECEIVED THE UNIT CHECK ENDING STATUS AND EXECUTED A TEST I/O AND A CONTROL NO-OPERATION TO THE SAME DEVICE. THE FILE CONTROL UNIT WAS THEN ADDRESSED VIA INTERFACE -A-, WITH AN INITIAL STATUS OF CONTROL UNIT BUSY. OPERATION TO THIS POINT IS AS EXPECTED. A SENSE COMMAND WAS THEN ISSUED TO THE INDICATED DEVICE VIA INTERFACE -B-. UNEXPECTED RESULTS WERE ENCOUNTERED AT THIS POINT. THE PROGRAM EXPECTED SENSE DATA OF COMMAND REJECT AND INVALID SEQUENCE AND A DEVICE STATUS WORD CONTAINING CHANNEL END AND DEVICE END.

3218 THIS ERROR IS INDICATED BY ROUTINE 2 OF SECTION 3. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS ISSUED, ADDRESSING THE ACCESS ON INTERFACE -B-. THIS CAUSES A UNIT CHECK STATUS TO BE GENERATED. THE PROGRAM RECEIVED THE UNIT CHECK ENDING STATUS AND EXECUTED A TEST I/O AND A CONTROL NO-OPERATION TO THE SAME DEVICE. THE FILE CONTROL UNIT WAS THEN ADDRESSED VIA INTERFACE -A-, EXPECTING AN INITIAL STATUS OF CONTROL UNIT BUSY. AN ERROR OCCURRED ON INTERFACE -A- WHEN THIS WAS DONE. THE CONTROL UNIT WAS ADDRESSED WITH A SENSE COMMAND. THE PROGRAM EXPECTED A CHANNEL STATUS WORD CONTAINING CONTROL UNIT BUSY. THE UNEXPECTED RESULTS ARE PRINTED IN THE MESSAGE.

3219 THIS ERROR IS INDICATED BY ROUTINE 2 OF SECTION 3. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS EXECUTED, ADDRESSING THE ACCESS ON INTERFACE -B-. THIS CAUSES A UNIT CHECK STATUS TO BE GENERATED. THE PROGRAM RECEIVED THE UNIT CHECK ENDING STATUS AND EXECUTED A TEST I/O AND A CONTROL NO-OPERATION TO THE SAME DEVICE. THE FILE CONTROL UNIT WAS THEN ADDRESSED VIA INTERFACE -A-, RECEIVING AN INITIAL STATUS OF CONTROL UNIT BUSY. A SENSE COMMAND WAS THEN ISSUED TO THE SAME DEVICE VIA INTERFACE -B-. THIS SHOULD CAUSE THE FILE CONTROL SWITCH TO RETURN TO NEUTRAL. THE PROGRAM WAITS FOR APPROXIMATELY ONE SECOND, EXPECTING A CONTROL UNIT END INTERRUPT VIA INTERFACE -A-. AN ERROR OCCURRED AT THIS POINT. NO SCOPE LOOP (OPTION SW 8) IS AVAILABLE.

4120 THIS ERROR IS INDICATED BY ROUTINE 1 OF SECTION 4. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH TO THE DISABLE POSITION, TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. THIS SHOULD DISABLE INTERFACE -A- OF THE FILE CONTROL UNIT. A SEEK COMMAND WAS ISSUED, ADDRESSING THE ACCESS VIA INTERFACE -A-, EXPECTING A CHANNEL STATUS OF 'UNIT NOT OPERATIONAL'. THIS WOULD INDICATE THE CONTROL UNIT WAS PROPAGATING SELECT-OUT, WHICH IS CORRECT OPERATION. UNEXPECTED RESULTS WERE ENCOUNTERED ON THE SEEK COMMAND.

4121 THIS ERROR IS INDICATED BY ROUTINE 1 OF SECTION 4. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH TO THE DISABLE POSITION, TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. THIS SHOULD DISABLE THIS INTERFACE OF THE FILE CONTROL UNIT. A SEEK COMMAND WAS ISSUED, ADDRESSING AN ACCESS VIA INTERFACE -A-, RECEIVING A CHANNEL STATUS OF UNIT NOT OPERATIONAL. THE USER WAS THEN INSTRUCTED TO RETURN THE INTERFACE -A- SWITCH TO THE ENABLE POSITION, TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. A SEEK COMMAND WAS THEN ISSUED VIA INTERFACE -A-, WHICH SHOULD HAVE EXECUTED CORRECTLY. AN ERROR WAS ENCOUNTERED AT THIS POINT.

4220 THIS ERROR IS INDICATED BY ROUTINE 2 OF SECTION 4. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -B- SWITCH TO THE DISABLE POSITION, TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. THIS SHOULD DISABLE INTERFACE -B- OF THE FILE CONTROL UNIT. A SEEK COMMAND WAS ISSUED, ADDRESSING AN ACCESS VIA INTERFACE -B-, EXPECTING A CHANNEL STATUS OF UNIT NOT OPERATIONAL. THIS WOULD INDICATE THE CONTROL UNIT WAS PROPAGATING SELECT-OUT, WHICH IS CORRECT OPERATION. UNEXPECTED RESULTS WERE ENCOUNTERED ON THE SEEK COMMAND.

4221 THIS ERROR IS INDICATED BY ROUTINE 2 OF SECTION 4. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -B- SWITCH TO THE DISABLE POSITION, TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. THIS SHOULD DISABLE THIS INTERFACE OF THE FILE CONTROL UNIT. A SEEK COMMAND WAS ISSUED, ADDRESSING AN ACCESS VIA INTERFACE -B-, RECEIVING A CHANNEL STATUS OF UNIT NOT OPERATIONAL. THE USER WAS THEN INSTRUCTED TO RETURN THE INTERFACE -B- SWITCH TO THE ENABLE POSITION, TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. A SEEK COMMAND WAS ISSUED VIA INTERFACE -B-, WHICH SHOULD BE EXECUTED CORRECTLY. AN ERROR WAS ENCOUNTERED AN THIS SEEK COMMAND.

4322 THIS ERROR IS INDICATED BY ROUTINE 3 OF SECTION 4. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH TO THE DISABLE POSITION. THE PROGRAM TIMES-OUT FOR 30 SECONDS FOR THIS TO BE DONE, THEN A SEEK COMMAND WAS ISSUED. THE SEEK SHOULD BE PERFORMED EVEN THOUGH THE FILE CONTROL UNIT IS 'DISABLED', BECAUSE CLOCK-OUT WAS UP DURING THIS TIME. AN ERROR WAS ENCOUNTERED ON THE SEEK. THE PROGRAM EXPECTS A DEVICE STATUS WORD WITH CHANNEL END AND DEVICE END AND SENSE DATA OF ZERO.

4323 THIS ERROR IS INDICATED BY ROUTINE 3 OF SECTION 4. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH IN THE DISABLE POSITION. THE PROGRAM TIMES-OUT FOR 30 SECONDS FOR THIS TO BE DONE, THEN A SEEK COMMAND WAS ISSUED. THE USER WAS THEN INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH IN THE ENABLE POSITION, AND THE PROGRAM TIMED-OUT FOR 30 SECONDS FOR THIS TO BE DONE. A SEEK COMMAND WAS THEN ISSUED VIA INTERFACE -A-, WHICH SHOULD BE EXECUTED NORMALLY. AN ERROR WAS DETECTED ON THE LATTER SEEK. THE UNEXPECTED RESULTS RECEIVED ARE PRINTED IN THE MESSAGE.

4422 THIS ERROR IS INDICATED BY ROUTINE 4 OF SECTION 4. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -B- SWITCH IN THE DISABLE POSITION. THE PROGRAM TIMES-OUT FOR 30 SECONDS FOR THIS TO BE DONE, THEN A SEEK COMMAND WAS ISSUED. THE SEEK SHOULD BE PERFORMED EVEN THOUGH THE FILE CONTROL UNIT IS 'DISABLED', BECAUSE CLOCK-OUT WAS UP DURING THIS TIME. AN ERROR WAS ENCOUNTERED ON THE SEEK. THE PROGRAM EXPECTED A DEVICE STATUS WORD WITH CHANNEL END AND DEVICE END AND SENSE DATA OF ZERO.

4423 THIS ERROR IS INDICATED BY ROUTINE 4 OF SECTION 4. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -B- SWITCH IN THE DISABLE POSITION. THE PROGRAM TIMES-OUT FOR 30 SECONDS FOR THIS TO BE DONE, THEN A SEEK COMMAND WAS EXECUTED. THE USER WAS THEN INSTRUCTED TO PLACE THE INTERFACE -B- SWITCH IN THE ENABLE POSITION, AND THE PROGRAM TIMED-OUT FOR 30 SECONDS FOR THIS TO BE DONE. A SEEK COMMAND WAS THEN ISSUED VIA INTERFACE -B-, WHICH SHOULD BE EXECUTED NORMALLY. AN ERROR WAS DETECTED ON THIS LATTER SEEK. THE UNEXPECTED RESULTS ARE PRINTED IN THE MESSAGE.

4524 THIS ERROR IS DETECTED AND INDICATED BY ROUTINE 5 OF SECTION 4. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS ISSUED, WHICH SHOULD CAUSE A UNIT CHECK TO BE GENERATED. UNEXPECTED RESULTS WERE ENCOUNTERED. THE PROGRAM EXPECTS A UNIT STATUS WORD CONTAINING UNIT CHECK.

4525 THIS ERROR IS DETECTED AND INDICATED BY ROUTINE 5 OF SECTION 4. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS ISSUED, WHICH SHOULD CAUSE UNIT CHECK TO BE GENERATED. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH TO DISABLE, TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. A SEEK COMMAND IS THEN ISSUED, WHICH SHOULD BE EXECUTED NORMALLY. AN ERROR WAS ENCOUNTERED ON THIS SEEK COMMAND. THE CHANNEL AND ACCESS INVOLVED ARE DISPLAYED IN THE MESSAGE.

4624 THIS ERROR IS DETECTED AND INDICATED BY ROUTINE 6 OF SECTION 4. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS ISSUED, WHICH SHOULD CAUSE A UNIT CHECK TO BE GENERATED. UNEXPECTED RESULTS WERE ENCOUNTERED. THE PROGRAM EXPECTS A UNIT STATUS WORD CONTAINING UNIT CHECK.

4625 THIS ERROR IS DETECTED AND INDICATED BY ROUTINE 6 OF SECTION 4. A SET FILE MASK CHAINED TO A DEVICE RESERVE WAS ISSUED, WHICH SHOULD CAUSE A UNIT CHECK TO BE GENERATED. THE USER WAS THEN INSTRUCTED TO PLACE THE INTERFACE -B- SWITCH TO DISABLE, TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. A SEEK COMMAND WAS ISSUED, WHICH SHOULD BE EXECUTED NORMALLY. AN ERROR WAS ENCOUNTERED ON THIS SEEK COMMAND. THE UNIT INDICATED DEFINES THE CHANNEL AND ACCESS INVOLVED.

4726 THIS ERROR IS DETECTED AND INDICATED BY ROUTINE 7 OF SECTION 4. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH TO DISABLE, TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. THE PROGRAM TIMED-OUT FOR 30 SECONDS FOR THIS TO BE DONE. THE USER WAS THEN INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH TO ENABLE. THE PROGRAM TIMED-OUT FOR 30 SECONDS FOR THIS TO BE DONE. A SEEK COMMAND WAS THEN EXECUTED. THE PROGRAM EXPECTED A CHANNEL STATUS OF UNIT NOT OPERATIONAL, SELECT OUT PROPAGATED BY THE CONTROL UNIT. UNEXPECTED RESULTS WERE ENCOUNTERED AT THIS POINT. THE UNEXPECTED DATA RECEIVED IS DISPLAYED IN THE MESSAGE.

4727 THIS ERROR IS DETECTED AND INDICATED BY ROUTINE 7 OF SECTION 4. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH TO DISABLE, TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. THE PROGRAM TIMES-OUT FOR 30 SECONDS FOR THIS TO BE DONE. THE USER WAS THEN INSTRUCTED TO PLACE THE INTERFACE -A- SWITCH TO ENABLE. THE PROGRAM AGAIN TIMES-OUT FOR 30 SECONDS FOR THIS TO BE DONE. A SEEK COMMAND WAS EXECUTED, WITH A CHANNEL STATUS OF UNIT NOT OPERATIONAL RECEIVED, WHICH IS CORRECT. THE USER WAS THEN INSTRUCTED TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. THIS SHOULD ENABLE INTERFACE -A-. A SEEK COMMAND WAS THEN ISSUED BUT UNEXPECTED RESULTS WERE ENCOUNTERED AT THIS TIME.

4826 THIS ERROR IS DETECTED AND INDICATED BY ROUTINE 8 OF SECTION 4. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -B- SWITCH TO DISABLE, TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. THE PROGRAM TIMES-OUT FOR 30 SECONDS FOR THIS TO BE DONE. THE USER WAS THEN INSTRUCTED TO PLACE THE INTERFACE -B- SWITCH TO ENABLE. THE PROGRAM AGAIN TIMED-OUT FOR 30 SECONDS FOR THIS TO BE DONE. A SEEK COMMAND WAS EXECUTED. THE PROGRAM EXPECTED A CHANNEL STATUS OF UNIT NOT OPERATIONAL, SELECT OUT PROPAGATED BY THE CONTROL UNIT, BUT UNEXPECTED RESULTS WERE ENCOUNTERED AT THIS TIME. THE UNEXPECTED DATA RECEIVED IS DISPLAYED IN THE MESSAGE.

4827 THIS ERROR IS DETECTED AND INDICATED BY ROUTINE 8 OF SECTION 4. THE USER WAS INSTRUCTED TO PLACE THE INTERFACE -B- SWITCH TO DISABLE, TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. THE PROGRAM TIMED-OUT FOR 30 SECONDS FOR THIS TO BE DONE. THE USER WAS THEN INSTRUCTED TO PLACE THE INTERFACE -B- SWITCH TO ENABLE. THE PROGRAM AGAIN TIMES-OUT FOR 30 SECONDS FOR THIS TO BE DONE. A SEEK COMMAND WAS EXECUTED, WITH A CHANNEL STATUS OF UNIT NOT OPERATIONAL RECEIVED, WHICH IS CORRECT. THE USER WAS THEN INSTRUCTED TO STOP, THEN START THE CPU, CONTINUING THE PROGRAM. THIS SHOULD ENABLE INTERFACE -B-. A SEEK COMMAND WAS THEN ISSUED, BUT UNEXPECTED RESULTS WERE ENCOUNTERED AT THIS TIME.

5.3 COMMON SUBROUTINES

1) GET SENSE
THIS SUBROUTINE IS USED BY MOST ROUTINES TO GET FOUR (4) SENSE BYTES OF ACCESS STATUS INFORMATION. AFTER THE SUBROUTINE HAS PERFORMED THE START I/O AND CHECKED THAT THE SENSE COMMAND HAS BEEN ACCEPTED, IT WILL WAIT IN A TEST I/O ADAPTER BUSY LOOP FOR THE 4 BYTES TO TRANSFER. THE PROGRAM WILL HANG-UP IF IT FOREVER RECEIVES ADAPTER BUSY.

2) START I/O
THIS SUBROUTINE IS USED BY ALL ROUTINES TO START A CHAIN OF CCW(S) (CHANNEL COMMAND WORDS). BEFORE THE START I/O IS EXECUTED, THE SUBROUTINE PERFORMS A TEST I/O TO CHECK THAT THE ACCESS IS AVAILABLE. THE PROGRAM THEN SETS UP THE CAW, EXECUTES A START I/O AND CHECKS THAT THE COMMAND WAS ACCEPTED. THE 'WAIT' SUBROUTINE IS USED TO WAIT FOR COMPLETION OF THE CHAIN OF COMMANDS BEFORE RETURNING TO THE CALLING ROUTINE.

3) EROUT
THIS SUBROUTINE IS USED BY ALL ROUTINES TO PRINT OUT AN ERROR NUMBER OR ERROR MESSAGE, THE CAW, CSW, AND/OR SENSE INFORMATION. THE ROUTINE ALSO PROVIDES FOR PRINTING A BLANK LINE AS A SEPARATOR, WILL GET THE SENSE BYTES, STOP AFTER PRINTING ERROR, RETURN TO PROGRAM VIA AN OPTIONAL REG, AND OR EXIT TO NEXT ROUTINE.

6. APPENDIX

6.1 CHANNEL STATUS WORDS DEVICE AND CHANNEL STATUS BITS LAYOUT IN HEX

CSW ADRS YYYY UUZZ CNTR

8000 . . . UNIT NOT OPERATIONAL
4000 . . . UNIT STATUS PENDING
2000 . . . PROGRAM CONTROL INTERRUPT
1000 . . . PROGRAM CHECK
0800 . . . DATA CHECK
0400 . . . CONTROL CHECK
0200 . . . INCORRECT LENGTH
0100 . . . ADAPTER BUSY

80. . . ATTENTION
40. . . STATUS MODIFIER
20. . . CONTROL UNIT END
10. . . BUSY
08. . . CHANNEL END
04. . . DEVICE END
02. . . UNIT CHECK
01. . . UNIT EXCEPTION

ADRS = CHANNEL CCW ADDRESS REGISTER
YYYY = CHANNEL STATUS IN HEX
UUZZ = UNIT ADDRESS/UNIT STATUS IN HEX
CNTR = CHANNEL BYTE COUNT REGISTER

6.2 SENSE BYTES RECEIVED ON A SENSE I/O COMMAND
BIT LAYOUT IN BINARY

BYTE 0, BIT 0 = COMMAND REJECT
1 = INTERVENTION REQUIRED
2 = BUS OUT PARITY
3 = EQUIP CHECK
4 = DATA (BURST) CHECK
5 = CHANNEL/2841 OVRN
6 = TRACK CONDITION CHECK
7 = SEEK CHECK

BYTE 1, BIT 0 = DATA CHECK IN COUNT FIELD
1 = TRACK OVERFLOW
2 = END OF CYLINDER
3 = INVALID SEQUENCE
4 = NO RECORD FOUND
5 = FILE PROTECTED
6 = MISSING ADDRESS MARKER
7 = OVERFLOW INCOMPLETE

BYTE 2, BIT 3 = UNSAFE
1 =
2 = SERDES CHECK
3 =
4 = 2841 ALU CHECK
5 = UNSELECTED FILE STATUS
6 =
7 =

BYTE 3, BIT 0 = DRIVE READY
1 = ON LINE
2 = UNSAFE
3 =
4 = ONLINE
5 = END OF CYLINDER
6 =
7 = SEEK INCOMPLETE

6.3

THE FOLLOWING EDIT CARDS ARE REQUIRED BY THIS PROGRAM:

1. CARD 0 - MUST CONTAIN 2 EDITS. THE FIRST MUST DEFINE THE LOG DEVICE AND THE SECOND MUST DEFINE THE SELECTOR CHANNEL.
2. END CARD - MUST HAVE FFFF IN COLUMNS 7-10.
3. SEE NOTE 2.

THE DEVICE DEFINITION EDIT FIELD (DDEF) INCLUDES THE FOLLOWING:

1. THE INTERRUPT LEVEL ASSOCIATED WITH THE DEVICE.
2. THE ILSW BIT POSITION ASSOCIATED WITH THIS DEVICE.
3. THE CHANNEL ASSIGNED TO THIS DEVICE.

NOTE 1 - THIS PROGRAM HAS ITS OWN LOG ROUTINE. THE FIRST ENTRY ON THE EDIT CARD IS ASSOCIATED WITH THE C.E. LOG DEVICE.

NOTE 2 - THE SELECTOR CHANNEL EDIT ENTRY FOR THE DIAGNOSTIC MONITOR (DM) SHOULD NOT CONTAIN A UNIT ADDRESS FOR A 2311 DISK DRIVE OR A 2841 CONTROL UNIT. i.e. 9000

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM I.D.					CARD SEQUENCE NR.					NUMBER OF ENTRIES					DDEF LOG DEV. NOTE 1. INTERRUPT LEVEL (HEX)		ILSW BIT (HEX)	CHANNEL OR F		DDEF SEL. CH N. NOTE 2. INTERRUPT LEVEL (HEX)		ILSW BIT (HEX)	CHANNEL							
CARD 0	E	1	3	0	0		E	D	0	0		0	0	0	2		X	X	X	X		X	X	X	X							
END EC.	E	1	3	0	0		F	F	F	F																					

DATE 14NOV69 22NOV71
EC NO. 431319 431328

```
                        *                                                   81400020
                        ***************************************************** 81400030
                        *                                                   * 81400040
                        ***************************************************** 81400050
                        *                                                   81400060
                        *            1800 MONITOR INTERFACE                 81400070
                        *                                                   81400080
                        ***************************************************** 81400090
                        *                                                   * 81400100
                        ***************************************************** 81400110
012C 0                  BEGIN EQU    300                                    81400120
012D 0                  START EQU    BEGIN+1                                81400130
012E 0                  END   EQU    START+1                                81400140
012F 0                  LOG   EQU    END+1                                  81400150
0130 0                  ERROR EQU    LOG+1                                  81400160
0131 0                  REQDV EQU    ERROR+1                                81400170
0132 0                  RELDV EQU    REQDV+1                                81400180
0133 0                  CRCK  EQU    RELDV+1                                81400190
0134 0                  MAT0  EQU    CRCK+1                                 81400200
                        *                                                   81400210
07FF                          ORG    *+/07FF    ORIGIN OF PGM               81400220
                        *                                                   81400230
                        *           MONITOR INTERFACE TABLES                81400240
                        *                                                   81400250
07FF 0 1400             TPID  DC     /1400                                  81400260
0800 0 0001             TSID  DC     1          SECTION ID                  81400270
0801 0 0000             TSAD  DC     0          SECTION PREFACE ADDRESS     81400280
                        *     EQUATES FOR TSW0 SWITCH OPTIONS               81400290
0008 0                  OLPST EQU    8          LOOP SIO,TIO                81400300
0009 0                  OSALC EQU    9          SEEK ALIGNMENT CYLINDER     81400310
0009 0                  OPRRS EQU    9                                      81400320
000A 0                  OTTLE EQU    10         PRINT RTN TITLES            81400330
000B 0                  ORTRY EQU    11         RETRY SIO                   81400340
000C 0                  OLPER EQU    12         LOOP ERROR                  81400350
000D 0                  OBYPR EQU    13         BYPASS ALL PRINTOUTS        81400360
000E 0                  OHALT EQU    14         HALT ON ERROR               81400370
000F 0                  OCHLT EQU    15         CLEAR ERROR HALT            81400380
                        *                                                   81400390
0802 0 0000             TSW0  DC     0          SELECT OPTIONS              81400400
0803 0 0000             TSW1  DC     0          SELECT SECT AND RTN         81400410
0804 0 FF00             TSW2  DC     /FF00      UNIT ADDRESS                81400420
0805 0 0000             TSW3  DC     0                                      81400430
0806 1 09AF             IPA   DC     ZIPA       INIT PRGM ADDRESS           81400440
0807 1 09C5             LPA   DC     ZLPA       LOOP PRGM ADDRS             81400450
0808 1 09E2             EPA   DC     ZEPA       END PRG ADDRS               81400460
0809 0                  MLSCF EQU    *          MONITOR CONTROL FIELD       81400470
0809 0 0000             MLSC0 DC     0          ENTRY ZERO                  81400480
080A 0 0000             MLSC1 DC     0               ONE                    81400490
080B 0 0000             MLSC2 DC     0               TWO                    81400500
080C 0 FFFF             TERM  DC     /FFFF                                  81400510
080D 1 15E0                   DC     PEND       LAST ADDRS                  81400520
080E 0 0000                   DC     0          WORDS FOR MONITOR USE       81400530
080F 0 0000                   DC     0          *                           81400540
0810 0 0000                   DC     0          *                           81400550
0811 0 0000                   DC     0          *                           81400560
0812 0 0000                   DC     0          *                           81400570
0813 0 0000             TLGED DC     0          LOG EDIT                    81400580
0814 0 0000             TSCED DC     0          SEL CHANNEL EDIT            81400590
0815 0 0000             TRID  DC     0          ROUTINE ID                  81400600
                        ***************************************************** 81400610
                        *                                                   * 81400620
                        ***************************************************** 81400630
                        *                                                   81400640
                        *     TABLE OF CONSTANTS                            81400650
                        *                                                   81400660
                        ***************************************************** 81400670
                        *                                                   * 81400680
                        ***************************************************** 81400690
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                        *                                                   81400700
087F 0                  TB    EQU    TPID+128   SO TBL CAN REACH PST TBL    81400710
0816 0 0001             K1    DC     1          CONSTANT ONE                81400720
0817 0 0002             K2    DC     2          CONSTANT                    81400730
0818 0 0003             K3    DC     3          CONSTANT                    81400740
0819 0 0004             K4    DC     4                                      81400750
081A 0 0006             K6    DC     6          CONSTANT                    81400760
081B 0 0007             K7    DC     7          CONSTANT                    81400770
081C 0 0008             K8    DC     8          CONSTANT                    81400780
081D 0 0009             K9    DC     9                                      81400790
081E 0 000A             K10   DC     10                                     81400800
081F 0 0014             K20   DC     20                                     81400810
0820 0 0064             K100  DC     100                                    81400820
0821 0 007F             K127  DC     127        CONSTANT                    81400830
0822 0 0080             K128  DC     128                                    81400840
0823 0 01F4             K500  DC     500                                    81400850
0824 0 03E8             K1000 DC     1000                                   81400860
0825 0 000A             H000A DC     /000A      CONSTANT                    81400870
0826 0 0011             H0011 DC     /0011                                  81400880
0827 0 0013             H0013 DC     /0013      CONSTANT                    81400890
0828 0 0020             H0020 DC     /0020                                  81400900
0829 0 0027             H0027 DC     /0027      CONSTANT                    81400910
082A 0 00C6             H00C6 DC     /00C6                                  81400920
082B 0 00C8             H00C8 DC     /00C8                                  81400930
082C 0 00FF             H00FF DC     /00FF      LINE TERMINATOR             81400940
082D 0 0100             H0100 DC     /0100      CONSTANT                    81400950
082E 0 0200             H0200 DC     /0200      CONSTANT                    81400960
082F 0 0400             H0400 DC     /0400      CONSTANT                    81400970
0830 0 0500             H0500 DC     /0500      CONSTANT FOR WRITE IOCC     81400980
0831 0 0700             H0700 DC     /0700      CONSTANT FOR SENSE DSW IOC  81400990
0832 0 0A00             H0A00 DC     /0A00                                  81401000
0833 0 2000             H2000 DC     /2000                                  81401010
0834 0 2100             H2100 DC     /2100                                  81401020
0835 0 3000             H3000 DC     /3000                                  81401030
0836 0 4000             H4000 DC     /4000      CONSTANT                    81401040
0837 0 5000             H5000 DC     /5000      CONSTANT                    81401050
0838 0 7FFF             H7FFF DC     /7FFF                                  81401060
0839 0 8000             H8000 DC     /8000                                  81401070
083A 0 F000             HF000 DC     /F000                                  81401080
083B 0 FF00             HFF00 DC     /FF00                                  81401090
083C 0 0000             CNTDN DC     0                                      81401100
083D 0 0000             TSCTN DC     *-*        SECTION NUMBER              81401110
083E 0 0000             TRTNN DC     *-*        ROUTINE NUMBER              81401120
083F 0 0000             TCNSW DC     0          ERROR SWITCH FOR RTNS       81401130
0840 0 0000             TCVS1 DC     0                                      81401140
0841 0 0000             TCVS2 DC     0                                      81401150
0842 0 0000             CAWSV DC     *-*        CCW ADDRESS SAVE AREA       81401160
0844    0002            ERTSV BSS    E  2       SENSE INFO SAVE             81401170
0846    0002            TYP2  PRNT   •SIO••                                 81401180
0848    0002            TYP3  PRNT   •SNS••                                 81401190
084A    0002            PCAW  PRNT   •CAW •                                 81401200
084C    0002            PCSW  PRNT   •CSW •                                 81401210
084E    0002            PSNS  PRNT   • SNS•                                 81401220
0850    0001            SPACE PRNT   •  •       SPACES IN 43 CODE           81401230
0851 0 0000             DVADR DC     *-*        DEVICE ADDRESS TO BE TESTED 81401240
0852 0 0000             LGBSY DC     *-*        LOG ROUTINE BUSY SWITCH     81401250
0853 0 0000             SIOSW DC     *-*        FOR SIO RTN                 81401260
0854 0 0000             PASSW DC     *-*        USED TO TEST FOR ERROR      81401270
0855 0 0001             PSCNT DC     1          PASS COUNTER                81401280
0856 0 0000             STKSW DC     0          SWITCH FOR RE-ENTRANCE      81401290
0857 0 0000             TIOSW DC     0          TEST IO SW                  81401300
0858 0 0000             T23LC DC     *-*        LAST CYLINDER               81401310
0859 0 0000             T23LH DC     *-*        LAST HEAD                   81401320
085A 0 0000             LPCNT DC     *-*        LOOP CNTR                   81401330
085B 0 0000             T45SW DC     0          0= NOT CALLED               81401340
                        *                       1=1443                      81401350
                        *                       2=1053/1816                 81401360
                        *                                                   81401370
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085C 0 0000          CNTRL DC     *-*       CONTROL ROUTINE                81401380
085D 1 4C00 0A2D           BSC  L TCNTE     GO TO ROUTINE                  81401390
                     *                                                    81401400
085F 0 0000          EROUT DC     *-*       ERROR PRINTOUT ROUTINE         81401410
0860 1 4C00 12E4           BSC  L ERTNE     GO TO RTN                      81401420
                     *                                                    81401430
0862 0 0000          FREDV DC     *-*       RELEASE CHANNEL ROUTINE        81401440
0863 1 4C00 10CE           BSC  L FRDVE     GO TO ROUTINE                  81401450
                     *                                                    81401460
0865 0 0000          GETDV DC     *-*       CHANNEL ROUTINE                81401470
0866 1 4C00 10AC           BSC  L GTDVE     GO TO ROUTINE                  81401480
                     *                                                    81401490
0868 0 0000          GETSN DC     *-*       GET DEVICE SENSE INFO          81401500
0869 1 4C00 11C4           BSC  L GTSNS     GO TO ROUTINE                  81401510
                     *                                                    81401520
086B 0 0000          SIO   DC     *-*       START I/O ROUTINE              81401530
086C 1 4C00 10D6           BSC  L SIONT     GO TO RTN                      81401540
                     *                                                    81401550
086E 0 0000          STMLS DC     *-*       SET MLSCF ROUTINE              81401560
086F 1 4C00 1261           BSC  L STMLE     GO TO RTN                      81401570
                     *                                                    81401580
0871 0 0000          TCVBE DC     *-*       CONVERT HEX TO 1443            81401590
0872 1 4C00 1527           BSC  L TCVBN     GO TO RTN                      81401600
                     *                                                    81401610
0874 0 0000          TCVHD DC     *-*       CONVERT HEX TO DEC             81401620
0875 1 4C00 1545           BSC  L THEXD     GO TO RTN                      81401630
                     *                                                    81401640
0877 0 0000          THALT DC     *-*       ENTRY POINT                    81401650
0878 1 4C00 1204           BSC  L THLTE     GO TO RTN                      81401660
                     *                                                    81401670
087A 0 0000          TIO   DC     *-*       TEST I/O                       81401680
087B 1 4C00 1159           BSC  L TIONT     GO TO RTN                      81401690
                     *                                                    81401700
087D 0 0000          TLGMS DC     *-*       PRINT RTN                      81401710
087E 1 4C00 13BE           BSC  L TLGME     GO TO RTN                      81401720
                     *                                                    81401730
0880 0 0000          TLPER DC     *-*       TEST LOOP ON ERROR             81401740
0881 1 4C00 1559           BSC  L TERLP     GO TO RTN                      81401750
                     *                                                    81401760
0883 0 0000          TLPST DC     *-*       TEST LOOP START I/O            81401770
0884 1 4C00 1566           BSC  L TSTLP     GO TO RTN                      81401780
                     *                                                    81401790
0886 0 000C          H000C DC     /000C                                    81401800
                     ********************************************         81401810
                     *                                          *         81401820
                     ********************************************         81401830
                     *                                                    81401840
                     *     EQUATES AND CONSTANTS FOR CCW'S                81401850
                     *                                                    81401860
                     ********************************************         81401870
                     *                                          *         81401880
                     ********************************************         81401890
                     *                                                    81401900
                     *     FLAGS                                          81401910
                     *                                                    81401920
0080 0               FLDCH EQU    /80       DATA CHAINING                  81401930
0040 0               FLCCH EQU    /40       COMMAND CHAINING               81401940
0020 0               FLSLI EQU    /20       SUPPRESS INCORRECT LNG         81401950
0008 0               FLSKP EQU    /08       SKIP BIT                       81401960
0010 0               FLPCI EQU    /10       PGM CONTROLLED INTERRUPT       81401970
                     *                                                    81401980
                     *     OP CODES                                       81401990
                     *                                                    81402000
0000 0               OPTIO EQU    /00       TEST I/O                       81402010
0001 0               OPWR  EQU    /01       WRITE OP CODE                  81402020
0002 0               OPRD  EQU    /02       READ OP CODE                   81402030
0003 0               OPNOP EQU    /03       NO-OP                          81402040
0005 0               WRDAT EQU    /05       WRITE DATA                     81402050
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0006 0               RDDAT EQU    /06       READ DATA                      81402060
0004 0               OPSNS EQU    /04       SENSE I/O                      81402070
0007 0               SEEKC EQU    /07       SEEK CYLINDER                  81402080
0011 0               ERASE EQU    /11       ERASE RECORD                   81402090
0008 0               OPTIC EQU    /08       TRANSFER IN CHANNEL            81402100
000B 0               SEEKB EQU    /0B       SEEK BIN                       81402110
0013 0               RCAL  EQU    /13       RECALIBRATE                    81402120
0012 0               RDCNT EQU    /12       RD COUNT                       81402130
001A 0               RDHA  EQU    /1A       READ HOME ADDRESS              81402140
001E 0               RDCKD EQU    /1E       RD COUNT KEY DATA              81402150
0029 0               SRCKE EQU    /29       SEARCH KEY EQUAL               81402160
000E 0               RDKD  EQU    /0E       RD KEY DATA                    81402170
000D 0               WRKD  EQU    /0D       WR KEY DATA                    81402180
0016 0               RDR0  EQU    /16       READ RECORD ZERO               81402190
009A 0               RDHMT EQU    /9A       READ HA MULTI TRACK            81402200
001B 0               SKHD  EQU    /1B       SEEK HEAD                      81402210
0039 0               SRCHA EQU    /39       SEARCH HA                      81402220
0049 0               SRCKH EQU    /49       SEARCH KEY HI                  81402230
0051 0               SIDHI EQU    /51       SEARCH ID HI                   81402240
0069 0               SKHE  EQU    /69       SEARCH KEY HI/EQ               81402250
0071 0               SIDHE EQU    /71       SEARCH ID HI/EQ                81402260
0031 0               SRCID EQU    /31       SEARCH ID                      81402270
001F 0               SFILM EQU    /1F       SET FILE MASK                  81402280
001D 0               WRCKD EQU    /1D       WRT CNT,KEY,DATA               81402290
0019 0               WRHA  EQU    /19       WRITE HA                       81402300
0015 0               WRR0  EQU    /15       WRITE RECORD 0                 81402310
                     *                                                    81402320
                     ********************************************         81402330
                     *                                          *         81402340
                     ********************************************         81402350
                     *                                                    81402360
                     *     EQUATES FOR CHANNEL STATUS DSW'S               81402370
                     *                                                    81402380
0000 0               SCUNO EQU    0         UNIT NOT OPERATIONAL           81402390
0001 0               SCUSP EQU    1         UNIT STATUS PENDING            81402400
0002 0               SCPCI EQU    2         PGM CNTRL INT.                 81402410
0003 0               SCPCK EQU    3         PGM CHECK                      81402420
0004 0               SCDCK EQU    4         DATA CHECK                     81402430
0005 0               SCICC EQU    5         INTERFACE CNTRL CHECK          81402440
0006 0               SCILG EQU    6         INCORRECT LENGTH INDICATOR     81402450
0007 0               SCABZ EQU    7         ADAPTER BUSY                   81402460
0008 0               SCUOP EQU    8         UNIT OPERATIONAL               81402470
                     *                                                    81402480
                     ********************************************         81402490
                     *                                          *         81402500
                     ********************************************         81402510
                     ********************************************         81402520
                     *                                          *         81402530
                     ********************************************         81402540
                     *                                                    81402550
                     *     EQUATES FOR UNIT STATUS DSW                    81402560
                     *                                                    81402570
0008 0               UNATN EQU    8         UNIT STATUS-ATTENTION          81402580
0009 0               UNSMD EQU    9         STATUS MODIFIER                81402590
000A 0               UNCUE EQU    10        CONTROL UNIT END               81402600
000B 0               UNBZY EQU    11        UNIT BUSY                      81402610
000C 0               UNCHE EQU    12        CHANNEL END                    81402620
000D 0               UNDVE EQU    13        DEVICE END                     81402630
000E 0               UNCHK EQU    14        UNIT CHECK                     81402640
000F 0               UNEXC EQU    15        UNIT EXCEPTION                 81402650
                     ********************************************         81402660
                     *                                          *         81402670
                     ********************************************         81402680
                     *                                                    81402690
                     *     EQUATES FOR 2311 SENSE BYTES                   81402700
                     *                                                    81402710
0004 0               FBRST EQU    4         (BURST) DATA CK                81402720
0005 0               FOVRN EQU    5         CHANNEL/2841 OVERRUN           81402730
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0007 0          FSKCK EQU     7             SEEK CK
0009 0          FTROV EQU     9
000A 0          FEOCY EQU     10            END OF CYLINDER
000C 0          FNORC EQU     12            NO RECORD FOUND
0010 0          FUNSF EQU     16
0012 0          FSERD EQU     18            SERDES CHECK
0015 0          FUNSL EQU     21
0018 0          FDRDY EQU     24            DRIVE READY
0019 0          FONLN EQU     25
001A 0          FUNSI EQU     26            UNSAFE
001D 0          FECYL EQU     29            END OF CYLINDER
001F 0          FSKIN EQU     31            SEEK INCOMPLETE
                *
                *
0887 0 0001     NOPCC DC      1             BYTE COUNT
0888 0 2003           DC      /20*256+OPNOP FLAGS AND OP CODE
0889 1 088A           DC      *             ADDRESS
                *
                *
088A 0 0001     RECAL DC      1             BYTE COUNT
088B 0 2013           DC      /20*256+RCAL FLAGS AND OP CODE
088C 1 088D           DC      *             ADDRESS
                *
                *
088D 0 0001     TSCCW DC      1             BYTE COUNT
088E 0 2000           DC      /20*256+OPTIO FLAGS AND OP CODE
088F 1 0890           DC      TSWDS              ADDRESS
                *
0890 0 0000     TSWDS DC      *-*
                *
0891 0 0006     SNCCW DC      6             BYTE COUNT
0892 0 0004           DC      0*256+OPSNS FLAGS AND OP CODE
0893 1 0894           DC      SNWDS              ADDRESS
                *
0894   0004     SNWDS BSS   E 4             SENSE BYTES
0894 0          SNWD0 EQU     SNWDS
0895 0          SNWD1 EQU     SNWDS+1
0896 0          SNWD2 EQU     SNWDS+2
0897 0          SNWD3 EQU     SNWDS+3
0898 1 088D     TIOXX DC      TSCCW         TIO CCW
0899 0 0000           DC      *-*           TO BE FILLED IN
089A 0 0000     HIOXX DC      *-*
089B 0 0000           DC      *-*
089C 1 0891     SENSE DC      SNCCW         SENSE IO W/SUPPRESS POLL
089D 0 0000           DC      *-*           TO BE FILLED IN
089E 0 0000     SIOXX DC      *-*           TO BE FILLED WITH CCW ADDR
089F 0 0000           DC      *-*           TO BE FILLED IN
08A0 0 0000     SCSN0 DC      *-*
08A1 0 0000           DC      *-*           = 08
08A2 0 0000     SCSN1 DC      *-*
08A3 0 0000           DC      *-*           = 09
08A4 0 0000     SCSN2 DC      *-*
08A5 0 0000           DC      *-*           = 0A
08A6 0 0000     SCSN3 DC      *-*
08A7 0 0000           DC      *-*           = 0B
08A8 0 0000     SCSN4 DC      *-*
08A9 0 0000           DC      *-*           = 0C
08AA 0 0000     SCSN5 DC      *-*
08AB 0 0000           DC      *-*           = 06
08AC   0004     SCSX0 BSS   E 4             START I/O SAVE AREA
08B0   0004     SCSX4 BSS   E 4             START I/O SAVE AREA 2
08B4   0004     SCSX8 BSS   E 4             TIO SAVE AREA
08B8   0004     SCSXC BSS   E 4             SENSE I/O SAVE AREA
08BC   0004     SCSVS BSS   E 4             SAVE AREA FOR SENSE INFO
08C0   0003     HA    BSS   E 3
08C4   0000           BSS   E 0
08C4 1 14CE     TLGWR DC      TLGBA        IOAREA ADDRESS
08C5 0 0000           DC      *-*           TO BE FILLED IN
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08C6 0 0000       TLGSP DC      /0000       SPACE IN 1443 CODE
08C6 0            TLGSN EQU     TLGSP      SENSE DSW IOCC
08C7 0 0000             DC      *-*         TO BE FILLED IN
08C8 0 0000       TLGCT DC      0           LOOP COUNT FOR PRNTR INT
08C9 0 0000       TLGSW DC      0           1ST/2ND CHAR SW (1053)
08CA 0 0000       TLGSR DC      0           1ST/2ND CHAR SW (TLGCH)
08CB 0 0000             DC      *-*         SENSE/RESET DSW
                  *
08CC   0008       STSER PRNT    .XX ERROR ON XXX .
08D4   0007             PRNT    .SECT X,RTN X .
08DB 0 FFFF             DC      /FFFF
08DC   0009       UNADR PRNT    . UNIT XX,ADRS XXXX.
08E5 0 FFFF             DC      /FFFF
                  *
                  *     SELECTOR CHANNEL INT ROUTINE
                  *
08E6 0 0000       WIOSW DC      *-*         WAIT FOR USER INTERUPT
08E7 0 0000       WATSW DC      *-*         WAIT FOR SYST TIO INT.
08E8 0 0000       SCISW DC      *-*         INTERRUPT SWITCH
08E9 0 0000       TSCAC DC      *-*         SEL.CHAN AREA CODE
08EA 0 0000       SCINT DC      *-*           INT. RTN ENTRY
08EB 0 68FA             STX     WIOSW       SET INTERUPT SWITCH
08EC 0 6A6D             STX   2 SCIN7+1     SAVE REG
08ED 0 696E             STX   1 SCIN7+3
08EE 1 6600 087F        LDX  L2 TB          SET UP POINTER TO TBL
08F0 0 C269             LD    2 SCISW-TB    GET INT SWITCH
08F1 1 4C18 0945        BZ      SCIN4       BR IF NOT SET
                  *
08F3 0 0A21             XIO   2 SCSN0-TB   FETCH CHANNEL STATUS
08F4 0 1001             SLA     1          TEST FOR USP
08F5 1 4C10 090F        BNN     SCIN0      BRANCH IF NOT USP
                  *
08F7 0 0A25             XIO   2 SCSN2-TB    GET UNIT STATUS
08F8 0 18D0             XCH                 SAVE STATUS
08F9 0 1010             SLA     16          CLEAR A REG
08FA 0 1088             SLT     8           GET DEVICE ADDRS
08FB 0 F2D2             EOR   2 DVADR-TB    TEST FOR MY DEVICE
08FC 1 4C18 0904        BZ      SCINC       BRANCH IF MINE
08FE 0 1092             SLT     8+UNCUE     TEST FOR CONTROL UNIT END
08FF 1 4C10 0945        BNN     SCIN4       BRANCH IF NOT CU END
                  *
0901 0 C2D8             LD    2 TIOSW-TB    GET TIO SW
0902 1 4C18 0945        BZ      SCIN4       BR IF INT NOT DUE TO TIO
                  *
0904 0 C2D8       SCINC LD    2 TICSW-TB    FETCH TIO SW
0905 1 4C18 090F        BZ      SCIN0       BRANCH IF USER TIO
                  *
                  *   GET HERE IF INTERRUPT FROM TIO AFTER SIO
                  *   IF STATUS IS NON BUSY THEN PLACE IN SCSX0
                  *   AND SCSX8
                  *
0907 0 0A25             XIO   2 SCSN2-TB    FETCH UNIT STATUS
0908 0 100B             SLA     UNBZY       TEST FOR UNIT OR CU BUSY
0909 1 4C28 0919        BN      SCINX       BR TO SET PCINTER TO SCSX8
                  *
090B 0 0A25             XIO   2 SCSN2-TB    FETCH UNIT STATUS
090C 0 EA2E             OR    2 SCSX0+1-TB MERGE WITH OLD STATUS
090D 0 D22E             STO   2 SCSX0+1-TB *
                  *
090E 0 700A             B       SCINX       BR SET POINTER TO SCSX0
                  *
                  *     GET HERE IF TIOSW WAS NOT ON AND TEST
                  *     FOR USER TIO IF SO PLACE STATUS IN SCSX8,
                  *     ELSE GO TEST FOR SENSE OPERATION INTERUPT
                  *
090F 0 C21B       SCIN0 LD    2 HIOXX-TB    GET HIO SW
0910 1 4C20 0939        BNZ     SCIN3       BR IF SET
                  *
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0912 0 0A29              XIO   2 SCSN4-TB   ELSE GET CCW ADDRS REG     81404100
0913 0 D229              STO   2 SCSN4-TB   SAVE FOR LATER USE         81404110
0914 0 C219              LD    2 TIOXX-TB   GET TEST I/O ADDRESS       81404120
0915 0 8299              A     2 K3-TB      ADD THREE                  81404130
0916 0 F229              EOR   2 SCSN4-TB   COMPARE WITH CCW ADRS REG   81404140
0917 1 4C20 091D         BNZ     SCIN1      BR IF NOT THE SAME         81404150
                      *                                               81404160
                      *     GET HERE IF USER TIO OR SYSTEM TIO        81404170
                      *     FOUND THAT THE UNIT OR CU WAS BUSY        81404180
                      *     AFTER A TEST I/O.                         81404190
                      *                                               81404200
0919 1 6700 08B4      SCINX LDX  L3 SCSX8      ELSE POINT TO SAVE AREA    81404210
091B 0 68CB              STX     WATSW      SET TIO INTERRUPT SW       81404220
091C 0 702E              MDX     SCIN5      GO TO COMMON RTN           81404230
                      *                                               81404240
                      *     GET HERE IF NO TEST I/O WAS INDICATED     81404250
                      *     BY THE PRIOR ROUTINES                     81404260
                      *                                               81404270
091D 0 C21D           SCIN1 LD    2 SENSE-TB   GET CCW ADDRESS FOR SENSE  81404280
091E 0 8299              A     2 K3-TB      POINT TO FOLLOWING         81404290
091F 0 F229              EOR   2 SCSN4-TB   COMPARE                    81404300
0920 1 4C20 0925         BNZ     *+3        BR IF NOT                  81404310
0922 1 6700 08B8         LDX  L3 SCSXC      POINT TO SAVE AREA         81404320
0924 0 7026              MDX     SCIN5      GO TO COMMON RTN           81404330
                      *                                               81404340
                      *     GET HERE IF SENSE WAS FOUND NOT TO        81404350
                      *     BE THE CAUSE OF THE INTERRUPT AND TEST    81404360
                      *     FOR START I/O TO BE THE CAUSE, IF NOT     81404370
                      *     THEN SET THE INTERRUPT TO THE UNEXPECTED. 81404380
                      *                                               81404390
0925 0 C21F              LD    2 SIOXX-TB   GET START I/O CCW ADDRESS   81404400
0926 1 6780 089E         LDX  I3 SIOXX      SET IN REG TOO             81404410
                      *                                               81404420
0928 0 8299           SCIN2 A     2 K3-TB      POINT TO NEXT ADRS AFTER   81404430
0929 0 D211              STO   2 TSWDS-TB   SAVE IN TEMP STORAGE       81404440
092A 0 F229              EOR   2 SCSN4-TB   COMPARE                    81404450
092B 1 4C18 0939         BZ      SCIN3      BR IF SAME                 81404460
092D 0 C301              LD    3 1          GET OPCODE/FLAGS           81404470
092E 0 180E              SRA     14         SAVE CMD CHAIN/DATA CHAIN  81404480
092F 1 4C20 0936         BNZ     *+5        BR IF SET                  81404490
0931 0 C301              LD    3 1          GET IT AGAIN               81404500
0932 0 F29D              EOR   2 K8-TB      TEST FOR TIC               81404510
0933 0 1008              SLA     8          SAVE OPCODE ONLY           81404520
0934 1 4C20 0945         BNZ     SCIN4        BR IF NOT TIC            81404530
0936 0 7303              MDX   3 3          POINT TO NEXT CCW IN CHAIN 81404540
0937 0 C211              LD    2 TSWDS-TB   GET ADDRESS                81404550
0938 0 70EF              MDX     SCIN2      LOOP                       81404560
                      *                                               81404570
0939 0 1010           SCIN3 SLA     16         CLEAR HIO SW             81404580
093A 0 D21B              STO   2 HIOXX-TB   *                          81404590
093B 1 6700 08AC         LDX  L3 SCSX0      POINT TO SIO SAVE AREA     81404600
093D 0 C301              LD    3 1          GET LAST UNIT STATUS       81404610
093E 0 100D              SLA     UNDVE      TEST FOR DEVICE END        81404620
093F 1 4C28 094B         BN      SCIN5      BR IF SET                  81404630
0941 0 1001              SLA     UNCHK-UNDVE              TEST FOR UCHK 81404640
0942 1 4C28 094B         BN      SCIN5      BR IF SET                  81404650
0944 0 7008              MDX     SCIN6      ELSE 'OR' IN STATUS        81404660
                      *                                               81404670
0945 1 6700 0961      SCIN4 LDX  L3 SCIN8      SET MLSCF ENTRY FOR RETURN 81404680
0947 1 6F00 0809         STX  L3 MLSC0      ***                        81404690
0949 1 6700 08B0         LDX  L3 SCSX4      POINT O SAVE AREA          81404700
                      *                                               81404710
094B 0 1010           SCIN5 SLA     16         CLEAR WORD TO ZERO       81404720
094C 0 D301              STO   3 1          FOR OR'ING IN STATUS       81404730
                      *                                               81404740
094D 0 0A23           SCIN6 XIO   2 SCSN1-TB   GET CHAN. STATUS         81404750
094E 0 D300              STO   3 0          SAVE                       81404760
094F 0 1001              SLA     1          TEST FOR USP               81404770
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0950 1 4C10 095F         BNN     SCINA      BRANCH IF NOT ON           81404780
                      *                                               81404790
0952 0 0A27              XIO   2 SCSN3-TB   GET UNIT STATUS            81404800
0953 0 EB01              OR    3 1          COMBINE WITH EXISTING      81404810
0954 0 D301           SCINB STO   3 1          SAVE                       81404820
0955 0 0A29              XIO   2 SCSN4-TB   GET CCW ADDRESS REG.       81404830
0956 0 D302              STO   3 2          SAVE                       81404840
0957 0 0A2B              XIO   2 SCSN5-TB   GET BYTE COUNTER           81404850
0958 0 D303              STO   3 3          SAVE                       81404860
                      *                                               81404870
0959 0 6600 0000      SCIN7 LDX  L2 *-*          RELOAD REG 2           81404880
095B 0 6500 0000         LDX  L1 *-*                REG 1              81404890
                      *                                               81404900
095D 1 4C80 08EA         BSC  I  SCINT      EXT INT. RTN               81404910
                      *                                               81404920
                      *     GET HERE IF USP WAS NOT THE CAUSE OF      81404930
                      *     THE INTERRUPT AND SET US TO 0000          81404940
                      *                                               81404950
095F 0 1010           SCINA SLA     16         CLEAR ACC                81404960
0960 0 70F3              MDX     SCINB      RETURN                     81404970
                      *                                               81404980
                      *      RETURN HERE AFTER UNEXPECTED INT         81404990
                      *                                               81405000
0961 1 6600 087F      SCIN8 LDX  L2 TB           SET UP TABLE POINTER   81405010
0963 0 610C              LDX   1 12         SET UP POINTER             81405020
0964 1 6700 08B0         LDX  L3 SCSX4      SET TO CSW SAVE AREA       81405030
                      *                                               81405040
0966 0 C300           SCIN9 LD    3 0          GET CHNL STATUS            81405050
0967 0 42F2              BSI   2 TCVBE-TB   CONVERT TO 1443 CODE      81405060
0968 1 D500 0983         STO  L1 SCIM2-1    PUT IN MESSAGE             81405070
096A 0 18D0              XCH                *                          81405080
096B 1 D500 0984         STO  L1 SCIM2      *                          81405090
096D 0 7301              MDX   3 1                                     81405100
096E 0 71FD              MDX   1 -3                                    81405110
096F 0 70F6              MDX     SCIN9                                 81405120
                      *                                               81405130
0970 0 42FE              BSI   2 TLGMS-TB                              81405140
0971 1 0974              DC      SCIMS                                 81405150
0972 0 4C80 012D         BSC  I  START                                 81405160
                      *                                               81405170
0974   0015           SCIMS PRNT    .** ER 00  UNEXPECTED INTERRUPT.   81405180
0983 0 FF00              DC      /FF00                                 81405190
0984   0013           SCIM2 PRNT    .CSW XXXX, XXXX, XXXX, XXXX.       81405200
0991 0 FFFF              DC      /FFFF                                 81405210
                      ************************************************* 81405220
                      *                                               * 81405230
                      ************************************************* 81405240
                      *     WAIT FOR INTERRUPT                        81405250
                      ************************************************* 81405260
                      *                                               * 81405270
                      ************************************************* 81405280
0992 0 0000           TINTW DC      *-*          ENTRY POINT           81405290
0993 0 C28D              LD    2 TERM-TB    FETCH TIME OUT CONSTANT    81405300
0994 0 D223              STO   2 SCSN1-TB                              81405310
                      *                                               81405320
0995 0 C268           TINT2 LD    2 WATSW-TB                          81405330
0996 1 4C20 09A6         BNZ     TINT3                                 81405340
0998 0 42EF              BSI   2 STMLS-TB   GO VISIT MONITOR           81405350
0999 1 74F6 08A2         MDX  L  SCSN1,-10                             81405360
099B 0 70F9              MDX     TINT2                                 81405370
                      *                                               81405380
099C 0 0A23              XIO   2 SCSN1-TB     GET CHANNEL STATUS       81405390
099D 0 D239              STO   2 SCSXC-TB     * AND SAVE FOR ERR       81405400
099E 0 0A27              XIO   2 SCSN3-TB     * MESSAGE                81405410
099F 0 D23A              STO   2 SCSXC+1-TB   *                        81405420
09A0 0 0A29              XIO   2 SCSN4-TB     *                        81405430
09A1 0 D23B              STO   2 SCSXC+2-TB                            81405440
09A2 0 0A2B              XIO   2 SCSN5-TB                              81405450
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09A3 0 D23C              STO   2 SCSXC+3-TB                          81405460
                       *                                            81405470
09A4 1 4C80 0992         BSC   I TINTW            EXIT RTN          81405480
                       *                                            81405490
09A6 1 7401 0992       TINT3 MDX   L  TINTW,1                       81405500
09A8 0 1010              SLA     16                                 81405510
09A9 0 D268              STO   2 WATSW-TB                           81405520
09AA 1 4C80 0992         BSC   I TINTW            EXIT RTN          81405530
                       *                                            81405540
                       ********************************************** 81405550
                       *                                            * 81405560
                       ********************************************** 81405570
                       *                                            81405580
09AC 0 4480 012C       BGIN  BSI   I  BEGIN      GO TO MONITOR BEGIN RTN 81405590
09AE 1 07FF              DC      TPID       ADDRESS OF PID           81405600
                       ********************************************** 81405610
                       *                                            * 81405620
                       ********************************************** 81405630
09AF 0 0000            ZIPA  DC      *-*        ENTRY POINT          81405640
09B0 0 C0FE              LD      ZIPA       MOVE RETURN ADDRS        81405650
09B1 0 D013              STO     ZLPA       *                        81405660
09B2 1 6600 087F         LDX   L2 TB          SET UP POINTER         81405670
                       *                                            81405680
09B4 0 1010              SLA     16         RESET-                   81405690
09B5 1 D400 14B0         STO   L FRESW      RESET CONTROL SWS        81405700
09B7 0 D2D3              STO   2 LGBSY-TB   *                        81405710
09B8 0 D267              STO   2 WIOSW-TB   *                        81405720
09B9 0 D2D8              STO   2 TIOSW-TB   *                        81405730
09BA 0 D268              STO   2 WATSW-TB   *                        81405740
09BB 0 D283              STO   2 TSW0-TB    * SW 0                   81405750
09BC 0 D284              STO   2 TSW1-TB    * SW 1                   81405760
09BD 0 D286              STO   2 TSW3-TB    * SW 3                   81405770
09BE 1 D400 1294         STO   L STMPT      RESET STMLS POINTER      81405780
09C0 0 C2BC              LD    2 HFF00-TB   FETCH CONSTANT           81405790
09C1 0 D285              STO   2 TSW2-TB    PLACE IN SW 2            81405800
09C2 0 C297              LD    2 K1-TB      FETCH CONSTANT OF 1      81405810
09C3 0 D2D6              STO   2 PSCNT-TB   SET PASS COUNT=1          81405820
09C4 0 7001              MDX     ZLPA+1     CONTINUE                 81405830
                       ********************************************** 81405840
                       *                                            * 81405850
                       ********************************************** 81405860
                       *                                            81405870
09C5 0 0000            ZLPA  DC      *-*        LOOP PGM RTN         81405880
09C6 1 6700 09F5         LDX   L3 TCNPR     GET MLSCF ADDRESS        81405890
09C8 1 6F00 080B         STX   L3 MLSC2       SET IN TBL             81405900
09CA 1 6600 087F         LDX   L2 TB          SET UP TBL POINTER     81405910
09CC 0 C294              LD    2 TLGED-TB       LOOK AT LOG EDIT     81405920
09CD 1 4C10 09D3         BNN     ZLPA1      BR IF RELEASED           81405930
09CF 0 4480 0132         BSI   I RELDV      ELSE RELEASE DEVICE      81405940
09D1 1 0813              DC      TLGED      ADDR OF EDIT WORD        81405950
09D2 1 080C              DC      TERM       TERMINATOR               81405960
09D3 0 C295            ZLPA1 LD    2 TSCED-TB   SEL. CHAN. EDIT      81405970
09D4 1 4C10 09DA         BNN     ZLPA2                               81405980
09D6 0 4480 0132         BSI   I RELDV      RELEASE DEVICE           81405990
09D8 1 0814              DC      TSCED                               81406000
09D9 1 080C              DC      TERM                                81406010
09DA 0                 ZLPA2 EQU     *                               81406020
09DA 0 1010              SLA     16         RESET-                   81406030
09DB 0 D2D7              STO   2 STKSW-TB   * STACK SW               81406040
09DC 0 D2D4              STO   2 SIOSW-TB   * SIO SW                 81406050
09DD 0 D2D3              STO   2 LGBSY-TB   * LOG BUSY SW            81406060
09DE 0 C297              LD    2 K1-TB      FETCH CONSTANT OF 1      81406070
09DF 0 D2E1              STO   2 TSID-TB    SET SECTION ID = 1       81406080
09E0 1 4C80 09C5         BSC   I ZLPA       EXIT                     81406090
                       *                                            81406100
                       ********************************************** 81406110
                       *                                            * 81406120
                       ********************************************** 81406130
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09E2 0 0000            ZEPA  DC      *-*        END PGM RTN          81406140
09E3 1 6600 087F         LDX   L2 TB          SET UP TBL POINTER     81406150
09E5 0 C294              LD    2 TLGED-TB       LOOK AT LOG EDIT     81406160
09E6 1 4C10 09EC         BNN     ZEPA1      BR IF RELEASED           81406170
09E8 0 4480 0132         BSI   I RELDV      ELSE RELEASE DEVICE      81406180
09EA 1 0813              DC      TLGED      ADDR OF EDIT WORD        81406190
09EB 1 080C              DC      TERM       TERMINATOR               81406200
                       *                                            81406210
09EC 0 C295            ZEPA1 LD    2 TSCED-TB SEL CHANNEL EDIT      81406220
09ED 1 4C10 09F3         BNN     ZEPA2      BR IF RELEASED           81406230
                       *                                            81406240
09EF 0 4480 0132         BSI   I RELDV      RELEASE DEVICE           81406250
09F1 1 0814              DC      TSCED      ADDRS OF EDIT WORD       81406260
09F2 1 080C              DC      TERM                                81406270
09F3 1 4C80 09E2       ZEPA2 BSC   I ZEPA     EXIT BACK TO MONITOR   81406280
                       ********************************************** 81406290
                       *                                            * 81406300
                       ********************************************** 81406310
                       *                                            81406320
                       *     PRE-CONTROL ROUTINE                    81406330
                       *                                            81406340
                       ********************************************** 81406350
                       *                                            * 81406360
                       ********************************************** 81406370
09F5 1 6600 087F       TCNPR LDX   L2 TB          SET UP TABLE POINTER 81406380
09F7 0 C2DC              LD    2 T45SW-TB     GET 43/53 SWITCH       81406390
09F8 1 4C20 0A0C         BNZ     TCN01                               81406400
09FA 0 42EF            TCNRQ BSI   I  STMLS-TB                      81406410
09FB 0 4480 0131         BSI   I RECDV      REQUEST DEVICE           81406420
09FD 1 09FA              DC      TCNRQ      BUSY RETURN              81406430
09FE 1 0813              DC      TLGED      EDIT FOR PRINTER         81406440
09FF 1 146D              DC      TLGDA      AREA CODE GIVEN BACK     81406450
0A00 1 080C              DC      TERM       TERMINATOR               81406460
0A01 0 4480 0132         BSI   I RELDV      RELEASE DEVICE           81406470
0A03 1 0813              DC      TLGED      EDIT FOR PRINTER         81406480
0A04 1 080C              DC      TERM       TERMINATOR               81406490
0A05 1 C400 146D         LD    1 TLGDA      GET PRINTER AREA CODE    81406500
0A07 0 F2B6              EOR   2 H3000-TB                           81406510
0A08 0 4820              SKP     Z                                   81406520
0A09 0 C297              LD    2 K1-TB                             81406530
0A0A 0 8297              A     2 K1-TB      ADD ONE                  81406540
0A0B 0 D2DC              STO   2 T45SW-TB     SET SW FOR 43 OR 53    81406550
                       *                                            81406560
0A0C 0                 TCN01 EQU     *                               81406570
0A0C 0 42E6              BSI   2 GETDV-TB   GET DEVICE FOR USE      81406580
0A0D 0 42E3              BSI   2 FREDV-TB   RELEASE DEVICE           81406590
0A0E 0 C285              LD    2 TSW2-TB    GET SW FNC 2 (DEV ADDR) 81406600
0A0F 0 1808              SRA     8            SAVE BITS 0-7         81406610
0A10 1 4C18 0A19         BZ      TCN02        BR IF ZERO            81406620
0A12 0 42FE              BSI   2 TLGMS-TB     PRINT MESSAGE         81406630
0A13 1 0AC3              DC      TCNE2        'ENTER DEV ADDRESS'   81406640
                       *                                            81406650
0A14 0 42EF              BSI   2 STMLS-TB     GO TO MONITOR         81406660
0A15 0 C285              LD    2 TSW2-TB      GET SW FNC 2          81406670
0A16 0 1808              SRA     8            SAVE BITS 0-7         81406680
0A17 0 4820              SKP     Z            SKIP IF ZERO          81406690
0A18 0 70FB              MDX     *-5          LOOP UNTIL OK         81406700
                       *                                            81406710
0A19 0 C285            TCN02 LD    2 TSW2-TB      GET SW FNC 2      81406720
0A1A 0 D2D2              STO   2 DVADR-TB   SET FOR SIO/TIO/SNS      81406730
0A1B 0 42F2              BSI   2 TCVHE-TB   CONVERT ADDR TO EBC     81406740
0A1C 0 1090              SLT     16         Q TO A                  81406750
0A1D 0 D04B              STO     CUU11      STORE FOR PRINT         81406760
                       *                                            81406770
0A1E 0 C2D6              LD    2 PSCNT-TB   GET PASS COUNT           81406780
0A1F 0 42F5              BSI   2 TCVHO-TB   CVT TO DECIMAL           81406790
0A20 0 42F2              BSI   2 TCVHE-TB   CONVERT TO 1443 CODE     81406800
0A21 0 18D0              XCH     Q          Q TO A                  81406810
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0A22 0 D04B              STO    TTL01+3    PUT IN MSG                          81406820
0A23 0 C298       TCNOK  LD     2 K2-TB    PUT HALT BIT IN SW 0                81406830
0A24 0 EA83              OR     2 TSW0-TB  *                                   81406840
0A25 0 D283              STO    2 TSW0-TB  *                                   81406850
0A26 0 42FE              BSI    2 TLGMS-TB PRINT PROGRAM TITLE                 81406860
0A27 1 0A5A              DC     TTL00      MSG ADDRESS                         81406870
                         *                                                     81406880
0A28 0 42F8              BSI    2 THALT-TB GO WAIT FOR OPER ACTION             81406890
0A29 0 C283              LD     2 TSW0-TB  GET OPTION SWS                      81406900
0A2A 0 100B              SLA    11         IS WRITE OK                         81406910
0A2B 1 4C10 0A23         BNN    TCNOK      BR IF NO                            81406920
                         ************************************************** 81406930
                         *                                                * 81406940
                         ************************************************** 81406950
                         *                                                  81406960
                         *      THIS ROUTINE CONTROLS ALL TESTS             81406970
                         *                                                  81406980
0A2D 0                   TCNTE  EQU    *          ENTRY POINT                 81406990
0A2D 1 6600 087F         LDX    L2 TB      SET TABLE ADDRESS                  81407000
0A2F 0 C284              LD     2 TSW1-TB  GET SW FNC 1                       81407010
0A30 0 100C              SLA    12         SAVE BITS 12-15                    81407020
0A31 0 180C              SRA    12         **                                 81407030
0A32 0 D28F              STO    2 TRTNN-TB **                                 81407040
0A33 0 C284              LD     2 TSW1-TB  GET SW FNC 1                       81407050
0A34 0 E2AD              AND    2 H00FF-TB DROP BAD BITS                      81407060
0A35 0 1884              SRT    4          SAVE BITS 8-11                     81407070
0A36 0 D2BE              STO    2 TSCTN-TB SAVE SECTION NUMBER                81407080
0A37 1 4C20 0A4A         BNZ    TCN04       BR IF NOT ZERO                    81407090
0A39 0 1090              SLT    16         GET BACK BITS 12-15                81407100
0A3A 0 180C              SRA    12         SAVE THEM                          81407110
0A3B 1 4C20 0A4E         BNZ    TCNER      ERR, NO SECTION SPECIFIED          81407120
                         *                                                  81407130
0A3D 1 6580 0800  TCN03  LDX    I1 TSID        GET SECTION NUMBER             81407140
0A3F 1 C500 0A57         LD     L1 TCNTA       GET SECT. PREFACE ADDRESS      81407150
0A41 0 D282              STO    2 TSAD-TB  STORE IN SEC ADDRS                  81407160
0A42 0 1010              SLA    16         CLEAR ERROR COUNTER                81407170
0A43 0 D2C0              STO    2 TCNSW-TB ***                                81407180
0A44 0 D296              STO    2 TRID-TB  CLEAR RTN ID TO ZERO               81407190
0A45 0 C281              LD     2 TSID-TB  INCREMENT SECTION                  81407200
0A46 0 8297              A      2 K1-TB    *                                  81407210
0A47 0 D281              STO    2 TSID-TB  *                                  81407220
0A48 1 4C80 0801         BSC    I TSAD         GO TO SECTION PREFACE          81407230
                         *                                                  81407240
0A4A 0 D281       TCN04  STO    2 TSID-TB      STORE SECT. NUMBER             81407250
0A4B 0 900B              S      TCNTA      SUB. NUMBER OF SECTIONS            81407260
0A4C 1 4C28 0A3D         BN     TCN03       BR IF OK                          81407270
                         *                                                  81407280
0A4E 0 C284       TCNER  LD     2 TSW1-TB  GET SW FNC 1                       81407290
0A4F 0 42F2              BSI    2 TCVBE-TB  CONVERT HEX TO PRNT CODE          81407300
0A50 0 D06E              STO    TTLER+11    PUT INVALID SWITCH                81407310
0A51 0 1090              SLT    16          * SETTING INTO MESSAGE            81407320
0A52 0 D06D              STO    TTLER+12   *                                  81407330
0A53 0 42FE              BSI    2 TLGMS-TB                                    81407340
0A54 1 0AB4              DC     TTLER                                         81407350
0A55 0 42F8              BSI    2 THALT-TB                                    81407360
0A56 0 42DD              BSI    2 CNTRL-TB          GO TO RETRY RTN SELCT     81407370
                         *                                                  81407380
0A57 0 0003       TCNTA  DC     TCNTZ-TCNTA LENGTH OF TBL + 1                 81407390
0A58 1 0AD3              DC     T10NT      SECTION ADDRESS                    81407400
0A59 1 108E              DC     T20NT      SECTION ADDRESS                    81407410
0A5A 0                   TCNTZ  EQU    *          END OF TABLE                81407420
                         ************************************************** 81407430
                         *                                                * 81407440
                         ************************************************** 81407450
0A5A   0015       TTL00  PRNT   . DISK INITIALIZATION ON UNIT .              81407460
0A69   0001       CUU11  PRNT   .  .                                         81407470
0A6A 0 FF00              DC     /FF00                                       81407480
0A6B   0005       TTL01  PRNT   .PASS- XX .                                  81407490
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0A70 0 FF00              DC     /FF00      TERMINATOR                          81407500
0A71   0018              PRNT   . CAUTION - THE ENTIRE PACK ON DRIVE.         81407510
0A83   0015              PRNT   .SPECIFIED WILL BE RE-WRITTEN -.             81407520
0A92 0 FF00              DC     /FF00                                         81407530
0A93   0017              PRNT   .TURN ON BIT 11 OF SWITCH FUNCTION.          81407540
0AA4   0015              PRNT   .ZERO AND EXIT LOOP TO CONTINUE.            81407550
0AB3 0 FFFF              DC     /FFFF                                         81407560
0AB4   0013       TTLER  PRNT   . **ER INVLD SWS FNC 1 XXXX.                 81407570
0AC1 0 00FF              DC     /00FF                                         81407580
0AC2 0 FFFF              DC     /FFFF                                         81407590
0AC3   0012       TCNE2  PRNT   . *** SELECT OPTIONS ***.                    81407600
0ACF 0 FF00              DC     /FF00                                         81407610
0AD0 0 FFFF              DC     /FFFF                                         81407620
                         ************************************************** 81407630
                         *                                                * 81407640
                         ************************************************** 81407650
                         *                                                  81407660
                         *      SECTION PREFACE                             81407670
                         *                                                  81407680
0AD1 0 0001       T10PR  DC     /0001      SECTION NUMBER                     81407690
0AD2 0 0002              DC     2                                             81407700
                         *                                                  81407710
0AD3 0 C2BF       T10NT  LD     2 TRTNN-TB  SW FNC 1 BITS 12-15               81407720
0AD4 1 4C18 0ADB         BZ     T1101      BR IF RUN ALL RTNS                 81407730
0AD6 0 90F8              S      T10PR+1    TEST FOR VALID                     81407740
0AD7 1 4C30 0A4E         BP     TCNER      BR IF INVALID RTN NUMBER           81407750
0AD9 0 80F8              A      T10PR+1    RESTORE RTN NUMBER                 81407760
0ADA 0 7000              MDX    T1101      GO TO FIRST RTN                    81407770
                         ************************************************** 81407780
                         *                                                * 81407790
                         ************************************************** 81407800
                         *                                                  81407810
                         ************************************************** 81407820
                         *                                                * 81407830
                         ************************************************** 81407840
0ADB 0                   T1101  EQU    *          TEST ENTRY POINT           81407850
0ADB 1 7401 0815         MDX    L  TRID,1  BUMP RTN ID                        81407860
0ADD 1 4C18 0AE2         BZ     T1102      BR IF TEST NUMBER ZERO             81407870
0ADF 0 9297              S      2 K1-TB    DECREMENT BY ONE                   81407880
0AE0 1 4C20 0CEA         BNZ    T1201      BR IF NOT THIS TEST                81407890
                         *                                                  81407900
0AE2 0 C283       T1102  LD     2 TSW0-TB  GET OPTION SWS                     81407910
0AE3 0 100A              SLA    OTTLE      PRINT TITLES                       81407920
0AE4 1 4C10 0AE8         BNN    T1103       BR IF NOT SET                     81407930
0AE6 0 42FE              BSI    2 TLGMS-TB GO TO PRINT ROUTINE                81407940
0AE7 1 0CC7              DC     TTL11      MESSAGE ADDRESS                    81407950
                         *                                                  81407960
0AE8 0 42E6       T1103  BSI    2 GETDV-TB GET CHANNEL FOR RTN                81407970
                         ************************************************** 81407980
                         *                                                * 81407990
                         ************************************************** 81408000
0AE9 1 6500 1040         LDX    L1 CKERR       * LOAD ERROR ADDRESS           81408010
0AEB 1 6D00 114F         STX    L1 WTADR       AND SET UP IN INT RTNE         81408020
0AED 1 6580 0B90         LDX    I1 MADR1       ** GET MESSAGE NO.             81408030
0AEF 1 6D00 1042         STX    L1 CKERR+2     ** OVERLAY IN MSG O/P          81408040
                         *                     ** ROUTINE PARAMETER           81408050
                         *                        ********************        81408060
0AF1 0 1010              SLA    16             *                  *           81408070
0AF2 0 6500 FFEC         LDX    L1 ICW14-CEND1 * INITIALIZE CNTRS*            81408080
0AF4 1 D500 0C03         STO    L1 CEND1       *  AND RD WR AREAS*            81408090
0AF6 0 7101              MDX    1 +1           *   TO ZERO       *            81408100
0AF7 0 70FC              MDX    *-4            *                 *            81408110
                         *                                        *          81408120
0AF8 1 6500 0B65         LDX    L1 T11MA   LD MSG ADDR                        81408130
0AFA 0 6901              STX    1 T11MP+1  AND INSERT                         81408140
0AFB 0 42FE       T11MP  BSI    2 TLGMS-TB                                    81408150
0AFC 0 0000              DC     *-*        FILL WITH MSG PARAM                81408160
                         *                                                  81408170
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                        *                                    *******************
0AFD 0 1010                    SLA      16         *  SET UP CYL NO
0AFE 1 D400 0BFD               STO  L  CYCNT       * AND HEAD NO
0B00 1 D400 0BFE               STO  L  HDCNT       * EQUAL TO ZERO
0B02 1 D400 0BEB               STO  L  ICW11+1     * INITIALIZE
0B04 1 D400 0BEC               STO  L  ICW11+2     *  SEEK PARAMETERS
0B06 0 61F9                    LDX   1 -7          +++  CLEAR
0B07 1 D500 0BF6               STO  L1 ICW14+7     +++ WR AREA
0B09 0 7101                    MDX   1 +1          +++
0B0A 0 70FC                    MDX     *-4         +++
0B0B 0 42EC             T1104 BSI   2 SIO-TB       ** SEEK CYLINDER
0B0C 1 0BD2                    DC      ICCW1       ** CCW
0B0D 1 4400 1037               BSI  L  CKSTA       GO CHECK STATUS
0B0F 0 70FB                    MDX     *-5         LOOP ERROR PARAM.
0B10 1 7400 0C01        BRBAK MDX  L  RWSW         RD/WR SW SET
0B12 0 7005                    MDX     T1106       YES -BR.
                        *                                                      *
                        *   DO SIO FOR WRITE                                   *
                        *                                                      *
0B13 0 42EC             T1105 BSI   2 SIO-TB       ** WRITE HA AND R0
0B14 1 0BD5                    DC      ICCW2       ** CCW  CHAIN
0B15 1 4400 1037               BSI  L  CKSTA       GO CHECK STATUS
0B17 0 70FB                    MDX     *-5         LOOP ERROR PARAM.
                        *                                                      *
                        *   DO SIO FOR READ                                    *
                        *                                                      *
0B18 0                  T1106 EQU     *
0B18 0 1010                    SLA      16
0B19 0 61F9                    LDX   1 -7          +++  CLEAR
0B1A 1 D500 0BFD               STO  L1 ICW16+7     +++ RD AREA
0B1C 0 7101                    MDX   1 +1          +++
0B1D 0 70FC                    MDX     *-4         +++
0B1E 0 42EC                    BSI   2 SIO-TB      ** READ HA AND R0
0B1F 1 0BE1                    DC      ICCW3       ** CCW CHAIN
0B20 1 4400 1037               BSI  L  CKSTA       GO CHECK STATUS
0B22 0 70FB                    MDX     *-5         LOOP ERROR PARAM.
0B23 1 4400 0C16               BSI  L  T11CM       COMPARE HA & R0
                        *      AFTER WRITE - READ DATA HAS BEEN COMPARED       *
                        *      INCREMENT HD AND/OR CYL NO -CK SACRED CYLS      *
                        *                                                      *
0B25 1 7401 0BFE               MDX  L  HDCNT,+1    INCR HD CNTR
0B27 1 C400 0BFE               LD   L  HDCNT
0B29 0 F29F                    EOR   2 K10-TB      IS HD CNT 10
0B2A 1 4C20 0B40               BNZ     T1108       NO -SET NEW HD NO IN HA,R0
0B2C 1 D400 0BFE               STO  L  HDCNT       YES -CLEAR HD NO. CNTR
0B2E 1 7401 0BFD        T1115 MDX  L  CYCNT,+1     INCR CYL CNTR
0B30 1 C400 0BFD               LD   L  CYCNT
0B32 0 F028                    EOR     DE200       IS CYL CNTR  200
0B33 1 4C18 0B4D               BZ      T1109       YES -ALL TRACKS ARE
                        *                           WRITTEN AND READ.
0B35 1 4C00 0C04               BSC  L  SCYCK       SACRED CYL. CHECK
0B37 1 C400 0BFD        CKRTN LD    L  CYCNT       * LD, POSITION AND INSERT
                        *                          *CYL NO.
0B39 1 D400 0BF2               STO  L  ICW15       INSERT IN R0 WRITE AREA
0B3B 1 D400 0BEB               STO  L  ICW11+1     MAINTAIN SEEK PARAM.
0B3D 0 1008                    SLA     8
0B3E 1 D400 0BF0               STO  L  ICW14+1     INSERT IN HA WRITE AREA
0B40 1 C400 0BFE        T1108 LD    L  HDCNT       * LD, POSITION AND INSERT
                        *                          * HEAD NO.
0B42 1 D400 0BF3               STO  L  ICW15+1     INSERT IN R0 WRITE AREA
0B44 1 D400 0BEC               STO  L  ICW11+2     MAINTAIN SEEK PARAM.
0B46 0 1008                    SLA     8
0B47 1 D400 0BF1               STO  L  ICW14+2     INSERT IN HA WRITE AREA
0B49 1 7400 0BFE               MDX  L  HDCNT       HD CNTR 0
0B4B 0 70C4                    MDX     BRBAK       NO -DO SEEK HD CCW CHAIN
0B4C 0 70BE                    MDX     T1104       YES -DO SEEK CYL CHAIN
0B4D 1 7400 0C01        T1109 MDX  L  RWSW         RD/WR SW SET
0B4F 0 7007                    MDX     T1110       YES -BR.
```



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0B50 1 6C00 0C01               STX  L  RWSW         NO -SET IND.
0B52 1 6500 0B7C               LDX  L1 T11MB        OVERLAY MSG.
0B54 0 69A7                    STX   1 T11MP+1       PARAMET
0B55 1 4C00 0AFB               BSC  L  T11MP        BR TO SEEK CYL CCW
0B57 0 42FE             T1110 BSI   2 TLGMS-TB
0B58 1 0B5C                    DC      T11M1
0B59 1 4C00 0CC2               BSC  L  END11        GO TO ROUTINE END
0B5B 0 00C8             DE200 DC       200         DEC. 200 CONST
0B5C   0008             T11M1 PRNT     .END OF ROUTINE 1.
0B64 0 FFFF                    DC      /FFFF
0B65 0 00FF             T11MA DC       /00FF
0B66   0016                    PRNT    .       PHASE ONE  WRITE AND READ .
0B76   0005                    PRNT    .HA AND R0 .
0B7B 0 FFFF                    DC      /FFFF
0B7C 0 00FF             T11MB DC       /00FF
0B7D   0013                    PRNT    .             PHASE TWO  READ .
0B8A   0005                    PRNT    .HA AND R0 .
0B8F 0 FFFF                    DC      /FFFF
0B90 0 1101             MADR1 DC       /1101       MESSAGE NO. FOR ROUTINE 1
0B91   0001             IER11 PRNT     .--.
0B92   0002             GOB1  BSS      2
0B94   0004                    PRNT    .-HA RD  .
0B98   0006             HADA1 BSS      6
0B9E   0007                    PRNT    .   R0 RD      .
0BA5   0008             RODA1 BSS      8
0BAD 0 0000             PTRM1 DC       *-*
0BAE   0007             IER12 PRNT     .--HA  SHLD BE .
0BB5   0006             HADA2 BSS      6
0BBB   0007                    PRNT    .   R0 SHLD BE .
0BC2   0008             RODA2 BSS      8
0BCA 0 FFFF                    DC      /FFFF
0BCB 0 C000             FLMSK DC       /C000       FILE MASK WD
0BCC 0 0011             SVNTN DC       17
0BCE   0000                    BSS  E  0
0BCE   0002             OK    PRNT     .OK  .
0BD0   0002             ERR   PRNT     .ERR .
                        *    CCW  CHAIN  ONE  -INITIAL POSITIONING-  *
                        *
0BD2 0 0006             ICCW1 DC       6             BYTE COUNT
0BD3 0 2007                    DC      /20*256+SEEKC FLAGS AND OP CODE
0BD4 1 0BEA                    DC      ICW11           ADDRESS
                        *
                        *    CCW  CHAIN  TWO  -WRITE COMMANDS          *
                        *
0BD5 0 0006             ICCW2 DC       6             BYTE COUNT
0BD6 0 401B                    DC      /40*256+SKHD FLAGS AND OP CODE
0BD7 1 0BEA                    DC      ICW11           ADDRESS
                        *
                        *
0BD8 0 0001                    DC      1             BYTE COUNT
0BD9 0 401F                    DC      /40*256+SFILM FLAGS AND OP CODE
0BDA 1 0BCB                    DC      FLMSK           ADDRESS
                        *
                        *
0BDB 0 0005                    DC      5             BYTE COUNT
0BDC 0 4019                    DC      /40*256+WRHA FLAGS AND OP CODE
0BDD 1 0BEF                    DC      ICW14           ADDRESS
                        *
                        *
0BDE 0 0008                    DC      8             BYTE COUNT
0BDF 0 2015                    DC      /20*256+WRR0 FLAGS AND OP CODE
0BE0 1 0BF2                    DC      ICW15           ADDRESS
                        *
                        *    CCW  CHAIN  THREE  -READ COMMANDS         *
                        *
0BE1 0 0006             ICCW3 DC       6             BYTE COUNT
0BE2 0 4007                    DC      /40*256+SEEKC FLAGS AND OP CODE
0BE3 1 0BEA                    DC      ICW11           ADDRESS
```

```
                         *
                         *
OBE4 0 0005                    DC      5          BYTE COUNT
OBE5 0 401A                    DC      /40*256+RDHA FLAGS AND OP CODE
OBE6 1 OBF6                    DC      ICW16           ADDRESS
                         *
                         *
OBE7 0 0008                    DC      8          BYTE COUNT
OBE8 0 2016                    DC      /20*256+RDR0 FLAGS AND OP CODE
OBE9 1 OBF9                    DC      ICW17           ADDRESS
                         *
OBEA 0 0000              ICW11 DC      0          *           0000  *
OBEB 0 0000                    DC      0          - SEEK PARAM 00CC  *
OBEC 0 0000                    DC      0          *           00HH  *
                         *
                         *
OBED 0 0000              ICW13 DC      0          * SEARCH HOME
OBEE 0 0000                    DC      0          *  ADDR EQU. PARAM
OBEF   0003              ICW14 BSS     3          ---SHLD (WRITE HA) PARAM
OBF2   0004              ICW15 BSS     4          --- BE  (WRITE R0) PARAM
OBF6   0003              ICW16 BSS     3          * WAS   (RD HA) PARAM
OBF9   0004              ICW17 BSS     4          *  DATA (RD R0) PARAM
OBFD 0 0000              CYCNT DC      0
OBFE 0 0000              HDCNT DC      0
OBFF 0 0000              FALSW DC      0
0C00 0 0000              RTCNT DC      0          RETRY CNTR AND SW
0C01 0 0000              RWSW  DC      0          READ WRITE SW
0C02 0 0000              RT2CT DC      0          2ND RE-TRY GROUP CNTR
0C03 0 1000              CEND1 NOP
                         *    SACRED CYLINDER CHECK ROUTINE          *
0C04 0 6108              SCYCK LDX   1 8
0C05 0 C0F7              T1116 LD      CYCNT
0C06 1 F500 0C0D               EOR  L1 SCTAB-1
0C08 1 4C18 0B2E               BZ      T1115
0C0A 0 71FF                    MDX   1 -1
0C0B 0 70F9                    MDX     T1116
0C0C 1 4C00 0B37               BSC  L  CKRTN
0C0E 0 0002              SCTAB DC      2
0C0F 0 0003                    DC      3
0C10 0 0004                    DC      4
0C11 0 0047                    DC      71
0C12 0 0048                    DC      72
0C13 0 0049                    DC      73
0C14 0 004A                    DC      74
0C15 0 004B                    DC      75
0C16 0                   T11CM EQU     *
0C16 0 0000                    DC      *-*        ENTRY
0C17 0 61F9                    LDX   1 -7
0C18 1 C500 0BFD               LD   L1 ICW16+7    SET TO 1ST LOC OF RD AREA
0C1A 1 F500 0BF6               EOR  L1 ICW14+7    TEST WITH LOC 1 OF WR PAR
0C1C 1 4C20 0C3F               BNZ     T1113      ERR IF ANY WD NOT A MATCH
0C1E 0 7101                    MDX   1 1
0C1F 0 70F8                    MDX     T11CM+2    GET NEXT WD
0C20 0 C283                    LD    2 TSW0-TB    CMPR COMPLETE -TEST SWS-
0C21 0 1009                    SLA     OPRRS      SHOULD MSG 1 BE PRINTED
0C22 1 4C90 0C16               BSC  I  T11CM,-    NO -RTNE FINISHED- EXIT
0C24 0 C0DA                    LD      FALSW      HAD PREVIOUS FAILURE
0C25 1 4C18 0C31               BZ      T1112      NO SET UP 'OK' MSG.
0C27 0                   T1111 EQU     *
0C27 1 7401 0C02               MDX  L  RT2CT,+1   ** BUMP TEN CNTR
0C29 1 C400 0C02               LD   L  RT2CT      *
0C2B 0 F29F                    EOR   2 K10-TB     *    --IS = 10
0C2C 1 4C20 0B18               BNZ  L  T1106      *
0C2E 0 D0D0                    STO     FALSW        AREAS
0C2F 0 D0D0                    STO     RTCNT          AND
                         *                              SET UP 'OK' MSG
0C30 0 D0D1                    STO     RT2CT      CLR 2ND RE-TRY CNTR
0C31 0 C89C              T1112 LDD     OK         * INSERT               *
```



```
0C32 1 D400 0B92               STO  L  GOB1       *   OK               *
0C34 0 1090                    SLT     16         *     INTO           *
0C35 1 D400 0B93               STO  L  GOB1+1     *       MESSAGE      *
0C37 0 C28D                    LD    2 TERM-TB    INSERT TERMINATOR -PRINT
0C38 1 D400 0BAD               STO  L  PTRM1      ONLY 1 LINE OF MSG-
                         *                                             *
                         *     SET UP A 1 LINE MESSAGE WHEN COMPARE    *
                         *     OK AND SNS SW 10 ON                     *
                         *                                             *
0C3A 0 404D                    BSI     SBDA1      GO INSERT SHLD BE DATA
0C3B 0 42FE                    BSI   2 TLGMS-TB   PRINT OK MESSAGE
0C3C 1 0B91                    DC      IER11      MSG ADDR
0C3D 1 4C80 0C16               BSC  I  T11CM      EXIT ROUTINE
0C3F 0                   T1113 EQU     *
0C3F 1 CC00 0BD0               LDD  L  ERR
0C41 1 D400 0B92               STO  L  GOB1
0C43 0 1090                    SLT     16         A TO Q
0C44 1 D400 0B93               STO  L  GOB1+1
0C46 0 C2AD                    LD    2 H00FF-TB
0C47 1 D400 0BAD               STO  L  PTRM1
0C49 0 403E                    BSI     SBDA1      GO INSERT SHLD BE DATA
0C4A 0 61FD                    LDX   1 -3         *********************
0C4B 1 6700 0BB5               LDX  L3 HADA2      *                    *
0C4D 1 C500 0BF2               LD   L1 ICW14+3    *   SET              *
0C4F 0 1808                    SRA     8          *                    *
0C50 0 42F5                    BSI   2 TCVHD-TB   *                    *
0C51 0 42F2                    BSI   2 TCVBE-TB   *    'SHLD BE'       *
0C52 0 D300                    STO   3 0          *                    *
0C53 0 1090                    SLT     16         *      DATA          *
0C54 0 D301                    STO   3 +1         *                    *
0C55 0 7302                    MDX   3 +2         *     INTO           *
0C56 0 1000                    NOP     0          -64K SAFETY-         *
0C57 0 7101                    MDX   1 1          *                    *
0C58 0 70F4                    MDX     *-12       *                    *
0C59 0 61FC                    LDX   1 -4         *         MESSAGE    *
0C5A 1 6700 0BC2               LDX  L3 R0DA2      *                    *
0C5C 1 C500 0BF6               LD   L1 ICW15+4    *          AREA      *
0C5E 0 42F5                    BSI   2 TCVHD-TB   *                    *
0C5F 0 42F2                    BSI   2 TCVBE-TB   *                    *
0C60 0 D300                    STO   3 0          *                    *
0C61 0 1090                    SLT     16         *                    *
0C62 0 D301                    STO   3 +1         *                    *
0C63 0 7302                    MDX   3 +2         *                    *
0C64 0 1000                    NOP     0          -64K SAFETY-         *
0C65 0 7101                    MDX   1 1          * + HA AND R0 +      *
0C66 0 70F5                    MDX     *-11       *                    *
0C67 0 42FE                    BSI   2 TLGMS-TB   PRINT MESSAGE
0C68 1 0B91                    DC      IER11
0C69 1 7400 0BFF               MDX  L  FALSW      PREVIOUS ERROR
0C6B 0 7002                    MDX     *+2        YES --SKIP
0C6C 1 6C00 0BFF               STX  L  FALSW      NO -SET INDICATOR
0C6E 0 1010                    SLA     16
0C6F 1 D400 0C02               STO  L  RT2CT      CLEAR 10 CNTR
0C71 1 7401 0C00               MDX  L  RTCNT,+1   AND-INCR RETRY CNTR (1)
0C73 0 C08C                    LD      RTCNT      YES -CK RETRY CNT
0C74 1 F400 0BCC               EOR  L  SVNTN      RETRIES EXHAUSTED
0C76 1 4C20 0B18               BNZ  L  T1106      NO ---BR TO RE-READ
0C78 1 D400 0C00               STO  L  RTCNT      * ---CLEAR COUNTERS
0C7A 1 D400 0BFF               STO  L  FALSW      * ---
0C7C 1 D400 0C02               STO  L  RT2CT      * ---
0C7E 0                   T1114 EQU     *
0C7E 0 42FE                    BSI   2 TLGMS-TB   * PRINT RETRIES
0C7F 1 0CA8                    DC      IER13      * EXHAUSTED MSG
0C80 0 1010                    SLA     16
0C81 1 D400 0BFF               STO  L  FALSW
0C83 1 D400 0C00               STO  L  RTCNT
0C85 0 42E3                    BSI   2 FREDV-TB    RELEASE DEVICE
0C86 0 4C80 012E               BSC  I  END        TERMINATE PGM
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0C88 0                  SBDA1 EQU     *                                    81410900
0C88 0 0000                   DC      *-*          ********************    81410910
0C89 0 61FD                   LDX   1 -3           *  INSERT 'WAS'    *    81410920
0C8A 1 6700 0B98              LDX   L3 HADA1       *  HA AND R0 DATA  *    81410930
0C8C 1 C500 0BF9              LD    L1 ICW16+3     *  INTO OUTPUT LINE*    81410940
0C8E 0 1808                   SRA     8            *                  *    81410950
0C8F 0 42F5                   BSI   2 TCVHD-TB     *                  *    81410960
0C90 0 42F2                   BSI   2 TCVBE-TB     *                  *    81410970
0C91 0 D300                   STO   3 0            *                  *    81410980
0C92 0 1090                   SLT     16           *                  *    81410990
0C93 0 D301                   STO   3 +1           *                  *    81411000
0C94 0 7302                   MDX   3 +2           *                  *    81411010
0C95 0 1000                   NOP     0            -64K SAFETY-       *    81411020
0C96 0 7101                   MDX   1 +1           *                  *    81411030
0C97 0 70F4                   MDX     *-12         *                  *    81411040
0C98 0 61FC                   LDX   1 -4           *                  *    81411050
0C99 1 6700 0BA5              LDX   L3 R0DA1       *                  *    81411060
0C9B 1 C500 0BFD              LD    L1 ICW17+4     *                       81411070
0C9D 0 42F5                   BSI   2 TCVHD-TB     *                  *    81411080
0C9E 0 42F2                   BSI   2 TCVBE-TB     *                  *    81411090
0C9F 0 D300                   STO   3 0            *                  *    81411100
0CA0 0 1090                   SLT     16           *                  *    81411110
0CA1 0 D301                   STO   3 +1           *                  *    81411120
0CA2 0 7302                   MDX   3 +2           *                  *    81411130
0CA3 0 1000                   NOP     0            -64K SAFETY-       *    81411140
0CA4 0 7101                   MDX   1 +1           *                  *    81411150
0CA5 0 70F5                   MDX     *-11         *                  *    81411160
0CA6 1 4C80 0C88              BSC   I SBDA1        ********************    81411170
0CA8   0011           IER13   PRNT    .  UNABLE TO INITIALIZE.             81411180
0CB3   0012                   PRNT    .--PACK MUST BE REJECTED .           81411190
0CBF 0 00FF                   DC      /00FF                                81411200
0CC0 0 00FF                   DC      /00FF                                81411210
0CC1 0 FFFF                   DC      /FFFF                                81411220
0CC2 0                  END11 EQU     *                                    81411230
                              *                                            81411240
                              *     GO TO NEXT ROUTINE IN SEQUENCE         81411250
                              *                                            81411260
0CC2 0 42E3             T11EN BSI   2 FREDV-TB     FREE CHANNEL           81411270
0CC3 0 C2BF                   LD    2 TRTNN-TB     GET RTN SWS            81411280
0CC4 1 4C18 0CEA              BZ      T1201        GO TO NEXT RTN IN SEQ  81411290
0CC6 0 42DD                   BSI   2 CNTRL-TB     GO TO CONTROL RTN      81411300
0CC7   0007           TTL11   PRNT    . SECT 1,RT 1- .                     81411310
                              *                                            81411320
0CCE 0 00FF                   DC      /00FF                                81411330
0CCF   0015                   PRNT    .-2311 C.E. PACK INITIALIZATION.     81411340
0CDE   0011                   PRNT    .-ROUT 1 WR HA AND R0-.              81411350
0CE9 0 FFFF                   DC      /FFFF                                81411360
                              ************************************************ 81411370
                              *                                              * 81411380
                              ************************************************ 81411390
0CEA 0                  T1201 EQU     *            TEST ENTRY POINT        81411400
0CEA 1 7401 0815              MDX   L TRID,1       BUMP RTN ID             81411410
0CEC 1 4C18 0CF1              BZ      T1202        BR IF TEST NUMBER ZERO  81411420
0CEE 0 9297                   S     2 K1-TB        DECREMENT BY ONE        81411430
0CEF 1 4C20 108B              BNZ     T1301        BR IF NOT THIS TEST     81411440
                              *                                            81411450
0CF1 0 C283             T1202 LD    2 TSW0-TB      GET OPTION SWS          81411460
0CF2 0 100A                   SLA     OTTLE        PRINT TITLES            81411470
0CF3 1 4C10 0CF7              BNN     T1203          BR IF NOT SET         81411480
0CF5 0 42FE                   BSI   2 TLGMS-TB GO TO PRINT ROUTINE         81411490
0CF6 1 104F                   DC      TTL12        MESSAGE ADDRESS         81411500
                              *                                            81411510
0CF7 0 42E6             T1203 BSI   2 GETDV-TB     GET CHANNEL FOR RTN     81411520
                              ************************************************ 81411530
                              *                                              * 81411540
                              ************************************************ 81411550
                              *                                              * 81411560
                              *     DO SIO TO EXECUTE RECAL, SEEK, SET FL MASK * 81411570
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                              *                                              * 81411580
                              ************************************************ 81411590
                              *                                              * 81411600
                              ************************************************ 81411610
0CF8 1 6500 1040              LDX   L1 CKERR       * LOAD ERROR ADDRESS      81411620
0CFA 1 6D00 114F              STX   L1 WTADR       AND SET INTO INT. RTNE    81411630
0CFC 1 6580 0EA9              LDX   I1 MADR2       ** GET MESSAGE NO.        81411640
0CFE 1 6D00 1042              STX   L1 CKERR+2     ** OVERLAY IN MSG O/P     81411650
                              *                    ** ROUTINE PARAMETER      81411660
                              *                          ****************    81411670
0D00 0 1010                   SLA     16           *                  *    81411680
0D01 0 6500 FF8B              LDX   L1 ICW24-CEND2 * INITIALIZE CTRS,*    81411690
0D03 1 D500 0F4C              STO   L1 CEND2       * SWS, AND AREAS   *    81411700
0D05 0 7101                   MDX     1 +1         * TO ZEROES        *    81411710
0D06 0 70FC                   MDX     *-4          *                  *    81411720
                              *                          ****************    81411730
0D07 1 6500 0D71              LDX   L1 T12MA       GET MSG ADDR              81411740
0D09 0 6901                   STX     1 T1204+1    INSERT IT                 81411750
0D0A 0                  T1204 EQU     *                                      81411760
0D0A 0 42FE                   BSI   2 TLGMS-TB                             81411770
0D0B 0 0000                   DC      *-*          MSG ADDR AREA             81411780
0D0C 0 42EC                   BSI   2 SIO-TB       ** RECAL                  81411790
0D0D 1 0EB7                   DC      ICCW4        ** CCW CHAIN              81411800
0D0E 1 4400 1037              BSI   L CKSTA         GO CHECK STATUS           81411810
0D10 0 70FB                   MDX     *-5          LOOP ERROR PARAM.         81411820
0D11 0 1010                   SLA     16           ++CLEAR HA AND            81411830
0D12 0 61F9                   LDX     1 -7         ++'COUNT' AREA            81411840
0D13 1 D500 0EDE              STO   L1 ICW24+7     ++OF R0                   81411850
0D15 0 7101                   MDX     1 +1         ++                        81411860
0D16 0 70FC                   MDX     *-4          ++                        81411870
0D17 0 C2A1                   LD      2 K100-TB    SET UP DATA LENGTH        81411880
0D18 1 D400 0EDD              STO   L ICW25+3                                81411890
                        *     STORE 50 WDS (100 BYTES) OF WORST CASE DATA *  81411900
                        *     INTO THE WRITE AREA                        *  81411910
                        *                                                *  81411920
0D1A 0 61CE                   LDX     1 -50        *                  *    81411930
0D1B 1 C400 0D70              LD    L HE5E5        * INSERT DATA      *    81411940
0D1D 1 D500 0F10              STO   L1 ICW25+54    *   BYTES          *    81411950
0D1F 0 7101                   MDX     1 +1         *                  *    81411960
0D20 0 70FC                   MDX     *-4          *                  *    81411970
                        *     SET UP REMAINDER OF WRITE AREA                 81411980
                        *                                                    81411990
0D21 0 1010                   SLA     16                                     81412000
0D22 1 D400 0F4A              STO   L HDCTR        SET HEAD CTR = HD 0       81412010
0D24 0 C297                   LD      2 K1-TB                                81412020
0D25 1 D400 0F49              STO   L CYCTR        SET CYL CTR = CYL 1       81412030
0D27 1 D400 0EDA        T1205 STO   L ICW25        ** POSITION CYL NO   *(R0) 81412040
0D29 1 D400 0ED3              STO   L ICW21+1      ** (SEEK PARAM)      *    81412050
0D2B 1 D400 0ED5              STO   L ICW23        ** (SEEK HA PARAM)   *    81412060
0D2D 0 1008                   SLA     8            ** AND STO TO WR AREA*    81412070
0D2E 1 D400 0FD8              STO   L ICW24+1      ** OF HA 1           *(HA) 81412080
                              *                                              * 81412090
0D30 1 C400 0F4A        T1206 LD    L HDCTR        ** LOAD AND               81412100
0D32 1 D400 0EDB              STO   L ICW25+1      **  POSITION              81412110
0D34 1 D400 0ED4              STO   L ICW21+2      ** (SEEK PARAM)      *    81412120
0D36 1 D400 0ED6              STO   L ICW23+1      ** (SEEK HA PARAM)   *    81412130
0D38 0 1008                   SLA     8            **   HEAD NO. THEN        81412140
0D39 1 D400 0ED9              STO   L ICW24+2      **     STR TO WR AREA R0,HA 81412150
0D3B 1 7400 0F4B              MDX   L RWSW2        DO RD PASS ONLY           81412160
0D3D 0 7005                   MDX     T1207        YES -BR.                  81412170
                              *                                              * 81412180
                              *     DO WRITE SIO                             * 81412190
                              *                                              * 81412200
0D3E 0 42EC                   BSI   2 SIO-TB                                 81412210
0D3F 1 0EBA                   DC      ICCW5                                  81412220
0D40 1 4400 1037              BSI   L CKSTA        GO CHECK STATUS           81412230
0D42 0 70FB                   MDX     *-5          LOOP ERROR PARAM.         81412240
                              *                                              * 81412250
```

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                         *     CLEAR RD AREA -THEN DO RD SIO              *  81412260
                         *                                                *  81412270
0D43 0 61CA              T1207 LDX   1 -54       *  CLEAR                    81412280
0D44 0 1010                    SLA     16        *                           81412290
0D45 1 D500 0F49               STO   L1 ICW27+54 *                           81412300
0D47 0 7101                    MDX     1 +1      *                           81412310
0D48 0 70FC                    MDX     *-4       *                           81412320
0D49 0 42EC                    BSI     2 SIO-TB    RD SIO                    81412330
0D4A 1 0EC9                    DC      ICCW6                                 81412340
0D4B 1 4400 1037               BSI   L CKSTA     GO CHECK STATUS           81412350
0D4D 0 70FB                    MDX     *-5       LOOP ERROR PARAM.         81412360
0D4E 1 4400 0F4D               BSI   L T12CM     GO COMPARE HA & R0 DATA   81412370
0D50 1 7401 0F4A               MDX   L HDCTR,+1  INCR HD NO.               81412380
0D52 1 C400 0F4A               LD    L HDCTR     IS HD NO = 10             81412390
0D54 0 F29F                    EOR     2 K10-TB                            81412400
0D55 1 4C20 0D30               BNZ     T1206     NO -GO UPDATE HA AND R0   81412410
                         *                        PORTION OF WRITE AREA     81412420
0D57 0 1010                    SLA     16        * YES -CLEAR              81412430
0D58 1 D400 0F4A               STO   L HDCTR     * HD NO AREA              81412440
0D5A 0 C014                    LD      H00C7                               81412450
0D5B 1 F400 0F49               EOR   L CYCTR     IS CYL CNTR = 199         81412460
0D5D 1 4C18 0D64               BZ      T1209     YES -BR                   81412470
0D5F 1 F400 0F49               EOR   L CYCTR     ELSE RESTORE VALUE, STR IT 81412480
0D61 1 D400 0F49               STO   L CYCTR     AS CYL CNT AND WR TO C 199 81412490
0D63 0 70C3                    B       T1205     SETUP CY & HD NO -DO SIO  81412500
0D64 1 C400 0F4B         T1209 LD    L RWSW2     IS RD-WR SW SET           81412510
0D66 1 4C20 0EAA               BNZ     T1210     YES -EXIT                 81412520
0D68 1 6C00 0F4B               STX   L RWSW2     NO -SET SW THEN GO RESET  81412530
0D6A 1 6500 0D8C               LDX   L1 T12MB    OVERLAY                   81412540
0D6C 0 699E                    STX     1 T1204+1 MSG PARAM                 81412550
0D6D 1 4C00 0D0A               B     L T1204     CYL CNT TO 1  AND DO      81412560
                                                 READ PASS ON CYLS 1 & 199 81412570
0D6F 0 00C7              H00C7 DC      /00C7                               81412580
0D70 0 E5E5              HE5E5 DC      /E5E5                               81412590
0D71 0 00FF              T12MA DC      /00FF                               81412600
0D72    0015                   PRNT    .PHASE 1  WRITE AND READ HA AND.    81412610
0D81    0010                   PRNT    . R0 OF CYL 1 AND 199.              81412620
0D8B 0 FFFF                    DC      /FFFF                               81412630
0D8C 0 00FF              T12MB DC      /00FF                               81412640
0D8D    0014                   PRNT    .PHASE 2  READ HA AND R0 FROM.      81412650
0D9B    0007                   PRNT    . CYL 1 AND 199.                    81412660
0DA2 0 FFFF                    DC      /FFFF                               81412670
0DA3    0007             IER21 PRNT    .--     -HA RD   .                  81412680
0DAA    0006             HADA3 BSS     6                                   81412690
0DB0    0007                   PRNT    .   R0 RD       .                   81412700
0DB7 0                   GDDAT EQU     *                                   81412710
0DB7    0008                   BSS     8         CNT PORTION OF R0 PR BUFR 81412720
0DBF 0 00FF                    DC      /00FF                               81412730
0DC0    0032             IER23 BSS     50        DATA PORTION O F R0       81412740
0DF2 0 00FF                    DC      /00FF                               81412750
0DF3    0032             IER25 BSS     50                                  81412760
0E25 0 0000              PTRM2 DC      *-*                                 81412770
0E26    0007             IER22 PRNT    .-HA  SHLD BE  .                    81412780
0E2D    0006             HADA4 BSS     6                                   81412790
0E33    0007                   PRNT    .   R0 SHLD BE .                    81412800
0E3A 0                   ERDAT EQU     *                                   81412810
0E3A    0008                   BSS     8         CNT PORTION OF R0 PR BUFR 81412820
0E42 0 00FF                    DC      /00FF                               81412830
0E43    0032             IER24 BSS     50        DATA PORTION OF R0        81412840
0E75 0 00FF                    DC      /00FF                               81412850
0E76    0032             IER26 BSS     50                                  81412860
0EA8 0 FFFF                    DC      /FFFF                               81412870
0EA9 0 1201              MADR2 DC      /1201     MESSAGE NO. FOR RTN 2     81412880
0EAA 0 42FE              T1210 BSI     2 TLGMS-TB                          81412890
0EAB 1 0EAE                    DC      T12M1                               81412900
0EAC 1 4C00 1048               BSC   L END12     GO TO ROUTINE END         81412910
0EAE    0008             T12M1 PRNT    .END OF ROUTINE 2.                  81412920
0EB6 0 FFFF                    DC      /FFFF                               81412930
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                         *     CCW  CHAIN  ONE  -INITIAL POSITIONING-  *  81412940
                         *                                              81412950
0EB7 0 0001              ICCW4 DC      1           BYTE COUNT             81412960
0EB8 0 2013                    DC      /20*256+RCAL FLAGS AND OP CODE     81412970
0EB9 1 0EBA                    DC      *           ADDRESS                81412980
                         *                                              81412990
                         *     CCW  CHAIN  TWO  -WRITE COMMANDS       *  81413000
                         *                                              81413010
0EBA 0 0006              ICCW5 DC      6           BYTE COUNT             81413020
0EBB 0 4007                    DC      /40*256+SEEKC FLAGS AND OP CODE    81413030
0EBC 1 0ED2                    DC      ICW21       ADDRESS                81413040
                         *                                              81413050
                         *                                              81413060
0EBD 0 0001                    DC      1           BYTE COUNT             81413070
0EBE 0 401F                    DC      /40*256+SFILM FLAGS AND OP CODE    81413080
0EBF 1 0BCB                    DC      FLMSK       ADDRESS                81413090
                         *                                              81413100
                         *                                              81413110
0EC0 0 0004                    DC      4           BYTE COUNT             81413120
0EC1 0 4039                    DC      /40*256+SRCHA FLAGS AND OP CODE    81413130
0EC2 1 0ED5                    DC      ICW23       ADDRESS                81413140
                         *                                              81413150
                         *                                              81413160
0EC3 0 0001                    DC      1           BYTE COUNT             81413170
0EC4 0 2008                    DC      /20*256+OPTIC FLAGS AND OP CODE    81413180
0EC5 1 0EC0                    DC      *-6         ADDRESS                81413190
                         *                                              81413200
                         *                                              81413210
0EC6 0 006C                    DC      108         BYTE COUNT             81413220
0EC7 0 2015                    DC      /20*256+WRR0 FLAGS AND OP CODE     81413230
0EC8 1 0EDA                    DC      ICW25       ADDRESS                81413240
                         *                                              81413250
                         *     CCW  CHAIN  THREE  -READ COMMANDS      *  81413260
                         *                                              81413270
0EC9 0 0006              ICCW6 DC      6           BYTE COUNT             81413280
0ECA 0 4007                    DC      /40*256+SEEKC FLAGS AND OP CODE    81413290
0ECB 1 0ED2                    DC      ICW21       ADDRESS                81413300
                         *                                              81413310
                         *                                              81413320
0ECC 0 0005                    DC      5           BYTE COUNT             81413330
0ECD 0 401A                    DC      /40*256+RDHA FLAGS AND OP CODE     81413340
0ECE 1 0F10                    DC      ICW26       ADDRESS                81413350
                         *                                              81413360
                         *                                              81413370
0ECF 0 006C                    DC      108         BYTE COUNT             81413380
0ED0 0 2016                    DC      /20*256+RDR0 FLAGS AND OP CODE     81413390
0ED1 1 0F13                    DC      ICW27       ADDRESS                81413400
                         *                                              81413410
0ED2 0 0000              ICW21 DC      0         *           0000  *      81413420
0ED3 0 0000                    DC      0         - SEEK PARAM 00CC  *     81413430
0ED4 0 0000                    DC      0         *           00HH  *      81413440
                         *                                              81413450
0ED5 0 0000              ICW23 DC      0         * SEARCH HOME            81413460
0ED6 0 0000                    DC      0         *  ADDR EQU. PARAM       81413470
                         *     SHOULD BE  (WRITE) AREA                  81413480
0ED7    0003             ICW24 BSS     3                                  81413490
0EDA    0036             ICW25 BSS     54                                 81413500
                         *     WAS  (READ IN) AREA                      81413510
0F10    0003             ICW26 BSS     3                                  81413520
0F13    0036             ICW27 BSS     54                                 81413530
0F49 0 0000              CYCTR DC      0                                  81413540
0F4A 0 0000              HDCTR DC      0                                  81413550
0F4B 0 0000              RWSW2 DC      0                                  81413560
0F4C 0 1000              CEND2 NOP                                        81413570
0F4D 0                   T12CM EQU     *                                  81413580
0F4D 0 0000                    DC      *-*         ENTRY                  81413590
0F4E 0 61C7                    LDX   1 -57                                81413600
0F4F 1 C500 0F49               LD    L1 ICW26+57   SET TO 1ST LOC OF RD AREA 81413610
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0F51 1 F500 0F10          EOR  L1 ICW24+57   TEST WITH LOC 1 OF WR AREA 81413620
0F53 1 4C20 0F7C          BNZ    T1213       ERR IF ANY WD NOT A MATCH  81413630
0F55 0 7101               MDX   1 1                                     81413640
0F56 0 70F8               MDX    T12CM+2     GET NEXT WD                81413650
0F57 0 C283               LD     2 TSW0-TB   CMPR COMPLETE -TEST SWS-   81413660
0F58 0 1009               SLA    OPRRS       SHOULD MSG 1 BE PRINTED    81413670
0F59 1 4C90 0F4D          BSC  I T12CM,-     NO -RTNE FINISHED- EXIT    81413680
0F5B 1 C400 0BFF          LD   L FALSW       HAD PREVIOUS FAILURE       81413690
0F5D 1 4C18 0F6C          BZ     T1212       NO SET UP 'OK' MSG.        81413700
0F5F 0                T1211 EQU    *                                     81413710
0F5F 1 7401 0C02          MDX  L RT2CT,+1    ** BUMP TEN CNTR           81413720
0F61 1 C400 0C02          LD   L RT2CT       *                          81413730
0F63 0 F29F               EOR    2 K10-TB    *    --IS = 10             81413740
0F64 1 4C20 0D43          BNZ  L T1207       RE-READ HA AND R0          81413750
0F66 1 D400 0BFF          STO  L FALSW         AREAS                    81413760
0F68 1 D400 0C00          STO  L RTCNT           AND                    81413770
                      *                        SET UP 'OK' MSG          81413780
0F6A 1 D400 0C02          STO  L RT2CT       CLR 2ND RE-TRY CNTR        81413790
0F6C 1 CC00 0BCE      T1212 LDD  L OK        * INSERT            *      81413800
0F6E 1 D400 0DA4          STO  L IER21+1     *   OK              *      81413810
0F70 0 1090               SLT    16          *     INTO          *      81413820
0F71 1 D400 0DA5          STO  L IER21+2     *       MESSAGE     *      81413830
0F73 0 C28D               LD     2 TERM-TB   INSERT TERMINATOR -PRINT   81413840
0F74 1 D400 0E25          STO  L PTRM2       ONLY LINE 1 OF MSG-        81413850
                      *                                        *      81413860
                      *    SET UP A 1 LINE MESSAGE WHEN COMPARE*      81413870
                      *    OK AND SNS SW 10 ON                 *      81413880
                      *                                        *      81413890
0F76 1 4400 0FF0          BSI  L SBDA2       GO INSERT SHLD BE DATA     81413900
0F78 0 42FE               BSI    2 TLGMS-TB  PRINT OK MESSAGE           81413910
0F79 1 0DA3               DC     IER21       MSG ADDR                   81413920
0F7A 1 4C80 0F4D          BSC  I T12CM       EXIT ROUTINE               81413930
0F7C 0                T1213 EQU    *                                     81413940
0F7C 1 CC00 0BD0          LDD  L ERR                                    81413950
0F7E 1 D400 0DA4          STO  L IER21+1                                81413960
0F80 0 1090               SLT    16          A TO Q                     81413970
0F81 1 D400 0DA5          STO  L IER21+2                                81413980
0F83 0 C2AD               LD     2 H00FF-TB                             81413990
0F84 1 D400 0E25          STO  L PTRM2                                  81414000
0F86 0 4069               BSI    SBDA2       GO INSERT SHLD BE DATA     81414010
0F87 0 61FD               LDX    1 -3        **********************     81414020
0F88 1 6700 0E2D          LDX  L3 HADA4      *                    *     81414030
0F8A 1 C500 0EDA          LD   L1 ICW24+3    *   SET 'SHLD BE'    *     81414040
0F8C 0 1808               SRA    8           *                    *     81414050
0F8D 0 42F5               BSI    2 TCVHD-TB  *   DATA INTO        *     81414060
0F8E 0 42F2               BSI    2 TCVBE-TB  *   THE OUTPUT AREA  *     81414070
0F8F 0 D300               STO    3 0         *                    *     81414080
0F90 0 1090               SLT      16        *                    *     81414090
0F91 0 D301               STO    3 +1        *                    *     81414100
0F92 0 7302               MDX    3 +2        *                    *     81414110
0F93 0 1000               NOP      0         -64K SAFETY-         *     81414120
0F94 0 7101               MDX    1 1         *                    *     81414130
0F95 0 70F4               MDX      *-12      *                    *     81414140
0F96 0 1010               SLA      16        *                    *     81414150
0F97 0 D027               STO      PASSA     *                    *     81414160
0F98 1 6500 0EDE          LDX  L1 ICW25+4    *** OVERLAY          *     81414170
0F9A 1 6D00 0FA0          STX  L1 T1220+1    ***  ADDRESS         *     81414180
0F9C 0 61FC               LDX    1 -4        *                    *     81414190
0F9D 1 6700 0E3A          LDX  L3 ERDAT      *                    *     81414200
0F9F 0 C500 0000      T1220 LD   L1 *-*       *                    *     81414210
0FA1 1 7400 0FBF          MDX  L PASSA       *                    *     81414220
0FA3 0 7001               MDX      *+1       *-SKP TCVHD IF NOT 0*      81414230
0FA4 0 42F5               BSI    2 TCVHD-TB  *                    *     81414240
0FA5 0 42F2               BSI    2 TCVBE-TB  *                    *     81414250
0FA6 0 D300               STO    3 0         *                    *     81414260
0FA7 0 1090               SLT      16        *                    *     81414270
0FA8 0 D301               STO    3 +1        *                    *     81414280
0FA9 0 7302               MDX    3 +2        *                    *     81414290
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0FAA 0 1000               NOP      0         -64K SAFETY-         *     81414300
0FAB 0 7101               MDX    1 +1        *                    *     81414310
0FAC 0 70F2               MDX      T1220     *                    *     81414320
0FAD 1 7400 102A          MDX  L LINSW                                  81414330
0FAF 0 700B               MDX      T1132                               81414340
0FB0 0 C00E               LD       PASSA                               81414350
0FB1 1 4C18 0FC0          BZ       T1221     *                    *     81414360
0FB3 0 6876               STX      LINSW                               81414370
0FB4 1 6500 0E76          LDX  L1 IER26                                 81414380
0FB6 0 6912               STX    1 T1130+2                             81414390
0FB7 1 6500 0F10          LDX  L1 ICW25+54                              81414400
0FB9 0 69E6               STX    1 T1220+1                             81414410
0FBA 0 700C               MDX      T1130                               81414420
0FBB 0 1010           T1132 SLA      16                                 81414430
0FBC 0 D002               STO      PASSA     *                    *     81414440
0FBD 0 D06C               STO      LINSW                               81414450
0FBE 0 7011               B        T1222     *                    *     81414460
0FBF 0 0000           PASSA DC       0         *                    *     81414470
0FC0 0 68FE           T1221 STX      PASSA     *                    *     81414480
0FC1 1 6500 0EF7          LDX  L1 ICW25+29   *                    *     81414490
0FC3 0 69DC               STX    1 T1220+1   *                    *     81414500
0FC4 1 6500 0E43          LDX  L1 IER24                                 81414510
0FC6 0 6902               STX    1 T1130+2                             81414520
0FC7 0 61E7           T1130 LDX    1 -25                                81414530
0FC8 0 6700 0000          LDX  L3 *-*                                   81414540
0FCA 0 70D4               B        T1220     *                    *     81414550
0FCB 0 1000               NOP                                           81414560
0FCC 0 1000               NOP                                           81414570
0FCD 0 1000               NOP                                           81414580
0FCE 0 1000               NOP                                           81414590
0FCF 0 1000               NOP                                           81414600
0FD0 0 42FE           T1222 BSI    2 TLGMS-TB  PRINT FIRST PART OF MSG    81414610
0FD1 1 0DA3               DC       IER21                               81414620
0FD2 1 7400 0BFF          MDX  L FALSW       PREVIOUS ERROR              81414630
0FD4 0 7002               MDX      *+2         YES, BRANCH               81414640
0FD5 1 6C00 0BFF          STX  L FALSW       NO -SET INDICATOR           81414650
0FD7 0 1010               SLA      16                                   81414660
0FD8 1 D400 0C02          STO  L RT2CT       CLR GOOD RE-TRY CNTR        81414670
0FDA 1 7401 0C00          MDX  L RTCNT,+1    AND-INCR RETRY CNTR (1)     81414680
0FDC 1 C400 0C00          LD   L RTCNT       YES -CK RETRY CNT           81414690
0FDE 1 F400 0BCC          EOR  L SVNTN       RETRIES EXHAUSTED           81414700
0FE0 1 4C20 0D43          BNZ  L T1207       NO ---BR TO RE-READ         81414710
0FE2 1 D400 0C00          STO  L RTCNT       * ---CLEAR COUNTERS         81414720
0FE4 1 D400 0BFF          STO  L FALSW       * ---                       81414730
0FE6 1 D400 0C02          STO  L RT2CT       * ---                       81414740
0FE8 0                T1214 EQU    *                                     81414750
0FE8 0 42FE               BSI    2 TLGMS-TB  * PRINT RETRIES             81414760
0FE9 1 0CA8               DC       IER13     * EXHASTED MSG              81414770
0FEA 0 1010               SLA      16                                   81414780
0FEB 1 D400 0BFF          STO  L FALSW                                  81414790
0FED 1 D400 0C00          STO  L RTCNT                                  81414800
0FEF 0 7058               B        END12     GO TO ROUTINE END           81414810
0FF0 0                SBDA2 EQU    *         **********************      81414820
0FF0 0 0000               DC       *-*       * INSERT 'WAS'   HA *       81414830
0FF1 0 61FD               LDX    1 -3        * AND R0 DATA INTO  *       81414840
0FF2 1 6700 0DAA          LDX  L3 HADA3      *                   *       81414850
0FF4 1 C500 0F13          LD   L1 ICW26+3    * OUTPUT LINE       *       81414860
0FF6 0 1808               SRA      8         *                   *       81414870
0FF7 0 42F5               BSI    2 TCVHD-TB  *                   *       81414880
0FF8 0 42F2               BSI    2 TCVBE-TB  *                   *       81414890
0FF9 0 D300               STO    3 0         *                   *       81414900
0FFA 0 1090               SLT      16        *                   *       81414910
0FFB 0 D301               STO    3 +1        *                   *       81414920
0FFC 0 7302               MDX    3 +2        *                   *       81414930
0FFD 0 1000               NOP      0         -64K SAFETY-        *       81414940
0FFE 0 7101               MDX    1 +1        *                   *       81414950
0FFF 0 70F4               MDX      *-12      *                   *       81414960
1000 0 1010               SLA      16        *                   *       81414970
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1001 0 D029              STO      PASSB      *                    *   81414980
1002 1 6500 0F17         LDX  L1  ICW27+4    *** OVERLAY          *   81414990
1004 1 6D00 100A         STX  L1  T1224+1    *** ADDRESS          *   81415000
1006 0 61FC              LDX   1  -4         *                    *   81415010
1007 1 6700 0DB7         LDX  L3  GDDAT      *                    *   81415020
1009 0 C500 0000   T1224 LD   L1  *-*        *                    *   81415030
100B 1 7400 102B         MDX  L   PASSB      *                    *   81415040
100D 0 7001              MDX      *+1        *-SKP TCVHD IF NOT 0*    81415050
100E 0 42F5              BSI   2  TCVHD-TB   *                    *   81415060
100F 0 42F2              BSI   2  TCVBE-TB   *                    *   81415070
1010 0 D300              STO   3  0          *                    *   81415080
1011 0 1090              SLT      16         *                    *   81415090
1012 0 D301              STO   3  +1         *                    *   81415100
1013 0 7302              MDX   3  +2         *                    *   81415110
1014 0 7101              MDX   1  +1         *                    *   81415120
1015 0 70F3              MDX      T1224      *                    *   81415130
1016 1 7400 102A         MDX  L   LINSW      *                    *   81415140
1018 0 700C              MDX      T1129      *                    *   81415150
1019 0 C011              LD       PASSB      *                    *   81415160
101A 1 4C18 102C         BZ       T1225      *                    *   81415170
101C 0 680D              STX      LINSW      *                    *   81415180
101D 1 6500 0DF3         LDX  L1  IER25      *                    *   81415190
101F 1 6D00 1035         STX  L1  T1127+2    *                    *   81415200
1021 1 6500 0F49         LDX  L1  ICW27+54                            81415210
1023 0 69E6              STX   1  T1224+1                             81415220
1024 0 700E              MDX      T1127      *                    *   81415230
1025 0 1010        T1129 SLA      16         *                    *   81415240
1026 0 D004              STO      PASSB      *                    *   81415250
1027 0 D002              STO      LINSW      *                    *   81415260
1028 1 4C80 0FF0   T1226 BSC  I   SBDA2                               81415270
102A 0 0000        LINSW DC       0                                   81415280
102B 0 0000        PASSB DC       0          *                    *   81415290
102C 0 68FE        T1225 STX      PASSB      *                    *   81415300
102D 1 6500 0F30         LDX  L1  ICW27+29   *                        81415310
102F 0 69DA              STX   1  T1224+1    *                    *   81415320
1030 1 6500 0DC0         LDX  L1  IER23      *                    *   81415330
1032 0 6902              STX   1  T1127+2    *                    *   81415340
1033 0 61E7        T1127 LDX   1  -25        *                    *   81415350
1034 0 6700 0000         LDX  L3  *-*        *                        81415360
1036 0 70D2              B        T1224      *                    *   81415370
                   *                                                  81415380
                   ************************************************** 81415390
                   *                                                * 81415400
                   ************************************************** 81415410
                   *                                                  81415420
                   *              SUBR TO CHECK STATUS FOR ERRORS     81415430
                   *                                                  81415440
1037 0 0000        CKSTA DC       *-*        EP                       81415450
1038 0 C22E              LD    2  SCSX0+1-TB GET UNIT STATUS          81415460
1039 0 100E              SLA      UNCHK      UNIT CHECK               81415470
103A 1 4C28 1040         BN       CKERR      ERR  IF NOT NEG          81415480
103C 1 7401 1037   CKEND MDX  L   CKSTA,1    ADJ RETURN               81415490
103E 1 4C80 1037         B    I   CKSTA      RETURN VIA EP            81415500
                   *                                                  81415510
1040 0 42E0        CKERR BSI   2  EROUT-TB   PRINT                    81415520
1041 0 8107              DC       /8107                               81415530
1042 0 1101              DC       /1101                               81415540
                   *                                                  81415550
1043 0 4201              BSI   2  TLPER-TB   TEST LOOP ON ERR OPTION  81415560
1044 1 1046              DC       *+1        LOOP ERR ADDR            81415570
1045 0 70F6              B        CKEND                               81415580
                   *                                                  81415590
1046 1 4C80 1037         BSC  I   CKSTA                               81415600
                   *                                                  81415610
1048 0             END12 EQU      *                                   81415620
1048 0 42EC              BSI   2  SIO-TB     RECAL WHEN               81415630
1049 1 0EB7              DC       ICCW4      RTNE 2 FINISHED          81415640
                   *                                                  81415650
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                   *     GO TO NEXT ROUTINE IN SEQUENCE               81415660
                   *                                                  81415670
104A 0 42E3        T12EN BSI   2  FREDV-TB     FREE CHANNEL           81415680
104B 0 C2BF              LD    2  TRTNN-TB   GET RTN SWS              81415690
104C 1 4C18 108B         BZ       T1301        GO TO NEXT RTN IN SEQ  81415700
104E 0 42DD              BSI   2  CNTRL-TB   GO TO CONTROL RTN        81415710
104F   0007        TTL12 PRNT     . SECT 1,RT 2- .                    81415720
                   *                                                  81415730
1056 0 00FF              DC       /00FF                               81415740
1057   0015              PRNT     .2311 C.E. PACK INITIALIZATION.     81415750
1066 0 00FF              DC       /00FF                               81415760
1067   0017              PRNT     .-ROUT 2 WR CYLS 1 AND 199 WITH RO . 81415770
1078 0 00FF              DC       /00FF                               81415780
1079   0017              PRNT     .EQ TO 100 BYTES OF WORST CASE DATA. 81415790
108A 0 FFFF              DC       /FFFF                               81415800
                   ************************************************** 81415810
                   *                                                * 81415820
                   ************************************************** 81415830
                   *                                                  81415840
                   *     SECTION END                                  81415850
                   *                                                  81415860
108B 0 42DD        T1301 BSI   2  CNTRL-TB   GO TO CONTROL RTN        81415870
                   ************************************************** 81415880
                   *                                                * 81415890
                   ************************************************** 81415900
                   *                                                  81415910
                   *     SECTION PREFACE                              81415920
                   *                                                  81415930
108C 0 0002        T20PR DC       /0002     SECTION NUMBER            81415940
108D 0 0000              DC       0                                   81415950
                   *                                                  81415960
108E 0 C2BE        T20NT LD    2  TSCTN-TB                            81415970
108F 1 4C18 1099         BZ       T20EN                               81415980
                   *                                                  81415990
1091 0 C2BF              LD    2  TRTNN-TB  SW FNC 1 BITS 12-15       81416000
1092 1 4C18 10AB         BZ       T2101     BR IF RUN ALL RTNS        81416010
1094 0 90F8              S        T20PR+1   TEST FOR VALID            81416020
1095 1 4C30 0A4E         BP       TCNER     BR IF INVALID RTN NUMBER  81416030
1097 0 80F5              A        T20PR+1   RESTORE RTN NUMBER        81416040
1098 0 7012              MDX      T2101     GO TO FIRST RTN           81416050
1099 0 42FE        T20EN BSI   2  TLGMS-TB  PRINT END OF TEST MSG     81416060
109A 1 10A0              DC       T20ER                               81416070
109B 1 7401 0855         MDX  L   PSCNT,1   BUMP PASS CNTR            81416080
109D 0 1000              NOP                IN CASE OF SKIP           81416090
109E 0 4C80 012E         BSC  I   END       GO TO MONITOR END         81416100
                   *                                                  81416110
10A0   0009        T20ER PRNT     . ** END OF DFT **.                 81416120
10A9 0 FF00              DC       /FF00                               81416130
10AA 0 FFFF              DC       /FFFF                               81416140
                   ************************************************** 81416150
                   *                                                * 81416160
                   ************************************************** 81416170
                   *                                                  81416180
                   ************************************************** 81416190
                   *                                                * 81416200
                   ************************************************** 81416210
                   *                                                  81416220
                   *     SECTION END                                  81416230
                   *                                                  81416240
10AB 0 42DD        T2101 BSI   2  CNTRL-TB   GO TO CONTROL RTN        81416250
                   ************************************************** 81416260
                   *                                                * 81416270
                   ************************************************** 81416280
10AC 0             GTDVE EQU      *          GET DEVICE ROUTINE       81416290
                   *                                                  81416300
10AC 0 42EF        GTDV1 BSI   2  STMLS-TB                            81416310
10AD 0 4480 0131         BSI  I   REQDV                               81416320
10AF 1 10AC              DC       GTDV1      BUSY RETURN              81416330
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10B0 1 0814              DC     TSCED      SEL CHN EDIT                81416340
10B1 1 08E9              DC     TSCAC      SEL CHN AREA CODE           81416350
10B2 1 080C              DC     TERM       TERMINATOR                  81416360
                    *                                                  81416370
10B3 0 C2B0              LD     2 H0400-TB BUILD HALT I/O IOCC         81416380
10B4 0 EA6A              OR     2 TSCAC-TB OR IN AREA CODE             81416390
10B5 0 EAD2              OR     2 DVADR-TB ***                         81416400
10B6 0 D21C              STO    2 HIOXX+1-TB ***                       81416410
                    *                                                  81416420
10B7 0 EAAE              OR     2 H0100-TB BUILD START I/O IOCC         81416430
10B8 0 D220              STO    2 SIOXX+1-TB ***                       81416440
                    *                                                  81416450
10B9 0 D21A              STO    2 TIOXX+1-TB BUILD TEST I/O IOCC        81416460
                    *                                                  81416470
10BA 0 D21E              STO    2 SENSE+1-TB SET FOR SENSE IOCC         81416480
                    *                                                  81416490
10BB 0 C2B2              LD     2 H0700-TB  BUILD SENSE CHANNEL         81416500
10BC 0 EA6A              OR     2 TSCAC-TB  *   STATUS IOCC'S           81416510
10BD 0 1808              SRA    8                                       81416520
10BE 0 1008              SLA    8                                       81416530
10BF 0 829B              A      2 K6-TB                                 81416540
10C0 0 D22C              STO    2 SCSN5+1-TB              = 06          81416550
10C1 0 8298              A      2 K2-TB                                 81416560
10C2 0 D222              STO    2 SCSN0+1-TB ***          = 08          81416570
10C3 0 8297              A      2 K1-TB                                 81416580
10C4 0 D224              STO    2 SCSN1+1-TB              = 09          81416590
10C5 0 8297              A      2 K1-TB                                 81416600
10C6 0 D226              STO    2 SCSN2+1-TB              = 0A          81416610
10C7 0 8297              A      2 K1-TB                                 81416620
10C8 0 D228              STO    2 SCSN3+1-TB              = 0B          81416630
10C9 0 8297              A      2 K1-TB                                 81416640
10CA 0 D22A              STO    2 SCSN4+1-TB              = 0C          81416650
10CB 0 D269              STO    2 SCISW-TB  SET INT SW                  81416660
                    *                                                  81416670
10CC 1 4C80 0865         BSC  I GETDV       RETURN                      81416680
                    ************************************************** 81416690
                    *                                                * 81416700
                    ************************************************** 81416710
                    ************************************************** 81416720
                    *                                                * 81416730
                    ************************************************** 81416740
                    *                                                  81416750
10CE 0 4480 0132    FRDVE BSI  I  RELDV    RELEASE DEVICE              81416760
10D0 1 0814              DC       TSCED    SEL CHN EDIT                81416770
10D1 1 080C              DC       TERM     TERMINATOR                  81416780
                    *                                                  81416790
10D2 0 1010              SLA      16       RESET-                      81416800
10D3 0 D269              STO    2 SCISW-TB INTERRUPT SW                81416810
10D4 1 4C80 0862         BSC  I   FRDV     RETURN                      81416820
                    ************************************************** 81416830
                    *                                                * 81416840
                    ************************************************** 81416850
                    *                                                  81416860
                    *      CALL ***************                        81416870
                    *        * BSI 2 SIO-TB   *                        81416880
                    *        * DC    CCWADR   *                        81416890
                    *        ******************                        81416900
                    *                                                  81416910
                    ************************************************** 81416920
                    *                                                * 81416930
                    ************************************************** 81416940
10D6 0              SIONT EQU      *        ENTRY POINT                 81416950
10D6 0 6920              STX    1 SIOX1+1   SAVE REGS                  81416960
10D7 0 6B21              STX    3 SIOX1+3   ***                        81416970
10D8 1 6780 086B         LDX   I3 SIO       GET CALLING ADDRESS         81416980
10DA 1 7401 086B         MDX   L  SIO,1     BUMP FOR RETURN             81416990
10DC 0 1000              NOP                                           81417000
10DD 0 C300              LD     3 0         GET CCW ADDRESS             81417010
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10DE 0 D21F              STO    2 SIOXX-TB  SET FOR XIO                 81417020
10DF 0 D2C3              STO    2 CAWSV-TB  SAVE FOR POSSIBLE PRINTS    81417030
                    *                                                  81417040
10E0 0 10A0         SIO01 SLT      32        CLEAR CSW                   81417050
10E1 0 DA2D              STD    2 SCSX0-TB  **                          81417060
10E2 0 DA2F              STD    2 SCSX0+2-TB **                         81417070
10E3 0 D267              STO    2 WIOSW-TB  CLEAR WAIT SW               81417080
                    *                                                  81417090
10E4 0 0A1F              XIO    2 SIOXX-TB  DO THE START I/O            81417100
                    *                                                  81417110
10E5 0 0A21              XIO    2 SCSN0-TB  GET CHANNEL STATUS          81417120
10E6 0 D221              STO    2 SCSN0-TB  SAVE FOR LATER EXAM         81417130
                    *                                                  81417140
10E7 0 7006              MDX      SIO03     GO TEST FOR ERRORS          81417150
                    *    LOOP ON TIO UNTIL DEVICE END                  81417160
10E8 0 42FB         SIO02 BSI    2 TIO-TB    GO DO A TIO                 81417170
                    *                                                  81417180
10E9 0 C236              LD     2 SCSX8+1-TB GET UNIT STATUS            81417190
10EA 0 100B              SLA      UNBZY     TEST FOR BUSY               81417200
10EB 1 4C28 10E8         BN       SIO02     BR IF STILL BUSY            81417210
10ED 0 70F2              MDX      SIO01     GO DO THE SIO AGAIN         81417220
                    *                                                  81417230
10EE 0 C221         SIO03 LD     2 SCSN0-TB  GET CHAN STATUS             81417240
10EF 0 1007              SLA      SCABZ     TEST FOR BUSY               81417250
10F0 1 4C10 10FE         BNN      SIO05     BRANCH IF NOT NEG           81417260
                    *    CMD ACCEPTED                                  81417270
10F2 0 C2D4         SIO04 LD     2 SIOSW-TB  GET SIO SW                  81417280
10F3 1 4C28 10F6         BN       SIOX1       BR IF SET                 81417290
                    *                                                  81417300
10F5 0 4047              BSI      WAITT     GO WAIT FOR DE OR UNIT CHK  81417310
                    *                                                  81417320
10F6 0 6500 0000    SIOX1 LDX  L1 *-*        RESTORE REGS                81417330
10F8 0 6700 0000         LDX  L3 *-*         ***                         81417340
10FA 0 1010              SLA      16        RESET SIO SW                81417350
10FB 0 D2D4              STO    2 SIOSW-TB  *                           81417360
10FC 1 4C80 086B         BSC  I   SIO       THEN EXIT                   81417370
                    *                                                  81417380
10FE 0 C2D4         SIO05 LD     2 SIOSW-TB  GET CNTRL SW                81417390
10FF 0 1001              SLA      1         TEST FOR EXIT EVEN IF ERR   81417400
1100 1 4C28 10F6         BN       SIOX1       BR IF SET                 81417410
                    *                                                  81417420
1102 0 CAC7              LDD    2 TYP2-TB     'SIO '                      81417430
1103 0 DA53              STD    2 STSER+6-TB  SET IN MSG                  81417440
1104 1 4400 157A         BSI  L   TCVSR       GET SECT/RTN NUMBERS        81417450
1106 0 D257              STO    2 STSER+10-TB                            81417460
1107 0 1090              SLT      16                                     81417470
1108 0 D25A              STO    2 STSER+13-TB  SET IN MSG                 81417480
1109 0 C221              LD     2 SCSN0-TB  GET CHAN STATUS              81417490
110A 1 4C10 1114         BNN      SIO06     BR IF NOT OPER IS NOT SET   81417500
                    *    NOT OPERATIONAL                               81417510
110C 0 C2A8              LD     2 H0013-TB  GET MSG NUMBER               81417520
110D 0 42F2              BSI    2 TCVBE-TB  CONVERT TO PRNT CODE         81417530
110E 0 1090              SLT      16        SAVE Q ONLY                 81417540
110F 0 D24D              STO    2 STSER-TB  SET IN MSG                   81417550
1110 0 42E0              BSI    2 EROUT-TB  PRINT ERROR MSG              81417560
1111 0 0108              DC       /0108     TAGS AND OPTIONS            81417570
1112 1 08CC              DC       STSER     MSG ADDRESS                 81417580
1113 0 7023              MDX      SIO09     LOOP                        81417590
                    *                                                  81417600
1114 0 1007         SIO06 SLA      SCABZ     TEST FOR ADAPTER BUSY       81417610
1115 1 4C10 1120         BNN      SIO07     BR IF NOT                   81417620
1117 0 C2A7              LD     2 H0011-TB  SET MSG NUMBER               81417630
1118 0 8297              A      2 K1-TB                                  81417640
1119 0 42F2              BSI    2 TCVBE-TB  CONVERT                      81417650
111A 0 1090              SLT      16        Q ONLY                      81417660
111B 0 D24D              STO    2 STSER-TB  SET IN MSG                   81417670
111C 0 42E0              BSI    2 EROUT-TB  CALL ERROR PRINT RTN         81417680
111D 0 010C              DC       /010C     MESSAGE TAGS AND OPTIONS    81417690
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111E 1 08CC                DC     STSER      MSG ADDRESS                    81417700
111F 0 7017                MDX    SIO09      *                              81417710
                           *                                                81417720
1120 0 C221      SIO07 LD     2 SCSN0-TB   GET CHAN STATUS                  81417730
1121 0 1001           SLA      SCUSP      UNIT STATUS PENDING              81417740
1122 1 4C10 10F2      BNN      SIO04      BR IF NOT SET                    81417750
1124 0 42E9           BSI    2 GETSN-TB   ELSE GET SENSE INFO              81417760
1125 0 CA15           LDD    2 SNWDS-TB   GET SENSE WORDS                  81417770
1126 0 109F           SLT      FSKIN      TEST FOR SEEK INCOMPLETE         81417780
1127 1 4C10 1130      BNN      SIO08      BR IF NOT SET                    81417790
1129 1 6780 089E      LDX    I3 SIOXX     GET CCW ADDRESS                  81417800
112B 0 C301           LD     3 1          GET FLAGS AND OP CODE            81417810
112C 0 F2A8           EOR    2 H0013-TB   TEST FOR RECALIBRATE             81417820
112D 0 1008           SLA      8                                           81417830
112E 1 4C18 10E0      BZ       SIO01      RETRY IF SO                      81417840
                           *                                                81417850
1130 0 C2A7      SIO08 LD     2 H0011-TB   SET ERR NUMBER                   81417860
1131 0 42F2           BSI    2 TCVBE-TB   CONVERT                          81417870
1132 0 1090           SLT      16         Q ONLY                           81417880
1133 0 D24D           STO    2 STSER-TB   SET IN MSG                       81417890
1134 0 42E0           BSI    2 EROUT-TB   CALL MSG RTN                     81417900
1135 0 010F           DC       /010F      TAGS AND OPTIONS                 81417910
1136 1 08CC           DC       STSER      MSG ADDRESS                      81417920
                           *                                                81417930
1137 0 C283      SIO09 LD     2 TSW0-TB    GET SW FNC 0                     81417940
1138 0 100B           SLA      ORTRY      TEST FOR RETRY SIO               81417950
1139 1 4C28 10E8      BN       SIO02      BR IF YES                        81417960
                           *                                                81417970
113B 0 42F8           BSI    2 THALT-TB   GO WAIT FOR OPERATOR             81417980
113C 0 70AB           MDX      SIO02      LOOP                             81417990
                           ************************************************ 81418000
                           *                                              * 81418010
                           ************************************************ 81418020
                           *                                                81418030
                           *    WAIT FOR DEVICE END FROM START I/O          81418040
                           *                                                81418050
113D 0 0000      WAITT DC     *-*                                          81418060
113E 0 C28D           LD     2 TERM-TB    GET COUNTER FOR LOOP             81418070
113F 0 D2BD           STO    2 CNTDN-TB   SET FOR LOOP                     81418080
                           *                                                81418090
1140 0 42FB      WAIT1 BSI    2 TIO-TB     GO DO A TEST I/O                 81418100
                           *                                                81418110
1141 0 C236           LD     2 SCSX8+1-TB GET UNIT STATUS                  81418120
1142 0 100B           SLA      UNBZY      TEST FOR UNIT BUSY               81418130
1143 1 4C28 1149      BN       WAIT2      BR TO WAIT IF ON                 81418140
1145 0 1010           SLA      16         ELSE CLEAR TIO SW                81418150
1146 0 D2D8           STO    2 TIOSW-TB   *                                81418160
1147 1 4C80 113D      BSC    I WAITT      EXIT IF NOT BUSY                 81418170
                           *                                                81418180
1149 0 42EF      WAIT2 BSI    2 STMLS-TB   GO TO MONITOR                    81418190
114A 1 74CE 083C      MDX    L CNTDN,-50  COUNT TIME                       81418200
114C 0 70F3           MDX      WAIT1      LOOP                             81418210
114D 1 4C80 114F      BSC    I WTADR      GO TO TIMEOUT ADDRESS            81418220
114F 0 0000      WTADR DC     *-*          TIMEOUT ADDRESS                  81418230
                           ************************************************ 81418240
                           *                                              * 81418250
                           ************************************************ 81418260
1150 0 4204      ILSIO BSI    2 TLPST-TB   LOOP ON SIO OPTION               81418270
1151 1 1154           DC       *+2        LOOP ADDR                        81418280
1152 1 4480 086B      BSI    I SIO        -RETURN-                         81418290
                           *                                                81418300
1154 1 74FF 086B      MDX    L SIO,-1     RE-ADJ EP FOR PARAMETER          81418310
1156 0 1000           NOP      0          -64K SAFETY-                     81418320
1157 1 4C00 10D6      B      L SIONT      LOOP THRU SIO AGAIN              81418330
                           ************************************************ 81418340
                           *                                              * 81418350
                           ************************************************ 81418360
                           *                                                81418370
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                           *                                              * 81418380
                           *                                              * 81418390
                           ************************************************ 81418400
                           *                                              * 81418410
                           ************************************************ 81418420
1159 0                TIONT EQU      *          ENTRY FOR XFER VECTOR      81418430
1159 0 1010                SLA      16         CLEAR-                     81418440
115A 0 D268                STO    2 WATSW-TB   *                          81418450
115B 0 D223                STO    2 SCSN1-TB   * LOOP COUNTER             81418460
                           *    WAIT FOR ADAPTER NOT BUSY                 81418470
115C 0 0A21      TI001 XIO    2 SCSN0-TB   GET CHAN. STATUS WORD           81418480
115D 0 1007                SLA      SCABZ      TEST FOR ADAPTER BUSY       81418490
115E 1 4C10 1171           BNN      TI002      BR IF NOT                   81418500
1160 0 0A2B                XIO    2 SCSN5-TB   ALLOW POLLING               81418510
                           *                                               81418520
1161 0 42EF                BSI    2 STMLS-TB   GO TO MONITOR               81418530
1162 1 7432 08A2      L    MDX    L SCSN1,50     COUNT LOOPS               81418540
1164 0 70F7                MDX      TI001      LOOP UNTIL NOT BUSY         81418550
                           *                                               81418560
1165 0 0A23                XIO    2 SCSN1-TB       GET CHANNEL STATUS      81418570
1166 0 D239                STO    2 SCSXC-TB       * AND SAVE FOR ERROR    81418580
1167 0 0A27                XIO    2 SCSN3-TB       * MESSAGE               81418590
1168 0 D23A                STO    2 SCSXC+1-TB     *                       81418600
1169 0 0A29                XIO    2 SCSN4-TB       *                       81418610
116A 0 D23B                STO    2 SCSXC+2-TB     *                       81418620
116B 0 0A2B                XIO    2 SCSN5-TB       *                       81418630
116C 0 D23C                STO    2 SCSXC+3-TB     *                       81418640
                           *                                               81418650
116D 0 42E0                BSI    2 EROUT-TB                               81418660
116E 0 110E                DC       /110E        TAGS AND OPTIONS          81418670
116F 1 1185                DC       TIOM1        ERROR MSG ADDRESS         81418680
                           *                                               81418690
1170 0 70E8                MDX      TIONT         LOOP TO TRY AGAIN        81418700
                           *                                               81418710
1171 0 0A19      TI002 XIO    2 TIOXX-TB   EXECUTE TEST I/O                 81418720
                           *                                               81418730
1172 1 6C00 0857      STX    L TIOSW      SET TIO SW                       81418740
1174 0 0A2B                XIO    2 SCSN5-TB   RELIEVE POLL                81418750
                           *                                               81418760
1175 1 4400 0992           BSI    L TINTW      WAIT FOR INTERRUPT           81418770
1177 0 7006                MDX      TI003      BR IF DID NOT OCCUR          81418780
1178 0 C236                LD     2 SCSX8+1-TB GET UNIT STATUS              81418790
1179 0 100A                SLA      UNCUE      TEST FOR CNTL UNIT END       81418800
117A 1 4C28 1159           BN       TIONT      RETRY IF YES                 81418810
                           *                                               81418820
117C 1 4C80 087A           BSC    I TIO        EXIT                         81418830
                           *                                               81418840
117E 0 42E0      TI003 BSI    2 EROUT-TB                                    81418850
117F 0 110E                DC       /110E        TAGS AND OPTIONS          81418860
1180 1 1191                DC       TIOM2        ERROR MSG ADDRESS         81418870
                           *    ISSUE HALT I/O TO CLEAR CHANNEL             81418880
1181 0 0A1B                XIO    2 HIOXX-TB                                81418890
                           *                                               81418900
1182 0 42FE                BSI    2 TLGMS-TB                                81418910
1183 1 11A2                DC       TIOMS                                   81418920
                           *                                               81418930
1184 0 70D4                MDX      TIONT                                   81418940
                           *                                               81418950
1185   0011      TIOM1 PRNT     • 02 ADAPTER HUNG BUSY.                     81418960
1190 0 FFFF                DC       /FFFF                                   81418970
                           *                                               81418980
1191   0016      TIOM2 PRNT     • 06 CHANNEL HUNG AFTER TEST I/O.           81418990
11A1 0 FFFF                DC       /FFFF                                   81419000
11A2   0015      TIOMS PRNT     • A HALT I/O HAS BEEN ISSUED TO.            81419010
11B1 0 FF00                DC       /FF00                                   81419020
11B2   0017                PRNT     •TRY TO RESET THE CHANNEL CONDITION.    81419030
11C3 0 FFFF                DC       /FFFF                                   81419040
                           *                                               81419050
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                        ************************************************** 81419060
                        *                                                * 81419070
                        ************************************************** 81419080
                        *                                                  81419090
                        ************************************************** 81419100
                        *                                                * 81419110
                        ************************************************** 81419120
                        *                                                  81419130
                        *     CALL ****************                       81419140
                        *        *  BSI  L  GETSN  *                     81419150
                        *          ******************                     81419160
                        *                                                  81419170
                        ************************************************** 81419180
                        *                                                * 81419190
                        ************************************************** 81419200
11C4 0 6916             GTSNS STX    1 GTSNX+1     SAVE REGS             81419210
11C5 0 6B17                   STX    3 GTSNX+3     ***                   81419220
11C6 0 CA39                   LDD    2 SCSXC-TB    SAVE SNS CHAN STATUS  81419230
11C7 0 DA3D                   STD    2 SCSVS-TB    **                    81419240
11C8 0 CA3B                   LDD    2 SCSXC+2-TB  **                    81419250
11C9 0 DA3F                   STD    2 SCSVS+2-TB                        81419260
11CA 0 0A1D             GTSN0 XIO    2 SENSE-TB    SENSE  I/O            81419270
11CB 0 0A21                   XIO    2 SCSN0-TB    GET CHAN STATUS       81419280
11CC 0 D221                   STO    2 SCSN0-TB    SAVE                  81419290
11CD 0 1007                   SLA      SCABZ                             81419300
11CE 1 4C10 11E4              BNN      GTSN2                             81419310
                        *     SIO ACCEPTED- WAIT FOR NOT BUSY             81419320
11D0 0 0A21             GTSN1 XIO    2 SCSN0-TB    GET CHAN STATUS       81419330
11D1 0 1007                   SLA      SCABZ       TEST FOR BUSY         81419340
11D2 1 4C28 11D0              BN       GTSN1       BR IF SO              81419350
                        *                                                81419360
11D4 0 0A2B                   XIO    2 SCSN5-TB    ALLOW POLLING         81419370
11D5 0 1000                   NOP                  TO ALLOW INTERRUPT    81419380
                        *                                                81419390
11D6 0 C23A                   LD     2 SCSXC+1-TB  GET UNIT STATUS       81419400
11D7 0 100E                   SLA      UNCHK                             81419410
11D8 1 4C28 11E4              BN       GTSN2                             81419420
11DA 0 6500 0000        GTSNX LDX  L1 *-*           RESTORE REGS          81419430
11DC 0 6700 0000              LDX  L3 *-*           ***                   81419440
11DE 0 CA3D                   LDD    2 SCSVS-TB    RESTORE SNS CHAN STATUS 81419450
11DF 0 DA39                   STD    2 SCSXC-TB    **                    81419460
11E0 0 CA3F                   LDD    2 SCSVS+2-TB  **                    81419470
11E1 0 DA3B                   STD    2 SCSXC+2-TB  **                    81419480
11E2 1 4C80 0868              BSC  I   GETSN       EXIT TO CALLER        81419490
                        *                                                81419500
11E4 1 4400 157A        GTSN2 BSI  L   TCVSR       GET SECTION / RTN NUMBERS 81419510
11E6 0 D257                   STO    2 STSER+10-TB  STORE IN MSG          81419520
11E7 0 1090                   SLT      16          Q TO A                81419530
11E8 0 D25A                   STO    2 STSER+13-TB                       81419540
11E9 0 CAC9                   LDD    2 TYP3-TB     'SNS'                 81419550
11EA 0 DA53                   STD    2 STSER+6-TB  SET IN MSG            81419560
11EB 0 C239                   LD     2 SCSXC-TB    GET CHAN STATSUS WORD 81419570
11EC 0 1001                   SLA      SCUSP       TEST FOR UNIT STAT.PNDING 81419580
11ED 1 4C10 11F6              BNN      GTSN3       BR IF NOT             81419590
                        *     UNIT STATUS PENDING                        81419600
11EF 0 C285                   LD     2 H2100-TB    SET MSG NUMBER        81419610
11F0 0 42F2                   BSI    2 TCVBE-TB    CONVERT TO EBC        81419620
11F1 0 D24D                   STO    2 STSER-TB    SET IN MSG            81419630
11F2 0 42E0                   BSI    2 EROUT-TB    PRINT ERROR MSG       81419640
11F3 0 114E                   DC       /114E       TAGS AND OPTIONS      81419650
11F4 1 08CC                   DC       STSER       MESSAGE               81419660
11F5 0 70D4                   MDX      GTSN0       GO TRY AGAIN          81419670
                        *     NOT OPERATIONAL                            81419680
11F6 0 C221             GTSN3 LD     2 SCSN0-TB    GET CHAN STATUS       81419690
11F7 0 1007                   SLA      SCABZ       TEST FOR ADAPTER BUSY 81419700
11F8 1 4C10 1202              BNN      GTSN5       BR IF NOT             81419710
11FA 0 C2AE                   LD     2 H0100-TB    SET MSG NUMBER TO 22  81419720
                        *                                                81419730
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11FB 0 82B5             GTSN4 A      2 H2100-TB    CREATE PROPER MSG NUMBER 81419740
11FC 0 42F2                   BSI    2 TCVBE-TB    CONVERT                 81419750
11FD 0 D24D                   STO    2 STSER-TB    SET IN MSG              81419760
11FE 0 42E0                   BSI    2 EROUT-TB    CALL ERROR MSG RTN      81419770
11FF 0 114C                   DC       /114C       TAGS AND OPTIONS        81419780
1200 1 08CC                   DC       STSER       MSG ADDRESS             81419790
1201 0 70C8                   MDX      GTSN0       GO TRY AGAIN            81419800
                        *                                                  81419810
1202 0 C2AF             GTSN5 LD     2 H0200-TB    SET MSG NUMBER TO 23    81419820
1203 0 70F7                   MDX      GTSN4       GO TO COMMON RTN        81419830
                        ************************************************** 81419840
                        *                                                * 81419850
                        ************************************************** 81419860
                        *     HALT ROUTINE                                 81419870
                        *          SETS BIT 15 IN TSW0 ON AND LOOPS        81419880
                        *          THRU MONITOR UNTIL BIT IS CLEARED.      81419890
                        *                                                  81419900
                        ************************************************** 81419910
                        *                                                * 81419920
                        ************************************************** 81419930
1204 0                  THLTE EQU    *                                     81419940
1204 0 C283                   LD     2 TSW0-TB     GET OPTION SWS          81419950
1205 0 100E                   SLA      OHALT       TEST FOR HALT ON ERROR  81419960
1206 1 4C10 1217              BNN      THLTR       BR IF NO                81419970
                        *                                                  81419980
1208 0 C2F8             THLTG LD     2 THALT-TB    GET CALLING ADDRESS     81419990
1209 0 42F2                   BSI    2 TCVBE-TB    CONVERT TO PRNT CODE    81420000
120A 0 D01E                   STO      THLT2       SET IN MSG              81420010
120B 0 1090                   SLT      16          Q TO A                  81420020
120C 0 D01D                   STO      THLT2+1     SET IN MSG              81420030
120D 0 42FE                   BSI    2 TLGMS-TB    GO PRINT MSG            81420040
120E 1 1219                   DC       THLTM       MESSAGE ADDRESS         81420050
                        *                                                  81420060
120F 0 C297                   LD     2 K1-TB       SET BIT 15              81420070
1210 0 EA83                   OR     2 TSW0-TB     *                       81420080
1211 0 D283                   STO    2 TSW0-TB     *                       81420090
                        *                                                  81420100
                        *     LOOP THRU MONITOR UNTIL READY                81420110
                        *                                                  81420120
1212 0 42EF             THLTL BSI    2 STMLS-TB    GO TO MONITRR           81420130
                        *     RETURN HERE                                  81420140
1213 0 C283                   LD     2 TSW0-TB     GET SWITCH WORD         81420150
1214 1 4C04 1212              BOD      THLTL       BR IF STILL ON          81420160
                        *                                                  81420170
1216 0 42EF                   BSI    2 STMLS-TB    GO TO MONITOR           81420180
1217 1 4C80 0877        THLTR BSC  I   THALT       RETURN TO CALLER        81420190
                        *                                                  81420200
1219    0016            THLTM PRNT     • ***HALT DISK INITIALIZER ADDRS .   81420210
1229    0002            THLT2 PRNT     •    •                               81420220
122B 0 00FF                   DC       /00FF                               81420230
122C    0014                  PRNT     • TO CLEAR HALT SET SWITCHES-.       81420240
123A 0 00FF                   DC       /00FF                               81420250
123B    0011                  PRNT     • S/P 00PP PPPP. P=PID.             81420260
1246 0 00FF                   DC       /00FF                               81420270
1247    0012                  PRNT     • DES XXXX XXXX XXXX XXX0.          81420280
1253 0 00FF                   DC       /00FF                               81420290
1254    0012                  PRNT     • PRESS CONSOLE INTERUPT.           81420300
1260 0 FFFF                   DC       /FFFF                               81420310
                        *                                                  81420320
                        ************************************************** 81420330
                        *                                                * 81420340
                        ************************************************** 81420350
                        *                                                  81420360
                        *     SAVE INDEX REGISTERS AND GO TO MONITOR       81420370
                        *                                                  81420380
                        ************************************************** 81420390
                        *                                                * 81420400
                        ************************************************** 81420410
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1261 0                  STMLE EQU     *                                81420420
1261 0 C2EF                   LD      2 STMLS-TB   GET CALLING ADDRS   81420430
1262 0 D02E                   STO       STMSA      PUT IN TEMP SAVE AREA 81420440
1263 0 692E                   STX     1 STMSA+1    PUT REGS IN SAVE AREA 81420450
1264 0 6B2E                   STX     3 STMSA+2    **                  81420460
1265 1 6580 1294              LDX   I1 STMPT       GET Q LOCATION      81420470
                        *                                              81420480
1267 0 C029                   LD        STMSA      GET I REG           81420490
1268 1 D500 1296              STO   L1  STMST      PUT IN Q            81420500
126A 0 C027                   LD        STMSA+1    GET XR1             81420510
126B 1 D500 1297              STO   L1  STMST+1    PUT IN Q            81420520
126D 0 C025                   LD        STMSA+2    GET XR3             81420530
126E 1 D500 1298              STO   L1  STMST+2    PUT IN Q            81420540
                        *                                              81420550
1270 0 7103                   MDX     1 +3         BUMP Q POINTER      81420560
1271 0 6922                   STX     1 STMPT      SAVE                81420570
                        *                                              81420580
1272 0 C022                   LD        STMRT      SET UP MONITOR RETURN 81420590
1273 0 D28C                   STO     2 MLSC2-TB   *                   81420600
1274 0 4C80 012D              BSC   I   START      GO  VISIT MONITOR   81420610
                        *                                              81420620
                        *       RETURN FROM MONITOR HERE               81420630
                        *                                              81420640
1276 1 6600 087F        STMLX LDX   L2  TB         SET UP TABLE PNTR   81420650
1278 0 C01D                   LD        STMST      GET ENTRY LOC       81420660
1279 0 D2EF                   STO     2 STMLS-TB   PUT IN RETURN       81420670
                        *                                              81420680
127A 0 C01C                   LD        STMST+1      GET XR1           81420690
127B 0 D016                   STO       STMSA+1      PUT IN TEMP SAVE  81420700
127C 0 C01B                   LD        STMST+2      GET XR2           81420710
127D 0 D015                   STO       STMSA+2      PUT IN TEMP SAVE  81420720
                        *                                              81420730
127E 0 61F7                   LDX     1 -9                             81420740
                        *                                              81420750
127F 1 C500 12A2        STMLL LD    L1  STMST+12     MOVE ALL SAVED    81420760
1281 1 D500 129F              STO   L1  STMST+9      * PARAMETERS UP 3 81420770
1283 0 7101                   MDX     1 +1           * PLACES IN Q     81420780
1284 0 70FA                   MDX       STMLL        *                 81420790
                        *                                              81420800
1285 1 74FD 1294              MDX   L   STMPT,-3     DECREMENT Q POINTER 81420810
1287 0 7006                   MDX       STMPS        IF NOT 0,CONTINUE 81420820
                        *                                              81420830
1288 1 6580 1292        STMSE LDX   I1  STMSA+1      ELSE RESTORE PARAMETERS 81420840
128A 1 6780 1293              LDX   I3  STMSA+2      *                 81420850
128C 1 4C80 086E              BSC   I   STMLS        RETURN            81420860
                        *     GET HERE IF ENTRYS NEED SERVICING        81420870
128E 0 C006             STMPS LD        STMRT        SET UP RETURN TO  81420880
128F 0 D28C                   STO     2 MLSC2-TB     * STMLS ROUTINE   81420890
1290 0 70F7                   MDX       STMSE        EXIT              81420900
                        *                                              81420910
                        *     TEMPORARY SAVE AREA                      81420920
                        *                                              81420930
1291 0 0000             STMSA DC        *-*                            81420940
1292 0 0000                   DC        *-*                            81420950
1293 0 0000                   DC        *-*                            81420960
                        *                                              81420970
1294 0 0000             STMPT DC        0            Q POINTER         81420980
1295 1 1276             STMRT DC        STMLX        RE-ENTRY LOCATION 81420990
                        *                                              81421000
                        *     QUEUED SAVE AREA                         81421010
                        *                                              81421020
1296 0 0000             STMST DC        *-*          I    1            81421030
1297 0 0000                   DC        *-*          XR1  1            81421040
1298 0 0000                   DC        *-*          XR3  1            81421050
                        *                                              81421060
1299 0 0000                   DC        *-*          I    2            81421070
129A 0 0000                   DC        *-*          XR1  2            81421080
129B 0 0000                   DC        *-*          XR3  2            81421090
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                        *                                              81421100
129C 0 0000                   DC        *-*                            81421110
129D 0 0000                   DC        *-*                            81421120
129E 0 0000                   DC        *-*                            81421130
                        *                                              81421140
129F 0 0000                   DC        *-*                            81421150
12A0 0 0000                   DC        *-*                            81421160
12A1 0 0000                   DC        *-*                            81421170
                        ************************************************ 81421180
                        *                                              * 81421190
                        ************************************************ 81421200
                        *                                              81421210
                        *     CALL ************************            81421220
                        *       *  BSI 2 EROUT-TB          *           81421230
                        *       *  DC    /0127  CNTRL TAGS  *          81421240
                        *       *  DC    /ABCD  ERR NUMBER  *          81421250
                        *       *           (SECT,RT,ER)    *          81421260
                        *       ************************              81421270
                        *                                              81421280
                        ************************************************ 81421290
                        *                                              * 81421300
                        ************************************************ 81421310
                        *                                              81421320
                        *     EQUATES FOR EROUT TAGS                   81421330
                        *                                              81421340
0000 0                  OECX0 EQU     0          CSW=SCSX0             81421350
0001 0                  OECX4 EQU     1          CSW=SCSX4             81421360
0002 0                  OECX8 EQU     2          CSW=SCSX8             81421370
0003 0                  OECXC EQU     3          CSW=SCSXC             81421380
0006 0                  OEXIT EQU     6          EXIT TO ERADR         81421390
0007 0                  OEPBL EQU     7          PRINT A BLANK LINE    81421400
0009 0                  OEBYP EQU     9          BYPASS HALT LOOP      81421410
000A 0                  OEGSN EQU     10         GET SENSE BYTES       81421420
000B 0                  OEL1B EQU     11         BYPASS LINE 1         81421430
000C 0                  OEERR EQU     12         PRINT ERROR MSG       81421440
000D 0                  OECAW EQU     13         PRINT CAW             81421450
000E 0                  OECSW EQU     14         *     CSW             81421460
000F 0                  OESNS EQU     15         *     SNS             81421470
                        ************************************************ 81421480
                        *                                              * 81421490
                        ************************************************ 81421500
12A2   0000             ERMSG BSS   E 0                                81421510
12A2   0006                   PRNT    • **ER-XXXX •                    81421520
12A8   003C             PRINT BSS   E 60         PRINT BUFFER          81421530
12E4 0                  ERTNE EQU     *          ENTRY POINT           81421540
12E4 0 C2D7                   LD      2 STKSW-TB   GET RE-ENTRY SWITCH  81421550
12E5 1 4C20 12F7              BNZ       ERTN2      BR IF SET           81421560
12E7 1 6D00 13B4              STX   L1  ERT17+1    SAVE REGS           81421570
12E9 1 6F00 13B6              STX   L3  ERT17+3    **                  81421580
12EB 1 C480 085F              LD    I   EROUT      GET FLAGS           81421590
12ED 0 100A                   SLA       OEGSN      GET SENSE BYTES     81421600
12EE 1 4C10 12F7              BNN       ERTN2        BR IF NO          81421610
12F0 0 C2E0                   LD      2 EROUT-TB   GET RETURN ADDRS    81421620
12F1 0 D2D7                   STO     2 STKSW-TB   SET SW              81421630
12F2 0 42E9                   BSI     2 GETSN-TB   GET SENSE BYTES     81421640
12F3 0 C2D7                   LD      2 STKSW-TB   GET SAVED ADDRESS   81421650
12F4 0 D2E0                   STO     2 EROUT-TB   SET FOR RETURN      81421660
12F5 0 1010                   SLA     16           CLEAR SWITCH        81421670
12F6 0 D2D7                   STO     2 STKSW-TB                       81421680
                        *                                              81421690
12F7 1 6780 085F        ERTN2 LDX   I3  EROUT      SET REG             81421700
12F9 0 C300                   LD      3 0          GET OPTIONS/FLAGS   81421710
12FA 0 1007                   SLA       OEPBL      PRINT BLANK LINE FIRST 81421720
12FB 1 4C10 12FF              BNN       ERTN3      BR IF NOT           81421730
12FD 0 42FE                   BSI     2 TLGMS-TB   PRINT BLANK LINE    81421740
12FE 1 080C                   DC        TERM       /FFFF               81421750
                        *                                              81421760
12FF 0 C300             ERTN3 LD      3 0          GET TAGS            81421770
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1300 0 100B            SLA     OEL1B     BYPASS LINE 1 PRINT          81421780
1301 1 4C28 1337       BN      ERT10       BR IF YES                  81421790
1303 0 1001            SLA     OEERR-OEL1B ERROR MSG                  81421800
1304 1 4C10 1317       BNN     ERTN6       BR IF NOT                  81421810
                       *                                              81421820
1306 0 6100            LDX   1 0           SET COUNT TO ZERO          81421830
1307 0 C301            LD    3 1           GET MSG ADDRESS            81421840
1308 0 D001            STO     ERTN4+1     SET FOR LOAD INSTRUCTION   81421850
1309 0 C500 0000 ERTN4 LD    L1 *-*         GET WORD TO MOVE           81421860
130B 0 F28D            EOR   2 TERM-TB     IS IT END OF MSG           81421870
130C 1 4C18 1313       BZ      ERTN5       BR YES                     81421880
130E 0 F28D            EOR   2 TERM-TB     RESTORE DATA WORD          81421890
130F 1 D500 12A5       STO  L1 ERMSG+3     STORE IN TABLE             81421900
1311 0 7101            MDX   1 1           COUNT                      81421910
1312 0 70F6            MDX     ERTN4       LOOP                       81421920
                       *                                              81421930
1313 1 7500 12A5 ERTN5 MDX  L1 ERMSG+3     POINT TO NEXT WORD         81421940
1315 0 1000            NOP                                           81421950
1316 0 7009            MDX     ERTN7                                  81421960
                       *                                              81421970
1317 0 C301      ERTN6 LD      3 1         GET MSG NUMBER             81421980
1318 0 42F2            BSI   2 TCVBE-TB    CONVERT TO 43 CODE         81421990
1319 0 D08B            STO     ERMSG+3     STORE                      81422000
131A 0 18D0            XCH                 SWAP A-Q                   81422010
131B 0 D08A            STO     ERMSG+4                                81422020
131C 0 1010            SLA     16            SET IN TWO BLANKS        81422030
131D 0 D089            STO     ERMSG+5       **                       81422040
131E 1 6500 12A8       LDX  L1 PRINT       SET POINTER                81422050
                       *                                              81422060
1320 0 C2D2      ERTN7 LD      2 DVADR-TB  GET DEVICE ADDRESS         81422070
1321 0 42F2            BSI   2 TCVBE-TB    CONVERT TO 43 CODE         81422080
1322 0 1090            SLT     16          LOW ORDER TWO BYTES ONLY   81422090
1323 0 D260            STO   2 UNADR+3-TB  STORE FOR PRINT            81422100
1324 0 C2E0            LD    2 EROUT-TB    GET CALLING ADDRESS        81422110
1325 0 9297            S     2 K1-TB       POINT TO CALLING INSTRUCTN 81422120
1326 0 42F2            BSI   2 TCVBE-TB    CONVERT TO HEX             81422130
1327 0 D264            STO   2 UNADR+7-TB                             81422140
1328 0 1090            SLT     16                                     81422150
1329 0 D265            STO   2 UNADR+8-TB                             81422160
132A 0 6904            STX   1 ERTN8+3     SAVE REG IN INSTRUCTION    81422170
132B 0 6100            LDX   1 0           SET COUNT                  81422180
                       *                                              81422190
132C 1 C500 08DC ERTN8 LD    L1 UNADR      GET WORD TO MOVE           81422200
132E 0 D500 0000       STO  L1 *-*         STORE IN NEW LOC'N         81422210
1330 0 F28D            EOR   2 TERM-TB     TEST FOR END OF MSG        81422220
1331 1 4C18 1335       BZ      ERTN9       BR IF YES                  81422230
1333 0 7101            MDX   1 1           BUMP COUNT                 81422240
1334 0 70F7            MDX     ERTN8       LOOP                       81422250
                       *                                              81422260
1335 0 42FE      ERTN9 BSI   2 TLGMS-TB    GO PRINT MSG               81422270
1336 1 12A2            DC      ERMSG       ADDRESS OF MESSAGE         81422280
                       *     --CAW--   ADDRESS OF CCW CHAIN           81422290
1337 0 C300      ERT10 LD      3 0         GET TAGS                   81422300
1338 0 100D            SLA     OECAW       TEST FOR CAW,CSW,SNS       81422310
1339 1 4C18 13AC       BZ      ERT15         BR IF NONE               81422320
133B 1 6500 12A8       LDX  L1 PRINT       SET POINTER TO AREA        81422330
133D 1 4C10 1349       BNN     ERT11       BR IF NO CAW               81422340
133F 0 10A0            SLT     32                                     81422350
1340 0 D900            STD   1 0                                      81422360
1341 0 7102            MDX   1 2                                      81422370
1342 0 CACB            LDD   2 PCAW-TB     GET HEADER                 81422380
1343 0 D900            STD   1 0           STORE IN AREA              81422390
1344 0 C2C3            LD    2 CAWSV-TB    GET CCW ADDRESS FOR SIO    81422400
1345 0 42F2            BSI   2 TCVBE-TB    CONVERT TO EBC             81422410
1346 0 D902            STD   1 2           STORE IN AREA              81422420
1347 0 7104            MDX   1 4           BUMP POINTER               81422430
1348 0 1000            NOP                                            81422440
                       *     --CSW--   CHANNEL DSW WORDS               81422450
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1349 0 C300      ERT11 LD      3 0         GET TAGS                   81422460
134A 0 100E            SLA     OECSW       TEST FOR CSW TO BE PRINTED 81422470
134B 1 4C10 137B       BNN     ERT12         BR IF NOT                81422480
134D 0 C300            LD    3 0           GET OPTION WORD            81422490
134E 1 6700 08AC       LDX   L3 SCSX0      POINT TO CSW SAVE AREA 0   81422500
1350 0 180C            SRA     12          SAVE BITS 0-3              81422510
1351 0 100C            SLA     12          ***                        81422520
1352 0 4830            SKP     Z-                                     81422530
1353 0 7304            MDX   3 4           BUMP TO NEXT SAVE AREA     81422540
1354 0 1001            SLA     1           TEST NEXT BIT              81422550
1355 0 4830            SKP     Z-                                     81422560
1356 0 7304            MDX   3 4           BUMP TO NEXT SAVE AREA     81422570
1357 0 1001            SLA     1           TEST NEXT BIT              81422580
1358 0 4830            SKP     Z-                                     81422590
1359 0 7304            MDX   3 4           BUMP TO NEXT SAVE AREA     81422600
135A 0 1001            SLA     1           TEST NEXT BIT              81422610
135B 0 4830            SKP     Z-                                     81422620
135C 0 7304            MDX   3 4           BUMP TO NEXT SAVE AREA     81422630
135D 0 CACD            LDD   2 PCSW-TB     GET 'CSW '                 81422640
135E 0 D902            STD   1 2           SET IN MSG                 81422650
135F 0 C300            LD    3 0           GET CHANNEL STATUS WORD    81422660
1360 0 42F2            BSI   2 TCVBE-TB    CONVERT                    81422670
1361 0 D904            STD   1 4           STORE                      81422680
1362 0 C301            LD    3 1           GET UNIT STATUS WORD       81422690
1363 0 42F2            BSI   2 TCVBE-TB    CONVERT                    81422700
1364 0 D107            STO   1 7           STORE                      81422710
1365 0 1090            SLT     16                                     81422720
1366 0 D108            STO   1 8           STORE                      81422730
1367 0 C302            LD    3 2           GET CSW ADDRESS WORD       81422740
1368 0 42F2            BSI   2 TCVBE-TB    CONVERT                    81422750
1369 0 D90A            STD   1 10          STORE                      81422760
136A 0 C303            LD    3 3           GET BYTE COUNT             81422770
136B 0 42F2            BSI   2 TCVBE-TB    CONVERT                    81422780
136C 0 D10D            STO   1 13          STORE                      81422790
136D 0 1090            SLT     16          Q TO A                     81422800
136E 0 D10E            STO   1 14          STORE                      81422810
136F 0 C2D1            LD    2 SPACE-TB    GET SPACES                 81422820
1370 0 D100            STO   1 0           **                         81422830
1371 0 D101            STO   1 1           **                         81422840
1372 0 D106            STO   1 6           SET IN BETWEEN             81422850
1373 0 D109            STO   1 9           SET IN BETWEEN             81422860
1374 0 D10C            STO   1 12          SET IN BETWEEN             81422870
1375 0 D10F            STO   1 15                                     81422880
1376 0 D111            STO   1 17          CLEAR NEXT SLOT TOO        81422890
1377 0 710F            MDX   1 15          BUMP POINTER               81422900
1378 0 1000            NOP                                            81422910
1379 1 6780 085F       LDX   I3 EROUT      RESTORE REG                81422920
                       *     --SNS--   GET 2311 SENSE INFORMATION      81422930
137B 0 C300      ERT12 LD      3 0         GET TAGS                   81422940
137C 0 100F            SLA     OESNS       TEST FOR SNS INFO          81422950
137D 1 4C10 13A5       BNN     ERT14       BR IF NO                   81422960
137F 0 CACF            LDD   2 PSNS-TB     GET HEADER WORDS           81422970
1380 0 D100            STO   1 0           STORE                      81422980
1381 0 1090            SLT     16                                     81422990
1382 0 D101            STO   1 1           STORE                      81423000
1383 0 7103            MDX   1 3           BUMP POINTER               81423010
1384 0 1000            NOP                                            81423020
1385 0 C29D            LD    2 K8-TB                                  81423030
1386 0 D0A8            STO     ERTN8+3     SAVE TEMPORARILY           81423040
1387 0 CA15            LDD   2 SNWDS-TB    GET SENSE INFO             81423050
                       *                                              81423060
1388 0 18DC      ERT13 RTE     28          MOVE AROUND                81423070
1389 0 DAC5            STD   2 ERTSV-TB    SAVE FOR LOOP              81423080
138A 0 108C            SLT     12                                     81423090
138B 0 1010            SLA     16                                     81423100
138C 0 1081            SLT     1                                      81423110
138D 0 1003            SLA     3                                      81423120
138E 0 1081            SLT     1                                      81423130
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138F 0 1003              SLA    3                                  81423140
1390 0 1081              SLT    1                                  81423150
1391 0 1003              SLA    3                                  81423160
1392 0 1081              SLT    1                                  81423170
1393 0 42F2              BSI    2 TCVBE-TB   CONVERT TO HEX         81423180
1394 0 D100              STO    1 0          STORE IN TBLE          81423190
1395 0 1090              SLT      16         Q TO A                 81423200
1396 0 D101              STO    1 1          STORE                  81423210
1397 0 7102              MDX    1 2          BUMP POINTER           81423220
1398 0 1000              NOP                                        81423230
1399 0 C095              LD       ERTN8+3    FETCH COUNTER          81423240
139A 0 8297              A      2 K1-TB      ADD ONE                81423250
139B 1 4C04 13A1         BOD      *+4        BRANCH IF ODD          81423260
139D 0 C2D1              LD     2 SPACE-TB   FETCH SPACE CHARACTERS  81423270
139E 0 D100              STO    1 0          PLACE IN PRINT LINE    81423280
139F 0 7101              MDX    1 1          ADVANCE PRINT LINE POINTER 81423290
13A0 0 1000              NOP                                        81423300
13A1 0 CAC5              LDD    2 ERTSV-TB   GET SENSE INFO BACK     81423310
13A2 1 74FF 132F         MDX  L ERTN8+3,-1   COUNT                  81423320
13A4 0 70E3              MDX      ERT13      LOOP UNTIL FINISHED    81423330
                         *                                          81423340
13A5 0 C28D         ERT14 LD     2 TERM-TB     SET /FFFF AT END     81423350
13A6 0 D100              STO    1 0          **                     81423360
13A7 0 42FE              BSI    2 TLGMS-TB   PRINT MESSAGE          81423370
13A8 1 12A8              DC       PRINT                            81423380
13A9 0 C2D7              LD     2 STKSW-TB   GET SWITCH             81423390
13AA 1 4C20 13B9         BNZ      ERT18      EXIT IF SET            81423400
                         *                                          81423410
13AC 0 C300         ERT15 LD     3 0          GET TAGS               81423420
13AD 0 1009              SLA      OEBYP                            81423430
13AE 1 4C28 13B1         BN       ERT16      BR IF NOT HALT         81423440
13B0 0 42F8              BSI    2 THALT-TB   WAIT FOR OPERATOR      81423450
                         *                                          81423460
13B1 0 C300         ERT16 LD     3 0          GET TAGS               81423470
13B2 0 1006              SLA      OEXIT      TEST FOR OTHER EXIT    81423480
13B3 0 6500 0000    ERT17 LDX  L1 *-*          RELOAD REGS            81423490
13B5 0 6700 0000         LDX  L3 *-*          ***                    81423500
13B7 1 4CA8 13BD         BN   I   ERADR       BR IF YES              81423510
                         *                                          81423520
13B9 1 7402 085F    ERT18 MDX  L   EROUT,2    BUMP RETURN BY TWO     81423530
13BB 1 4C80 085F         BSC  I   EROUT       EXIT                   81423540
13BD 0 0000         ERADR DC       *-*        RETURN ADDRESS PUT HERE 81423550
                         ********************************************** 81423560
                         *                                          * 81423570
                         ********************************************** 81423580
                         ********************************************** 81423590
                         *                                          * 81423600
                         ********************************************** 81423610
                         *                                          81423620
                         *                                          81423630
                         ********************************************** 81423640
                         *                                          * 81423650
                         ********************************************** 81423660
13BE 0              TLGME EQU      *          ENTRY POINT            81423670
13BE 0 C2D3              LD     2 LGBSY-TB   GET LOG BUSY SW        81423680
13BF 1 4C18 13C3         BZ       TLGNB      BR IF NOT BUSY         81423690
13C1 0 42EF              BSI    2 STMLS-TB   GO VISIT MONITOR       81423700
13C2 0 70FB              B        TLGME      ELSE LOOP              81423710
                         *                                          81423720
13C3 0 C2FE         TLGNB LD     2 TLGMS-TB   GET CALLING ADDRS     81423730
13C4 0 D2D3              STO    2 LGBSY-TB   SET LOG BUSY SW        81423740
13C5 1 D400 14AF         STO  L   LEXIT+1    SET RETURN ADDRS       81423750
13C7 1 6F00 14A9         STX  L3 TLGX3+1     SAVE REG               81423760
13C9 1 6D00 14AB         STX  L1 TLGX3+3     SAVE REG               81423770
13CB 0 C283              LD     2 TSW0-TB    GET OPTION SWS         81423780
13CC 0 100D              SLA      OBYPR                            81423790
13CD 1 4C28 14A6         BN       TLGEN      BR IF BYPASS PRNTOUT   81423800
13CF 0 C294              LD     2 TLGED-TB   GET EDIT FOR PRINTER   81423810
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13D0 1 4C10 13D3         BNN      TLG01      BR IF NOT SELECTED     81423820
                         ********************************************** 81423830
13D2 0 70FF              MDX      *-1        TRAP STOP              81423840
                         ********************************************** 81423850
                         *    RELEASE SC IN CASE SHARED CHANNEL     81423860
13D3 0 C295         TLG01 LD     2 TSCED-TB   GET DDEF               81423870
13D4 1 4C10 13E2         BNN      TLG02      BR IF NOT SEL          81423880
                         *                                          81423890
13D6 0 1010              SLA      16         CLEAR CHANNEL FREED SW 81423900
13D7 1 D400 14B0         STO  L   FRESW      *                      81423910
13D9 0 C2A0              LD     2 K20-TB        SET COUNTER FOR DELAY 81423920
13DA 0 D223              STO    2 SCSNI-TB      **                   81423930
13DB 0 42EF              BSI    2 STMLS-TB      GO TO MONITOR        81423940
13DC 1 74FF 08A2         MDX  L SCSN1,-1          DECR. COUNTER      81423950
13DE 0 70FC              MDX      *-4             LOOP UNTIL FINISHED 81423960
                         *                                          81423970
13DF 0 42E3              BSI    2 FREDV-TB FREE SEL CHNL             81423980
13E0 1 6C00 14B0         STX  L   FRESW        SET SC FREED SW      81423990
13E2 0 4480 0131    TLG02 BSI  I   REQDV        REQUEST DEVICE       81424000
13E4 1 13F9              DC       TLG03          BUSY RETURN        81424010
13E5 1 0813              DC       TLGED        EDIT FOR PRINTED     81424020
13E6 1 146D              DC       TLGDA        AREA CODE GIVEN BACK 81424030
13E7 1 080C              DC       TERM          TERMINATOR          81424040
                         *                                          81424050
13E8 0 C2DC              LD     2 T45SW-TB     GET 43/53 SW         81424060
13E9 1 4C04 13F0         BOD      TLG40        BR IF 43             81424070
                         *                                          81424080
13EB 0 C2AE              LD     2 H0100-TB     ELSE BUILD WRITE IOCC 81424090
13EC 1 EC00 146D         OR   L   TLGDA        *                    81424100
13EE 0 D246              STO    2 TLGWR+1-TB    *                   81424110
13EF 0 7003              MDX      TLGCM        GO TO COMMON ROUTINE 81424120
                         *                                          81424130
13F0 0 C2B1         TLG40 LD     2 H0500-TB     CREATE WRITE IOCC    81424140
13F1 0 E87B              OR       TLGDA        OR IN AREA CODE      81424150
13F2 0 D246              STO    2 TLGWR+1-TB                        81424160
13F3 0 C2B2         TLGCM LD     2 H0700-TB     CREATE SENSE IOCC    81424170
13F4 0 E878              OR       TLGDA        OR IN AREA CODE      81424180
13F5 0 D248              STO    2 TLGSN+1-TB                        81424190
13F6 0 EA97              OR     2 K1-TB        SET RESET BIT        81424200
13F7 0 D24C              STO    2 TLGSR+1-TB     ***                81424210
13F8 0 7002              MDX      TLG04        GO TO PRINT          81424220
                         *                                          81424230
13F9 0 42EF         TLG03 BSI    2 STMLS-TB     GO TO MONITOR        81424240
13FA 0 70E7              MDX      TLG02        LOOP TO TRY AGAIN    81424250
                         *                                          81424260
13FB 1 6580 14AF    TLG04 LDX  I1 LEXIT+1      GET CALLING RTN ADDR 81424270
13FD 0 C100              LD     1 0            GET MSG ADDRESS      81424280
13FE 0 D001              STO      *+1          SET FOR LOAD INDEX   81424290
13FF 0 6500 0000         LDX  L1 *-*           LOAD REG             81424300
1401 1 6D00 14B3         STX  L1 TLGCH+2       SAVE IN 'GET CHAR' RTN 81424310
1403 1 6780 08C4         LDX  I3 TLGWR         GET WRD COUNT ADDRESS 81424320
1405 0 6B16              STX    3 TLGBP+1      SET FOR BUMPING      81424330
                         *                                          81424340
1406 0 C100              LD     1 0            GET FIRST DATA  ORD  81424350
1407 0 F28D              EOR    2 TERM-TB      COMPARE WITH /FFFF   81424360
1408 1 4C18 140E         BZ       TLG05        BR IF YES            81424370
                         *                                          81424380
140A 0 C280              LD     2 TPID-TB      GET PID              81424390
140B 0 E2B9              AND    2 H7FFF-TB     DROP SELECT BIT      81424400
140C 0 42F2              BSI    2 TCVBE-TB     CONVERT TO 1443 CODE 81424410
140D 0 DB02              STD    3 2            SET IN MSG           81424420
                         *                                          81424430
140E 0 1010         TLG05 SLA      16           CLEAR 1ST/2ND CHAR SWITCH 81424440
140F 0 D24A              STO    2 TLGSW-TB       ***                81424450
1410 0 D24B              STO    2 TLGSW+1-TB                        81424460
1411 0 D05A              STO      TLGIS          CLEAR  INT.  SW     81424470
1412 0 C299              LD     2 K3-TB          **                  81424480
1413 0 D300              STO    3 0                                 81424490
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1414 0 7301                MDX   3 1          BUMP TO PT TO BUFFER      81424500
                      *                                                 81424510
1415 1 4400 14B1     TLG06 BSI  L  TLGCH       GET A CHARACTER           81424520
1417 0 700F                MDX      TLG07      COME HERE FOR HEX FF      81424530
1418 0 1008                SLA      8          PUT IN HIGH ORDER BYTE    81424540
1419 0 EA47                OR    2  TLGSP-TB    SET LOW ORDER TO SP       81424550
141A 0 D303                STO   3  3          STORE IN BUFFER           81424560
141B 0 7401 0000     TLGBP MDX  L  *-*,1       BUMP WORD COUNT           81424570
141D 1 4400 14B1           BSI  L  TLGCH       GET ANOTHER CHARACTRR     81424580
141F 0 7007                MDX      TLG07      IF CHARACTER IS HEX FF    81424590
1420 0 1888                SRT      8          CHARACTER TO Q            81424600
1421 0 C303                LD    3  3          GET LAST CHARACTER        81424610
1422 0 1808                SRA      8          BYTE TO LOW POSITION      81424620
1423 0 1088                SLT      8          COMBINED BYTES IN A       81424630
1424 0 D303                STO   3  3          STORE IN BUFFER           81424640
1425 0 7301                MDX   3  1          BUMP SINK                 81424650
1426 0 70EE                MDX      TLG06      LOOP UNTIL HEX FF         81424660
                      *                                                 81424670
                      *    TEST FOR 1443, IF YES GO TO XIO              81424680
                      *    IF 1053 DO A CARRIAGE RETURN                 81424690
                      *                                                 81424700
1427 0 C2DC           TLG07 LD    2  T45SW-TB   GET 43/53 SW              81424710
1428 1 4C04 1454           BOD      TLG42      BR IF 1443                81424720
                      *    PUT TERMINATOR IN MESSAGE                    81424730
142A 0 C24B                LD    2  TLGSW+1-TB GET 1ST/2ND CHAR SW       81424740
142B 1 4C18 142F           BZ       TLG08      BR IF 2ND CHAR            81424750
142D 0 C28C                LD    2  HFF00-TB   ELSE GET TERM             81424760
142E 0 D303                STO   3  3          PUT IN MESSAGE            81424770
                      *                                                 81424780
142F 0 C2AD           TLG08 LD    2  H00FF-TB   GET TERMINATOR            81424790
1430 0 EB03                OR    3  3          PUT IN MESSAGE            81424800
1431 0 D303                STO   3  3          *                         81424810
1432 1 6500 14CF           LDX  L1  TLGBA+1    SET UP BUFFER POINTER     81424820
1434 0 6936                STX   1  TLGSV      SAVE                      81424830
1435 0 1010                SLA      16         CLEAR -                   81424840
1436 0 D24A                STO   2  TLGSW-TB   * 2ND CHAR SW             81424850
                      *    START LINE WITH A **CARRIAGE RETURN**        81424860
1437 0 C032                LD       TLGCR      GET CR CHARACTER          81424870
1438 1 D400 14CE           STO  L   TLGBA      PUT IN OUTPUT AREA        81424880
143A 0 7023                MDX      TLG43      GO PRINT                  81424890
                      *    COME FROM INTERRUPT ROUTINE IF 1053          81424900
143B 1 6580 146B     TLGPR LDX  I1  TLGSV      RESTORE POINTER           81424910
143D 0 C24A                LD    2  TLGSW-TB   GET 2ND CHAR SW           81424920
143E 1 4C18 1447           BZ       TLG09      BR IF 0 (CHAR 1)          81424930
                      *                                                 81424940
1440 0 1010                SLA      16         ELSE RESET SW             81424950
1441 0 D24A                STO   2  TLGSW-TB   *                         81424960
1442 0 C100                LD    1  0          GET CHARACTERS            81424970
1443 0 1008                SLA      8          SAVE 2ND CHAR             81424980
1444 0 7101                MDX   1  1          BUMP POINTER              81424990
1445 0 6925                STX   1  TLGSV      SAVE                      81425000
1446 0 7005                MDX      TLG10      GO TO COMMON RTN          81425010
                      *    GET HERE IF PRINTING CHAR 1                  81425020
1447 0 C100           TLG09 LD    1  0          GET CHARACTERS            81425030
1448 0 1808                SRA      8          *                         81425040
1449 0 1008                SLA      8          *                         81425050
144A 1 6C00 08C9           STX  L   TLGSW      SET 2ND CHAR SW           81425060
                      *    GET HERE IF PRINTING CHARACTER 2             81425070
144C 0 92BC           TLG10 S     2  HFF00-TB   TEST FOR END O' LINE      81425080
144D 1 4C18 1490           BZ       TLGX2      BR IF YES                 81425090
                      *                                                 81425100
144F 0 82BC                A     2  HFF00-TB   ELSE RESTORE CHARACTER     81425110
1450 0 1808                SRA      8          RIGHT JUSTIFY CHAR        81425120
1451 1 4400 1599           BSI  L   TCV45      CONVERT TO 1816 CODE      81425130
1453 0 D07A                STO      TLGBA      PUT IN OUTPUT AREA        81425140
                      *                                                 81425150
                      *    DO XIO WRITE -                               81425160
                      *        PRINT A LINE (1443)                      81425170
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                      *        PRINT A CHARACTER (1053)                 81425180
                      *                                                 81425190
1454 0 0A47           TLG42 XIO   2 TLGSN-TB    SENSE DSW                 81425200
1455 0 18D0                 RTE     16          A TO Q                    81425210
1456 0 C2DC                 LD    2 T45SW-TB                              81425220
1457 0 4804                 SKP     E           SKP IF 53                 81425230
1458 0 108A                 SLT     10          SHIFT 31 FOR 43           81425240
1459 0 1095                 SLT     21          SLT 21 FOR 1053/1826      81425250
145A 1 4C10 145E            BNN     TLG43       BR IF READY               81425260
145C 0 42EF                 BSI   2 STMLS-TB    GO TO MONITOR             81425270
145D 0 70F6                 MDX     TLG42       LOOP UNTIL READY          81425280
                      *                                                 81425290
145E 0 0A45           TLG43 XIO   2 TLGWR-TB                              81425300
145F 0 680C                 STX     TLGIS     SET INT SW                81425310
1460 0 C28D                 LD    2 TERM-TB     GET /FFFF                 81425320
1461 0 D249                 STO   2 TLGCT-TB    SET LOOP COUNT            81425330
                      *                                                 81425340
1462 0 42EF           TLG11 BSI   2 STMLS-TB    GO TO MONITOR             81425350
1463 0 C008                 LD      TLGIS       TEST FOR INT              81425360
1464 1 4C18 148C            BZ      TLGXR       BR IF IT HAPPENED         81425370
1466 1 74FF 08C8            MDX  L  TLGCT,-1    DECR COUNT                81425380
1468 0 70F9                 MDX     TLG11       LOOP                      81425390
                      ************************************************* 81425400
1469 0 70FF                 MDX     *-1         TRAP STOP                 81425410
                      ************************************************* 81425420
                      *                                                 81425430
                      ************************************************* 81425440
                      *                                               * 81425450
                      ************************************************* 81425460
                      *                                                 81425470
                      *    PRINT INTERRUPT ROUTINE                      81425480
                      *                                                 81425490
146A 0 8100           TLGCR DC      /8100       CARRIAGE*RETURN           81425500
146B 0 0000           TLGSV DC      *-*         SAVE BUFFER POINTER       81425510
146C 0 0000           TLGIS DC      0           INT SW                    81425520
146D 0 0000           TLGDA DC      *-*         AREA CODE PUT HERE BY MON 81425530
146E 0 0000           TLGIN DC      *-*         INTERRUPT ENTRY POINT     81425540
146F 1 6E00 1489            STX  L2 TLG13&3     SAVE X2                   81425550
1471 1 6600 087F            LDX  L2 TB          SET X2                    81425560
1473 0 C0F8                 LD      TLGIS       GET INT SWITCH            81425570
1474 0 4818                 SKP     +-          SKIP IF NONZERO           81425580
                      ************************************************* 81425590
1475 0 70FF                 MDX     *-1         TRAP STOP                 81425600
                      ************************************************* 81425610
                      *                                                 81425620
1476 1 0C00 08CA            XIO  L  TLGSR     SENSE RESET DSW             81425630
1478 1 4C28 147E            BN      TLG12       BR IF XFER COMPLETE       81425640
147A 0 1002                 SLA     2           TEST FOR PRINT COMPLETE   81425650
147B 1 4C28 1486            BN      TLG13       BR IF YES                 81425660
                      ************************************************* 81425670
147D 0 70FF                 MDX     *-1         TRAP STOP                 81425680
                      ************************************************* 81425690
                      *                                                 81425700
147E 0 18D0           TLG12 RTE     16          SAVE DSW                  81425710
147F 0 C2DC                 LD    2 T45SW-TB    GET 43/53 SW              81425720
1480 0 F297                 EOR   2 K1-TB       TEST FOR 1443             81425730
1481 1 4C20 1486            BNZ     TLG13       BR IF 1053                81425740
1483 0 1092                 SLT     18          GET DSW (PRINT COMPL)     81425750
1484 1 4C10 1488            BNN     TLG13+2                               81425760
                      *                                                 81425770
1486 0 1010           TLG13 SLA     16                                    81425780
1487 0 D0E4                 STO     TLGIS     CLEAR INT SWITCH            81425790
1488 0 6600 0000            LDX  L2 *-*         RESET X2                  81425800
148A 1 4C80 146E            BSC  I  TLGIN       EXIT INT ROUTINE          81425810
                      *                                                 81425820
                      ************************************************* 81425830
                      *                                               * 81425840
                      ************************************************* 81425850
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                        *                                                       81425860
                        *       MONITOR COMES HERE FROM INT RTN                 81425870
                        *                                                       81425880
148C 0 C041             TLGXR LD        TLGBA       GET WORD COUNT              81425890
148D 0 1808                   SRA       8           TEST FOR 1053 CHAR          81425900
148E 1 4C20 143B              BNZ       TLGPR       BR IF 1053                  81425910
                        *                                                       81425920
1490 1 6780 08C4        TLGX2 LDX   I3  TLGWR       GET BUFFER ADDRESS          81425930
1492 0 6B89                   STX   3   TLGBP+1     SET  PTR TO WORD COUNT      81425940
1493 0 C299                   LD    2   K3-TB      SET WRD CNT=3               81425950
1494 0 D300                   STO   3 0 ***         ***                         81425960
1495 0 7301                   MDX   3 1             BUMP POINTER                81425970
1496 0 10A0                   SLT     32            SET PID=BLANKS IN MESSAGE   81425980
1497 0 DB01                   STD   3 1             *                           81425990
1498 0 D24A                   STO   2 TLGSW-TB      CLEAR 2ND CHAR SW           81426000
1499 0 4017                   BSI     TLGCH         GET A CHARACTER             81426010
149A 0 7002                   MDX     TLG15         HERE IF HEX /00FF           81426020
149B 1 4C00 1418              BSC   L TLG06&3       ELSE LOOP                   81426030
                        *                                                       81426040
149D 0 4480 0132        TLG15 BSI   I   RELDV       GO RELEASE DEVICE           81426050
149F 1 0813                   DC        TLGED      ADDRS OF EDIT WRD           81426060
14A0 1 080C                   DC        TERM                                   81426070
14A1 0 C00E                   LD        FRESW      GET CHNL RELS SW            81426080
14A2 0 4820                   BSC       Z          SKIP IF NOT SET             81426090
14A3 0 42E6                   BSI     2 GETDV-TB ELSE GET CHNL                  81426100
                        *                                                       81426110
14A4 0 1010                   SLA       16         RESET-                      81426120
14A5 0 D00A                   STO       FRESW      * CHNL RELS SW              81426130
                        *                                                       81426140
14A6 1 7401 14AF        TLGEN MDX   L   LEXIT+1,1   BUMP RETURN BY 1           81426150
14A8 0 6700 0000        TLGX3 LDX   L3  *-*         RESTORE REG                 81426160
14AA 0 6500 0000              LDX   L1  *-*         RESTORE REG                 81426170
14AC 0 1010                   SLA       16         RESET LOG BUSY SW           81426180
14AD 0 D2D3                   STO     2 LGBSY-TB   *                           81426190
14AE 0 4C00 0000        LEXIT BSC   L   *-*         EXIT PRINT RTN              81426200
                        *                                                       81426210
14B0 0 0000             FRESW DC        0           CHNL RELEASED SW            81426220
                        ********************************************************81426230
                        *                                                      * 81426240
                        ********************************************************81426250
                        *                                                       81426260
                        *       FETCH ONE CHARACTER FROM SOURCE MESSAGE         81426270
                        *                                                       81426280
14B1 0 0000             TLGCH DC        *-*         ENTRY POINT                 81426290
14B2 0 6500 0000              LDX   L1  *-*         SET UP POINTER              81426300
14B4 0 C24B                   LD      2 TLGSW+1-TB  GET 1/2 CHARACTER SW        81426310
14B5 1 4C20 14BC              BNZ       TLG16       BR IF SET                   81426320
14B7 1 6C00 08CA              STX   L   TLGSW+1     SET SW                      81426330
14B9 0 C100                   LD      1 0           GET TWO CHARACTERS          81426340
14BA 0 1808                   SRA       8           KEEP HIGH ORDER ONE         81426350
14BB 0 7007                   MDX       TLG17       GO TO COMMON RTN            81426360
                        *                                                       81426370
14BC 0 1010             TLG16 SLA       16          CLEAR 1ST/2ND CHAR SW       81426380
14BD 0 D24B                   STO     2 TLGSW+1-TB  *                           81426390
14BE 0 C100                   LD      1 0           GET TWO CHARACTERS          81426400
14BF 0 1008                   SLA       8           KEEP LOW ORDER ONE          81426410
14C0 0 1808                   SRA       8           ****                        81426420
14C1 0 7101                   MDX     1 1           BUMP SOURCE POINTER         81426430
14C2 0 69F0                   STX     1 TLGCH+2     SAVE                        81426440
                        *                                                       81426450
14C3 1 4C20 14C6        TLG17 BNZ       TLG18       SET TO SPACE IF ZERO        81426460
14C5 0 C247                   LD      2 TLGSP-TB      ***                       81426470
14C6 0 F2AD             TLG18 EOR     2 H00FF-TB    TEST FOR HEX FF             81426480
14C7 1 4C98 14B1              BZ    I   TLGCH       EXIT IF HEX FF              81426490
14C9 0 F2AD                   EOR     2 H00FF-TB  RE-INVERT IT                  81426500
14CA 1 7401 14B1              MDX   L   TLGCH,1     BUMP RETURN ADDRESS         81426510
14CC 1 4C80 14B1              BSC   I   TLGCH       EXIT THIS RTN               81426520
                        *                                                       81426530
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14CE    0000            BSS  E  0                                              81426540
14CE 0 0000     TLGBA DC       *-*         WORD COUNT FOR PRNT LINE            81426550
14CF    0003          PRNT     • XXXX•     PID GOES HERE                       81426560
14D2    0041          BSS      65          PRINT BUFFER                        81426570
                      ********************************************************81426580
                      *                                                      * 81426590
                      ********************************************************81426600
1513    0014          BSS      20          ADDITIONAL STORAGE                  81426610
                      ********************************************************81426620
                      *                                                      * 81426630
                      ********************************************************81426640
                      *                                                       81426650
                      *      CONVERT HEX WORD TO 1443 CODE                    81426660
                      *                                                       81426670
                      ********************************************************81426680
                      *                                                      * 81426690
                      ********************************************************81426700
1527 0                TCVBN EQU      *          ENTRY POINT                   81426710
                      *                                                       81426720
1527 0 18D0                   RTE      16                                     81426730
1528 0 400E                   BSI      TCV01      GET NEXT CHARACTER          81426740
1529 0 1008                   SLA      8                                      81426750
152A 0 D2C1                   STO    2 TCVS1-TB                               81426760
152B 0 400B                   BSI      TCV01      GET NEXT CHARACTER          81426770
152C 0 EAC1                   OR     2 TCVS1-TB                               81426780
152D 0 D2C1                   STO    2 TCVS1-TB                               81426790
                      *                                                       81426800
                      *                                                       81426810
152E 0 4008                   BSI      TCV01      GET NEXT CHARACTER          81426820
152F 0 1008                   SLA      8                                      81426830
1530 0 D2C2                   STO    2 TCVS2-TB                               81426840
1531 0 4005                   BSI      TCV01      GET NEXT CHARACTER          81426850
1532 0 EAC2                   OR     2 TCVS2-TB                               81426860
1533 0 1890                   SRT      16                                     81426870
1534 0 C2C1                   LD     2 TCVS1-TB                               81426880
1535 1 4C80 0871              BSC    I TCVBE                                  81426890
                      *                                                       81426900
1537 0 0000           TCV01 DC       *-*         ENTRY                        81426910
1538 0 1010                   SLA      16                                     81426920
1539 0 1084                   SLT      4                                      81426930
153A 1 4C20 153F              BNZ      TCV02      BR IF NOT ZERO              81426940
153C 0 C2A6                   LD     2 H000A-TB     0=/0A                     81426950
153D 1 4C80 1537              BSC    I TCV01      EXIT                        81426960
                      *                                                       81426970
153F 0 929E           TCV02 S        2 K9-TB      SUBTRACT 9                  81426980
1540 0 4830                   SKP      Z-                                     81426990
1541 0 82AA                   A      2 H0027-TB   ADD BACK A CONSTANT          81427000
1542 0 829E                   A      2 K9-TB                                  81427010
                      *                                                       81427020
1543 1 4C80 1537              BSC    I TCV01      EXIT                        81427030
                      *                                                       81427040
                      ********************************************************81427050
                      *                                                      * 81427060
                      ********************************************************81427070
                      *                                                       81427080
                      *   CONVERT HEX TO DECIMAL, A REG TO A REG              81427090
                      *                                                       81427100
                      *     *** CALL - BSI    2 TCVHD-TB ***                  81427110
                      ********************************************************81427120
                      *                                                      * 81427130
                      ********************************************************81427140
                      *                                                       81427150
1545 1 4CA8 0874      THEXD BN     I  TCVHD      EXIT IF NEG                  81427160
1547 0 1890                   SRT      16                                     81427170
1548 0 AAA5                   D      2 K1000-TB  MOST SIGNIFICANT DIGIT       81427180
1549 0 100C                   SLA      12        POSITION DIGIT               81427190
154A 0 D00D                   STO      THEXS                                  81427200
154B 0 1004                   SLA      4         CLEAR A REG                  81427210
```

```
                        *
154C 0 AAA1                   D     2 K100-TB    NEXT SIGNIFICANT DIGIT
154D 0 1008                   SLA     8          POSITION DIGIT
154E 0 E809                   OR      THEXS
154F 0 D008                   STO     THEXS
1550 0 1008                   SLA     8          CLEAR A REG
                        *
1551 0 AA9F                   D     2 K10-TB     NEXT SIGNIFICANT DIGIT
1552 0 108C                   SLT     12         COMBINE LAST TWO DIGITS
1553 0 180C                   SRA     12         ***
1554 0 1084                   SLT     4          ***
1555 0 E802                   OR      THEXS
1556 1 4C80 0874              BSC   I TCVHD
                        *
1558 0 0000             THEXS DC      0          TEMP STORAGE
                        *
                        **************************************************
                        *                                                *
                        **************************************************
                        *
                        **************************************************
                        *                                                *
                        **************************************************
                        *                                                *
                        *     TERLP IS CALLED BY A **BSI  2 TLPER-TB**   *
                        *           TO TEST THE LOOP ERROR OPTION AND    *
                        *           BR TO THE LOOP ADDR IF BIT 12 IS SET *
                        *                                                *
                        **************************************************
                        *                                                *
                        **************************************************
                        *
1559 0 C283             TERLP LD    2 TSW0-TB    GET OPTION SWS
155A 0 100C                   SLA     OLPER      TEST LOOP ON ERROR
155B 1 4C28 1561              BN      TER01      YES
                        *
155D 1 7401 0880              MDX   L TLPER,1    NO,BUMP RETURN
155F 1 4C80 0880              BSC   I TLPER      CONTINUE
                        *
1561 1 C480 0880        TER01 LD    I TLPER      GET LOOP ADDRESS
1563 0 D001                   STO     TER02+1    PUT IN RETURN
1564 0 4C00 0000        TER02 BSC   L *-*        CONTINUE
                        *
                        **************************************************
                        *                                                *
                        **************************************************
                        *                                                *
                        *     TSTLP IS CALLED BY A **BSI  2 TLPST-TB**   *
                        *           TO TEST THE LOOP START I/O OPTION    *
                        *           AND BR TO THE LOOP ADDR IF BIT       *
                        *           8 IS SET                             *
                        *
                        **************************************************
                        *                                                *
                        **************************************************
                        *
1566 0 C283             TSTLP LD    2 TSW0-TB    GET OPTION SWS
1567 0 1008                   SLA     OLPST      TEST LOOP SIO
1568 1 4C28 156E              BN      TST01      YES
                        *
156A 1 7401 0883              MDX   L TLPST,1    NO,BUMP RETURN
156C 1 4C80 0883              BSC   I TLPST      CONTINUE
                        *
156E 1 C480 0883        TST01 LD    I TLPST      GET LOOP ADDRESS
1570 0 D001                   STO     TST02+1    PUT IN RETURN
1571 0 4C00 0000        TST02 BSC   L *-*        CONTINUE
                        *
1573 1 74FD 0883        TST03 MDX   L TLPST,-3  GO BACK
```



```
1575 1 C400 0883              LD    L TLPST
1577 0 D001                   STO     TST04+1
1578 0 4C00 0000        TST04 BSC   L *-*
                        **************************************************
                        *                                                *
                        **************************************************
                        *
                        *     CALL      BSI L TCVSR
                        *     GET AQ = SPACE/SECT/SPACE/RTN
                        *
                        **************************************************
                        *                                                *
                        **************************************************
157A 0 0000             TCVSR DC      *-*
157B 0 6B0A                   STX   3 TCVSZ+1    SAVE REG
157C 1 6780 0815              LDX  I3 TRID       GET ROUTINE NUMBER
157E 1 C700 1589              LD   L3 DIGIT      GT PRINTABLE CODE
1580 0 1890                   SRT     16         A TO Q
1581 1 6780 0800              LDX  I3 TSID       GET SECT NUMBER
1583 1 C700 1588              LD   L3 DIGIT-1    GET PRINTABLE CODE
1585 0 6700 0000        TCVSZ LDX  L3 *-*        RESTORE REG
1587 1 4C80 157A              BSC   I TCVSR      EXIT
                        *
1589   0016             DIGIT PRNT    .0123456789ABCDEF.
                        **************************************************
                        *                                                *
                        **************************************************
                        *
                        *     CONVERT 1443 CODE TO 1816/1053 CODE
                        *
                        **************************************************
                        *                                                *
                        **************************************************
1599 0 0000             TCV45 DC      *-*
159A 0 6B45                   STX   3 TCVSV+1
159B 0 D043                   STO     TCVSV      SAVE 1443 CHAR
159C 1 6700 15B2              LDX  L3 TCVTB      SET UP POINTER
159E 0 10A0                   SLT     32          CLEAR AQ
159F 0 C300             TCV03 LD    3 0           PICK UP NEXT ENTRY IN TBL
15A0 0 18C8                   RTE     8           DELETE TR CHAR
15A1 0 F03D                   EOR     TCVSV      TEST CHAR
15A2 1 4C18 15AB              BZ      TCV04        CHAR COMPARES
                        *
15A4 0 1088                   SLT     8           RESTORE Q REG=0
15A5 0 E2AD                   AND   2 H00FF-TB SET UP TO TEST
15A6 0 F2AD                   EOR   2 H00FF-TB * FOR TERMINATOR
15A7 1 4C18 15AD              BZ      TCVEN      GO TO END ROUTINE
                        *
15A9 0 7301                   MDX   3 1           INC POINTER
15AA 0 70F4                   MDX     TCV03        RETURN TO LOOP
                        *
15AB 0 18D0             TCV04 XCH                 RESTORE TR CHAR
15AC 0 4818                   SKP     +-          EXIT
                        *
15AD 0 C030             TCVEN LD      TCVSP      SET UP SPACE
15AE 1 6700 15E0              LDX  L3 TCVSV+1     RESTORE XR3
15B0 1 4C80 1599              BSC   I TCV45      EXIT
                        **************************************************
                        *                                                *
                        **************************************************
15B2 0 313E             TCVTB DC      /313E       A(1443,TILT-ROTATE)
15B3 0 321A                   DC      /321A       B
15B4 0 331E                   DC      /331E       C
15B5 0 3432                   DC      /3432       D
15B6 0 3536                   DC      /3536       E
15B7 0 3612                   DC      /3612       F
15B8 0 3716                   DC      /3716       G
15B9 0 3826                   DC      /3826       H
```

```
15BA 0 3922            DC      /3922      I                         81428580
15BB 0 217E            DC      /217E      J                         81428590
15BC 0 225A            DC      /225A      K                         81428600
15BD 0 235E            DC      /235E      L                         81428610
15BE 0 2472            DC      /2472      M                         81428620
15BF 0 2576            DC      /2576      N                         81428630
15C0 0 2652            DC      /2652      O                         81428640
15C1 0 2756            DC      /2756      P                         81428650
15C2 0 2866            DC      /2866      Q                         81428660
15C3 0 2962            DC      /2962      R                         81428670
15C4 0 129A            DC      /129A      S                         81428680
15C5 0 139E            DC      /139E      T                         81428690
15C6 0 14B2            DC      /14B2      U                         81428700
15C7 0 15B6            DC      /15B6      V                         81428710
15C8 0 1692            DC      /1692      W                         81428720
15C9 0 1796            DC      /1796      X                         81428730
15CA 0 18A6            DC      /18A6      Y                         81428740
15CB 0 19A2            DC      /19A2      Z                         81428750
               *                                                    81428760
15CC 0 01FC            DC      /01FC      1(1443,TILT-ROTATE)       81428770
15CD 0 02D8            DC      /02D8      2                         81428780
15CE 0 03DC            DC      /03DC      3                         81428790
15CF 0 04F0            DC      /04F0      4                         81428800
15D0 0 05F4            DC      /05F4      5                         81428810
15D1 0 06D0            DC      /06D0      6                         81428820
15D2 0 07D4            DC      /07D4      7                         81428830
15D3 0 08E4            DC      /08E4      8                         81428840
15D4 0 09E0            DC      /09E0      9                         81428850
15D5 0 0AC4            DC      /0AC4      0                         81428860
               *                                                    81428870
15D6 0 0021            DC      /0021      SP(1443,TILT-ROTATE)      81428880
15D7 0 2CD6            DC      /2CD6      *                         81428890
15D8 0 1CFE            DC      /1CFE      (                         81428900
15D9 0 3CF6            DC      /3CF6      )                         81428910
15DA 0 11BC            DC      /11BC      /                         81428920
15DB 0 2084            DC      /2084      -                         81428930
15DC 0 0BC2            DC      /0BC2      =                         81428940
15DD 0 00FF      TCVTC DC      /00FF      TERM                      81428950
15DE 0 2100      TCVSP DC      /2100      SPACE                     81428960
15DF 0 0000      TCVSV DC      0          TEMP STORAGE              81428970
15E0 0 0000            DC      0                                    81428980
15E0 0           PEND  EQU     *-1       PROGRAM END                81428990
15E2   09AC            END     BGIN                                 81429000
  NO STATEMENTS FLAGGED IN THE ABOVE ASSEMBLY
```



```
BEGIN   012C   09AC
BGIN    09AC   15E2
BRBAK   0B10   0B4B
CAWSV   0842   10DF 1344
CEND1   0C03   0AF2 0AF4
CEND2   0F4C   0D01 0D03
CKEND   103C   1045
CKERR   1040   0AE9 0AEF 0CF8 0CFE 103A
CKRTN   0B37   0C0C
CKSTA   1037   0B0D 0B15 0B20 0D0E 0D40 0D4B 103C 103E 1046
CNTDN   083C   113F 114A
CNTRL   085C   0A56 0CC6 104E 108B 10AB
CRCK    0133
CUU11   0A69   0A1D
CYCNT   0BFD   0AFE 0B2E 0B30 0B37 0C05
CYCTR   0F49   0D25 0D5B 0D5F 0D61
DE200   0B5B   0B32
DIGIT   1589   157E 1583
DVADR   0851   08FB 0A1A 10B5 1320
END     012E   0C86 109E
END11   0CC2   0B59
END12   1048   0EAC 0FEF
EPA     0808
ERADR   13BD   13B7
ERASE   0011
ERDAT   0E3A   0F9D
ERMSG   12A2   130F 1313 1319 131B 131D 1336
EROUT   085F   1040 1110 111C 1134 116D 117E 11F2 11FE 12EB 12F0 12F4 12F7 1324
               1379 13B9 13BB
ERR     0BD0   0C3F 0F7C
ERROR   0130
ERTNE   12E4   0860
ERTN2   12F7   12E5 12EE
ERTN3   12FF   12FB
ERTN4   1309   1308 1312
ERTN5   1313   130C
ERTN6   1317   1304
ERTN7   1320   1316
ERTN8   132C   132A 1334 1386 1399 13A2
ERTN9   1335   1331
ERTSV   0844   1389 13A1
ERT10   1337   1301
ERT11   1349   133D
ERT12   137B   134B
ERT13   1388   13A4
ERT14   13A5   137D
ERT15   13AC   1339
ERT16   13B1   13AE
ERT17   13B3   12E7 12E9
ERT18   13B9   13AA
FALSW   0BFF   0C24 0C2E 0C69 0C6C 0C7A 0C81 0F5B 0F66 0FD2 0FD5 0FE4 0FEB
FBRST   0004
FDRDY   0018
FECYL   001D
FEUCY   000A
FLCCH   0040
FLDCH   0080
FLMSK   0BCB   0BDA 0EBF
FLPCI   0010
FLSKP   0008
FLSLI   0020
FNORC   000C
FONLN   0019
FOVRN   0005
FRDVE   10CE   0863
FREDV   0862   0A0D 0C85 0CC2 104A 10D4 13DF
FRESW   14B0   09B5 13D7 13E0 14A1 14A5
FSERD   0012
```

FSKCK	0007	
FSKIN	001F	1126
FTROV	0009	
FUNSF	0010	
FUNSI	001A	
FUNSL	0015	
GDDAT	0DB7	1007
GETDV	0865	0A0C 0AE8 0CF7 10CC 14A3
GETSN	0868	1124 11E2 12F2
GOB1	0B92	0C32 0C35 0C41 0C44
GTDVE	10AC	0866
GTDV1	10AC	10AF
GTSNS	11C4	0869
GTSNX	11DA	11C4 11C5
GTSN0	11CA	11F5 1201
GTSN1	11D0	11D2
GTSN2	11E4	11CE 11D8
GTSN3	11F6	11ED
GTSN4	11FB	1203
GTSN5	1202	11F8
HA	08C0	
HADA1	0B98	0C8A
HADA2	0BB5	0C4B
HADA3	0DAA	0FF2
HADA4	0E2D	0F88
HDCNT	0BFE	0B00 0B25 0B27 0B2C 0B40 0B49
HDCTR	0F4A	0D22 0D30 0D50 0D52 0D58
HE5E5	0D70	0D1B
HFF00	083B	09C0 142D 144C 144F
HF000	083A	
HIOXX	089A	090F 093A 10B6 1181
H0A00	0832	
H00C6	082A	
H00C7	0D6F	0D5A
H00C8	082B	
H00FF	082C	0A34 0C46 0F83 142F 14C6 14C9 15A5 15A6
H000A	0825	153C
H000C	0886	
H0011	0826	1117 1130
H0013	0827	110C 112C
H0020	0828	
H0027	0829	1541
H0100	082D	10B7 11FA 13EB
H0200	082E	1202
H0400	082F	10B3
H0500	0830	13F0
H0700	0831	10BB 13F3
H2000	0833	
H2100	0834	11EF 11FB
H3000	0835	0A07
H4000	0836	
H5000	0837	
H7FFF	0838	140B
H8000	0839	
ICCW1	0BD2	0B0C
ICCW2	0BD5	0B14
ICCW3	0BE1	0B1F
ICCW4	0EB7	0D0D 1049
ICCW5	0EBA	0D3F
ICCW6	0EC9	0D4A
ICW11	0BEA	0B02 0B04 0B3B 0B44 0BD4 0BD7 0BE3
ICW13	0BED	
ICW14	0BEF	0AF2 0B07 0B3E 0B47 0BDD 0C1A 0C4D
ICW15	0BF2	0B39 0B42 0BE0 0C5C
ICW16	0BF6	0B1A 0BE6 0C18 0C8C
ICW17	0BF9	0BE9 0C9B
ICW21	0ED2	0D29 0D34 0EBC 0ECB
ICW23	0ED5	0D2B 0D36 0EC2

ICW24	0ED7	0D01 0D13 0D2E 0D39 0F51 0F8A
ICW25	0EDA	0D18 0D1D 0D27 0D32 0EC8 0F98 0FE7 0FC1
ICW26	0F10	0ECE 0F4F 0FF4
ICW27	0F13	0D45 0ED1 1002 1021 102D
IER11	0B91	0C3C 0C68
IER12	0BAE	
IER13	0CA8	0C7F 0FE9
IER21	0DA3	0F6E 0F71 0F79 0F7E 0F81 0FD1
IER22	0E26	
IER23	0DC0	1030
IER24	0E43	0FC4
IER25	0DF3	101D
IER26	0E76	0FB4
ILSIO	1150	
IPA	0806	
K1	0816	09C2 09DE 0A09 0A0A 0A46 0ADF 0CEE 0D24 10C3 10C5 10C7 10C9 1118 120F 1325 139A 13F6 1480
K10	081E	0B29 0C2B 0D54 0F63 1551
K100	0820	0D17 154C
K1000	0824	1548
K127	0821	
K128	0822	
K2	0817	0A23 10C1
K20	081F	13D9
K3	0818	0915 091E 0928 1412 1493
K4	0819	
K500	0823	
K6	081A	10BF
K7	081B	
K8	081C	0932 1385
K9	081D	153F 1542
LEXIT	14AE	13C5 13FB 14A6
LGBSY	0852	09B7 09DD 13BE 13C4 14AD
LINSW	102A	0FAD 0FB3 0FBD 1016 101C 1027
LOG	012F	
LPA	0807	
LPCNT	085A	
MADR1	0B90	0AED
MADR2	0EA9	0CFC
MAT0	0134	
MLSCF	0809	
MLSC0	0809	0947
MLSC1	080A	
MLSC2	080B	09C8 1273 128F
NOPCC	0887	
OBYPR	000D	13CC
OCHLT	000F	
OEBYP	0009	13AD
OECAW	000D	1338
OECSW	000E	134A
OECXC	0003	
OECX0	0000	
OECX4	0001	
OECX8	0002	
OEERR	000C	1303
OEGSN	000A	12ED
OEL1B	000B	1300 1303
OEPBL	0007	12FA
OESNS	000F	137C
OEXIT	0006	13B2
OHALT	000E	1205
OK	0BCE	0C31 0F6C
OLPER	000C	155A
OLPST	0008	1567
OPNOP	0003	0888
OPRD	0002	
OPRRS	0009	0C21 0F58
OPSNS	0004	0892

OPTIC	0008	0EC4
OPTIO	0000	088E
OPWR	0001	
ORTRY	000B	1138
OSALC	0009	
OTTLE	000A	0AE3 0CF2
PASSA	0FBF	0F97 0FA1 0FB0 0FBC 0FC0
PASSB	102B	1001 100B 1019 1026 102C
PASSW	0854	
PCAW	084A	1342
PCSW	084C	135D
PEND	15E0	080D
PRINT	12A8	131E 133B 13A8
PSCNT	0855	09C3 0A1E 109B
PSNS	084E	137F
PTRM1	0BAD	0C38 0C47
PTRM2	0E25	0F74 0F84
RCAL	0013	088B 0EB8
RDCKD	001E	
RDCNT	0012	
RDDAT	0006	
RDHA	001A	0BE5 0ECD
RDHMT	009A	
RDKD	000E	
RDR0	0016	0BE8 0ED0
RECAL	088A	
RELDV	0132	09CF 09D6 09E8 09EF 0A01 10CE 149D
REQDV	0131	09FB 10AD 13E2
RTCNT	0C00	0C2F 0C71 0C73 0C78 0C83 0F68 0FDA 0FDC 0FE2 0FED
RT2CT	0C02	0C27 0C29 0C30 0C6F 0C7C 0F5F 0F61 0F6A 0FD8 0FE6
RWSW	0C01	0B10 0B4D 0B50
RWSW2	0F4B	0D3B 0D64 0D68
RODA1	0BA5	0C99
RODA2	0BC2	0C5A
SBDA1	0C88	0C3A 0C49 0CA6
SBDA2	0FF0	0F76 0F86 1028
SCABZ	0007	10EF 1114 115D 11CD 11D1 11F7
SCDCK	0004	
SCICC	0005	
SCILG	0006	
SCIMS	0974	0971
SCIM2	0984	0968 096B
SCINA	095F	0950
SCINB	0954	0960
SCINC	0904	08FC
SCINT	08EA	095D
SCINX	0919	0909 090E
SCIN0	090F	08F5 0905
SCIN1	091D	0917
SCIN2	0928	0938
SCIN3	0939	0910 092B
SCIN4	0945	08F1 08FF 0902 0934
SCIN5	094B	091C 0924 093F 0942
SCIN6	094D	0944
SCIN7	0959	08EC 08ED
SCIN8	0961	0945
SCIN9	0966	096F
SCISW	08E8	08F0 10CB 10D3
SCPCI	0002	
SCPCK	0003	
SCSN0	08A0	08F3 10C2 10E5 10E6 10EE 1109 1120 115C 11CB 11CC 11D0 11F6
SCSN1	08A2	094D 0994 0999 099C 10C4 115B 1162 1165 13DA 13DC
SCSN2	08A4	08F7 0907 090B 10C6
SCSN3	08A6	0952 099E 10C8 1167
SCSN4	08A8	0912 0913 0916 091F 092A 0955 09A0 10CA 1169
SCSN5	08AA	0957 09A2 10C0 1160 116B 1174 11D4
SCSVS	08BC	11C7 11C9 11DE 11E0
SCSXC	08B8	0922 099D 099F 09A1 09A3 1166 1168 116A 116C 11C6 11C8 11D6 11DF

		11E1 11EB
SCSX0	08AC	090C 090D 093B 1038 10E1 10E2 134E
SCSX4	08B0	0949 0964
SCSX8	08B4	0919 10E9 1141 1178
SCTAB	0C0E	0C06
SCUNO	0000	
SCUOP	0008	
SCUSP	0001	1121 11EC
SCYCK	0C04	0B35
SEEKB	000B	
SEEKC	0007	0BD3 0BE2 0EBB 0ECA
SENSE	089C	091D 10BA 11CA
SFILM	001F	0BD9 0EBE
SIDHE	0071	
SIDHI	0051	
SIO	086B	0B0B 0B13 0B1E 0D0C 0D3E 0D49 1048 10D8 10DA 10FC 1152 1154
SIONT	10D6	086C 1157
SIOSW	0853	09DC 10F2 10FB 10FE
SIOXX	089E	0925 0926 1088 10DE 10E4 1129
SIOX1	10F6	10D6 10D7 10F3 1100
SIO01	10E0	10ED 112E
SIO02	10E8	10EB 1139 113C
SIO03	10EE	10E7
SIO04	10F2	1122
SIO05	10FE	10F0
SIO06	1114	110A
SIO07	1120	1115
SIO08	1130	1127
SIO09	1137	1113 111F
SKHD	001B	0BD6
SKHE	0069	
SNCCW	0891	089C
SNWDS	0894	0893 1125 1387
SNWD0	0894	
SNWD1	0895	
SNWD2	0896	
SNWD3	0897	
SPACE	0850	136F 139D
SRCHA	0039	0EC1
SRCID	0031	
SRCKE	0029	
SRCKH	0049	
START	012D	0972 1274
STKSW	0856	09DB 12E4 12F1 12F3 12F6 13A9
STMLE	1261	086F
STMLL	127F	1284
STMLS	086E	0998 09FA 0A14 10AC 1149 1161 1212 1216 1261 1279 128C 13C1 13DB 13F9 145C 1462
STMLX	1276	1295
STMPS	128E	1287
STMPT	1294	09BE 1265 1271 1285
STMRT	1295	1272 128E
STMSA	1291	1262 1263 1264 1267 126A 126D 127B 127D 1288 128A
STMSE	1288	1290
STMST	1296	1268 126B 126E 1278 127A 127C 127F 1281
STSER	08CC	1103 1106 1108 110F 1112 111B 111E 1133 1136 11E6 11E8 11EA 11F1 11F4 11FD 1200
SVNTN	0BCC	0C74 0FDE
TB	087F	08EE 08F0 08F3 08F7 08FB 0901 0904 0907 090B 090C 090D 090F 0912 0913 0914 0915 0916 091D 091E 091F 0925 0928 0929 092A 0932 0937 093A 094D 0952 0955 0957 0961 0967 0970 0993 0994 0995 0998 099C 099D 099E 099F 09A0 09A1 09A2 09A3 09A9 09B2 09B7 09B8 09B9 09BA 09BB 09BC 09BD 09C0 09C1 09C2 09C3 09CA 09CC 09D3 09DB 09DC 09DD 09DE 09DF 09E3 09E5 09EC 09F5 09F7 09FA 0A07 0A09 0A0A 0A0B 0A0C 0A0D 0A0E 0A12 0A14 0A15 0A19 0A1A 0A1B 0A1E 0A1F 0A20 0A23 0A24 0A25 0A26 0A28 0A29 0A2D 0A2F 0A32 0A33 0A34 0A36 0A41 0A43 0A44 0A45 0A46 0A47 0A4A 0A4E 0A4F 0A53 0A55 0A56 0AD3 0ADF 0AE2 0AE6 0AE8 0AFB 0B0B 0B13 0B1E 0B29 0B57 0C20 0C2B 0C37 0C3B 0C46 0C50

```
                0C51 0C5E 0C5F 0C67 0C7E 0C85 0C8F 0C90 0C9D 0C9E 0CC2 0CC3 0CC6
                0CEE 0CF1 0CF5 0CF7 0D0A 0D0C 0D17 0D24 0D3E 0D49 0D54 0EAA 0F57
                0F63 0F73 0F78 0F83 0F8D 0F8E 0FA4 0FA5 0FD0 0FE8 0FF7 0FF8 100E
                100F 1038 1040 1043 1048 104A 104B 104E 108B 108E 1091 1099 10AB
                10AC 10B3 10B4 10B5 10B6 10B7 10B8 10B9 10BA 10BB 10BC 10BF 10C0
                10C1 10C2 10C3 10C4 10C5 10C6 10C7 10C8 10C9 10CA 10CB 10D3 10DE
                10DF 10E1 10E2 10E3 10E4 10E5 10E6 10E8 10E9 10EE 10F2 10FB 10FE
                1102 1103 1106 1108 1109 110C 110D 110F 1110 1117 1118 1119 111B
                111C 1120 1124 1125 112C 1130 1131 1133 1134 1137 113B 113E 113F
                1140 1141 1146 1149 1150 115A 115B 115C 1160 1161 1165 1166 1167
                1168 1169 116A 116B 116C 116D 1171 1174 1178 117E 1181 1182 11C6
                11C7 11C8 11C9 11CA 11CB 11CC 11D0 11D4 11D6 11DE 11DF 11E0 11E1
                11E6 11E8 11E9 11EA 11EB 11EF 11F0 11F1 11F2 11F6 11FA 11FB 11FC
                11FD 11FE 1202 1204 1208 1209 120D 120F 1210 1211 1212 1213 1216
                1261 1273 1276 1279 128F 12E4 12F0 12F1 12F2 12F3 12F4 12F6 12FD
                130B 130E 1318 1320 1321 1323 1324 1325 1326 1327 1329 1330 1335
                1342 1344 1345 135D 1360 1363 1368 136B 136F 137F 1385 1387 1389
                1393 139A 139D 13A1 13A5 13A7 13A9 13B0 13BE 13C1 13C3 13C4 13CB
                13CF 13D3 13D9 13DA 13DB 13DF 13E8 13EB 13EE 13F0 13F2 13F3 13F5
                13F6 13F7 13F9 1407 140A 140B 140C 140F 1410 1412 1419 1427 142A
                142D 142F 1436 143D 1441 144C 144F 1454 1456 145C 145E 1460 1461
                1462 1471 147F 1480 1493 1498 14A3 14AD 14B4 14BD 14C5 14C6 14C9
                152A 152C 152D 1530 1532 1534 153C 153F 1541 1542 1548 154C 1551
                1559 1566 15A5 15A6
TCNER   0A4E    0A3B 0AD7 1095
TCNE2   0AC3    0A13
TCNOK   0A23    0A2B
TCNPR   09F5    09C6
TCNRQ   09FA    09FD
TCNSW   083F    0A43
TCNTA   0A57    0A3F 0A4B 0A57
TCNTE   0A2D    085D
TCNTZ   0A5A    0A57
TCN01   0A0C    09F8
TCN02   0A19    0A10
TCN03   0A3D    0A4C
TCN04   0A4A    0A37
TCVBE   0871    0967 0A1B 0A20 0A4F 0C51 0C5F 0C90 0C9E 0F8E 0FA5 0FF8 100F 110D
                1119 1131 11F0 11FC 1209 1318 1321 1326 1345 1360 1363 1368 136B
                1393 140C 1535
TCVBN   1527    0872
TCVEN   15AD    15A7
TCVHD   0874    0A1F 0C50 0C5E 0C8F 0C9D 0F8D 0FA4 0FF7 100E 1545 1556
TCVSP   15DE    15AD
TCVSR   157A    1104 11E4 1587
TCVSV   15DF    159A 159B 15A1 15AE
TCVSZ   1585    157B
TCVS1   0840    152A 152C 152D 1534
TCVS2   0841    1530 1532
TCVTB   15B2    159C
TCVTC   15DD
TCV01   1537    1528 152B 152E 1531 153D 1543
TCV02   153F    153A
TCV03   159F    15AA
TCV04   15AB    15A2
TCV45   1599    1451 15B0
TERLP   1559    0881
TERM    080C    0993 09D2 09D9 09EB 09F2 0A00 0A04 0C37 0F73 10B2 10D1 113E 12FE
                130B 130E 1330 13A5 13E7 1407 1460 14A0
TER01   1561    155B
TER02   1564    1563
THALT   0877    0A28 0A55 113B 1208 1217 13B0
THEXD   1545    0875
THEXS   1558    154A 154E 154F 1555
THLTE   1204    0878
THLTG   1208
THLTL   1212    1214
THLTM   1219    120E
```



```
THLTR   1217    1206
THLT2   1229    120A 120C
TINTW   0992    09A4 09A6 09AA 1175
TINT2   0995    099B
TINT3   09A6    0996
TIO     087A    10E8 1140 117C
TIOMS   11A2    1183
TIOM1   1185    116F
TIOM2   1191    1180
TIONT   1159    087B 1170 117A 1184
TIOSW   0857    0901 0904 09B9 1146 1172
TIOXX   0898    0914 10B9 1171
TIO01   115C    1164
TIO02   1171    115E
TIO03   117E    1177
TLGBA   14CE    08C4 1432 1438 1453 148C
TLGBP   141B    1405 1492
TLGCH   14B1    1401 1415 141D 1499 14C2 14C7 14CA 14CC
TLGCM   13F3    13EF
TLGCR   146A    1437
TLGCT   08CB    1461 1466
TLGDA   146D    09FF 0A05 13E6 13EC 13F1 13F4
TLGED   0813    09CC 09D1 09E5 09EA 09FE 0A03 13CF 13E5 149F
TLGEN   14A6    13CD
TLGIN   146E    148A
TLGIS   146C    1411 145F 1463 1473 1487
TLGME   13BE    087E 13C2
TLGMS   087D    0970 0A12 0A26 0A53 0AE6 0AFB 0B57 0C3B 0C67 0C7E 0CF5 0D0A 0EAA
                0F78 0FD0 0FE8 1099 1182 120D 12FD 1335 13A7 13C3
TLGNB   13C3    13BF
TLGPR   143B    148E
TLGSN   08C6    13F5 1454
TLGSP   08C6    1419 14C5
TLGSR   08CA    13F7 1476
TLGSV   146B    1434 143B 1445
TLGSW   08C9    140F 1410 142A 1436 143D 1441 144A 1498 14B4 14B7 14BD
TLGWR   08C4    13EE 13F2 1403 145E 1490
TLGXR   148C    1464
TLGX2   1490    144D
TLGX3   14A8    13C7 13C9
TLG01   13D3    13D0
TLG02   13E2    13D4 13FA
TLG03   13F9    13E4
TLG04   13FB    13F8
TLG05   140E    1408
TLG06   1415    1426 149B
TLG07   1427    1417 141F
TLG08   142F    142B
TLG09   1447    143E
TLG10   144C    1446
TLG11   1462    1468
TLG12   147E    1478
TLG13   1486    146F 147B 1481 1484
TLG15   149D    149A
TLG16   14BC    14B5
TLG17   14C3    14BB
TLG18   14C6    14C3
TLG40   13F0    13E9
TLG42   1454    1428 145D
TLG43   145E    143A 145A
TLPER   0880    1043 155D 155F 1561
TLPST   0883    1150 156A 156C 156E 1573 1575
TPID    07FF    09AE 140A
TRID    0815    0A44 0ADB 0CEA 157C
TRTNN   083E    0A32 0AD3 0CC3 104B 1091
TSAD    0801    0A41 0A48
TSCAC   08E9    10B1 10B4 10BC
TSCCW   088D    0898
```

```
TSCED   0814  09D3 09D8 09EC 09F1 10B0 10D0 13D3
TSCTN   083D  0A36 108E
TSID    0800  09DF 0A3D 0A45 0A47 0A4A 1581
TSTLP   1566  0884
TST01   156E  1568
TST02   1571  1570
TST03   1573
TST04   1578  1577
TSWDS   0890  088F 0929 0937
TSW0    0802  09BB 0A24 0A25 0A29 0AE2 0C20 0CF1 0F57 1137 1204 1210 1211 1213
              13CB 1559 1566
TSW1    0803  09BC 0A2F 0A33 0A4E
TSW2    0804  09C1 0A0E 0A15 0A19
TSW3    0805  09BD
TTLER   0AB4  0A50 0A52 0A54
TTL00   0A5A  0A27
TTL01   0A6B  0A22
TTL11   0CC7  0AE7
TTL12   104F  0CF6
TYP2    0846  1102
TYP3    0848  11E9
T10NT   0AD3  0A58
T10PR   0AD1  0AD6 0AD9
T11CM   0C16  0B23 0C1F 0C22 0C3D
T11EN   0CC2
T11MA   0B65  0AF8
T11MB   0B7C  0B52
T11MP   0AFB  0AFA 0B54 0B55
T11M1   0B5C  0B58
T1101   0ADB  0AD4 0ADA
T1102   0AE2  0ADD
T1103   0AE8  0AE4
T1104   0B0B  0B4C
T1105   0B13
T1106   0B18  0B12 0C2C 0C76
T1108   0B40  0B2A
T1109   0B4D  0B33
T1110   0B57  0B4F
T1111   0C27
T1112   0C31  0C25
T1113   0C3F  0C1C
T1114   0C7E
T1115   0B2E  0C08
T1116   0C05  0C0B
T1127   1033  101F 1024 1032
T1129   1025  1018
T1130   0FC7  0FB6 0FBA 0FC6
T1132   0FBB  0FAF
T12CM   0F4D  0D4E 0F56 0F59 0F7A
T12EN   104A
T12MA   0D71  0D07
T12MB   0D8C  0D6A
T12M1   0EAE  0EAB
T1201   0CEA  0AE0 0CC4
T1202   0CF1  0CEC
T1203   0CF7  0CF3
T1204   0D0A  0D09 0D6C 0D6D
T1205   0D27  0D63
T1206   0D30  0D55
T1207   0D43  0D3D 0F64 0FE0
T1209   0D64  0D5D
T1210   0EAA  0D66
T1211   0F5F
T1212   0F6C  0F5D
T1213   0F7C  0F53
T1214   0FE8
T1220   0F9F  0F9A 0FAC 0FB9 0FC3 0FCA
T1221   0FC0  0FB1
```



```
T1222   0FD0  0FBE
T1224   1009  1004 1015 1023 102F 1036
T1225   102C  101A
T1226   1028
T1301   108B  0CEF 104C
T20EN   1099  108F
T20ER   10A0  109A
T20NT   108E  0A59
T20PR   108C  1094 1097
T2101   10AB  1092 1098
T23LC   0858
T23LH   0859
T45SW   085B  09F7 0A0B 13E8 1427 1456 147F
UNADR   08DC  1323 1327 1329 132C
UNATN   0008
UNBZY   000B  0908 10EA 1142
UNCHE   000C
UNCHK   000E  0941 1039 11D7
UNCUE   000A  08FE 1179
UNDVE   000D  093E 0941
UNEXC   000F
UNSMD   0009
WAITT   113D  10F5 1147
WAIT1   1140  114C
WAIT2   1149  1143
WATSW   08E7  091B 0995 09A9 09BA 115A
WIOSW   08E6  08EB 09B8 10E3
WRCKD   001D
WRDAT   0005
WRHA    0019  0BDC
WRKD    000D
WRR0    0015  0BDF 0EC7
WTADR   114F  0AEB 0CFA 114D
ZEPA    09E2  0808 09F3
ZEPA1   09EC  09E6
ZEPA2   09F3  09ED
ZIPA    09AF  0806 09B0
ZLPA    09C5  0807 09B1 09C4 09E0
ZLPA1   09D3  09CD
ZLPA2   09DA  09D4
END OF ASSEMBLY
```

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

TABLE OF CONTENTS . . . . . PAGE

1. PURPOSE

1.1 INTENT

THE INTENT OF THIS PROGRAM IS TO INITIALIZE A 2311 C.E. DISK PACK WITH STANDARD HOME ADDRESSES AND RECORD 0 ON ALL TRACKS OF ALL CYLINDERS EXCEPT THE HEAD-ALIGNMENT CYLINDERS (2-4, 71-75, & 200-202).

THIS PROGRAM CONSISTS OF ONE SECTION MADE UP OF TWO ROUTINES.

1.2 BRIEF DESCRIPTION OF ROUTINES

1.2.1 SECTION 1, ROUTINE 1
THIS ROUTINE WRITES HOME ADDRESS (HA) AND RECORD 0 (R0) OF ALL APPLICABLE CYLINDERS. THE ROUTINE ALSO READS HA AND R0 FROM THOSE TRACKS OF THOSE CYLINDERS TO VERIFY THAT THE WRITE PASS WAS SUCCESSFUL AND THAT INFORMATION CAN BE RETRIEVED ERROR-FREE FROM THOSE TRACKS.

1.2.2 SECTION 1, ROUTINE 2
THIS ROUTINE WRITES AN R0 OF 100 BYTES (PLUS THE NORMAL COUNT FIELD) OF WORST-CASE DATA (/E5) ON ALL TRACKS OF CYLINDERS 1 AND 199. THE ROUTINE ALSO READS R0 FROM THOSE TRACKS OF THOSE CYLINDERS TO VERIFY THAT INFORMATION CAN BE RETRIEVED ERROR-FREE FROM THOSE TRACKS.

2. REQUIREMENTS

2.1 PROGRAM

THIS PROGRAM IS RUN UNDER THE CONTROL OF THE 1800 DIAGNOSTIC MONITOR (DM). ROUTINES SHOULD BE EXECUTED IN SEQUENTIAL ORDER FOR CORRECT OPERATION.

2.2 EQUIPMENT

THE FOLLOWING EQUIPMENT IS REQUIRED FOR PROGRAM OPERATION.

2841 FILE CONTROL UNIT

2311 ACCESS MECHANISM.

HARD COPY OUTPUT DEVICE.

A PROGRAM LOADING DEVICE.

A 2311 C.E. DISK PACK TO BE INITIALIZED

3. OPERATING PROCEDURES

3.1 LOADING

STANDARD LOADING PROCEDURE AS DESCRIBED IN THE DIAGNOSTIC MONITOR USE PROCEDURE.

NOTE DO NOT INCLUDE DEVICE ADDRESS ON DM EDIT. WHEN 'SELECT OPTIONS' MESSAGE IS PRINTED BY THE PROGRAM, ENTER THE 2311 DISK DRIVE ADDRESS (0-7) INTO BITS 12-15 AND THE 2841 CHANNEL INTERFACE ADDRESS INTO BITS 8-11 OF SWITCH FNC 2.

IF THE 2841 IS EQUIPPED WITH A 2-CHANNEL SWITCH FEATURE THE UNUSED INTERFACE OF THE 2-CHANNEL SWITCH SHOULD BE MANUALLY DISABLED BY PLACING THE ASSOCIATED INTERFACE 'ENABLE/DISABLE' SWITCH IN THE 'DISABLE' POSITION IN ORDER TO PREVENT ANY EXTRANEOUS INTERRUPTS VIA THE UNUSED INTERFACE.

3.2 OPERATION

1) INSTALL CE PACK TO BE INITIALIZED ON THE ACCESS TO BE USED.

2) PROGRAM OPTION SWITCHES - SW FNC 0.
(NORMAL RUN, WITH ALL SWITCHES OFF, GIVES ERROR PRINTOUTS AND CONTINUES ON ERROR.)

**NOTE - 'TURN ON' OPTION SWS IMPLIES SETTING THE SPECIFIED BITS ON IN THE INDICATED SWITCH FUNCTION BY SETTING UP THE SENSE/PROGRAM AND DATA ENTRY SWITCHES AND PERFORMING A 'CONSOLE INTERRUPT'.

THE PROGRAM FUNCTION SWITCHES SHOWN BELOW ARE IN THE MONITOR INTERFACE TABLE IN THE PROGRAM LISTING. BITS ARE ZERO WHEN OFF AND ONE WHEN ON.

DISK INITIALIZER FUNCTION 0
----CONTROL FUNCTION----

```
*********************   1. SET FUNCTION 00 IN S/P SWS 0 AND 1
*  SENSE/PROGRAM    *   2. SET PID IN S/P SWS 2-THRU-7.
*  0 1 2 3 4 5 6 7  *   3. SET DESIRED CONTROL OPTIONS IN D/E
*                   *                 SWS 8-15, AS SHOWN.
*  0 0 0 1 0 1 0 0  *   4. PRESS CONSOLE INTERRUPT.
*********************************************************************
*      DATA ENTRY SWITCHES                          DESCRIPTION     *
*  0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15                            *
*                                                                   *
*                                       1. . EXIT ERR HALT LOOP     *
*                                     1 . . . HALT-ON-ERROR         *
*                                   1. . . . BYPASS ALL PRINTOUTS   *
*                                 1 . . . . . LOOP-ON-ERROR         *
*                               1 . . . . . . ALLOW WRITE           *
*                             1 . . . . . . . PRINT RTN TITLES      *
*                           1. . . . . . . . PRINT ALL DATA TBLS    *
*                         1. . . . . . . . . LOOP START I/O         *
*                                             (TIGHT SCOPE LOOP)    *
*                                                                   *
*********************************************************************
```


NOTE THE OBJECT OF OPTION SW 8 IS TO PROVIDE A SCOPING OR TROUBLE-SHOOTING LOOP THAT CONSTANTLY REPEATS A SINGLE SIO PERTAINING TO A CCW CHAIN. THE MOST EFFECTIVE WAY TO USE THIS SENSE SW IS IN CONJUNCTION WITH THE OPTION SW 14 --HALT-ON-ERROR--. WHEN AN ERROR MESSAGE IS PRINTED BY A RTN, A HALT OCCURS IF THE HALT-ON-ERROR SWITCH (SW FNC 0, BIT 14) IS ON. IF DURING THIS HALT, SW 8 WERE TURNED ON, THE CHAIN THAT CAUSED THE ERROR IS LOOPED WHEN THE PROGRAM EXECUTION IS RESUMED.

3) ROUTINE SELECTION SWITCHES- SW FNC 1. THIS SWITCH IS USED TO SELECT ROUTINES FOR EXECUTION. THE FORMAT OF THE SWITCHES IS 00SR, WHERE 'S' IS THE SELECTED SECTION AND 'R' IS THE SELECTED ROUTINE WITHIN THAT SECTION. IF R=0 ALL ROUTINES IN THE SELECTED SECTION WILL BE RUN. IF S=0 ALL NORMAL SECTIONS (1) WILL BE RUN WHENEVER A SECTION OR A ROUTINE IS INDIVIDUALLY SPECIFIED, THAT SECTION OR ROUTINE WILL BE LOOPED.

DISK INITIALIZER FUNCTION 1
----ROUTINE SELECTION FUNCTION----

```
*********************   1. SET FUNCTION 01 IN S/P SWS 0 AND 1.
*  SENSE/PROGRAM    *   2. SET PID IN S/P SWS 2-THRU-7.
*  0 1 2 3 4 5 6 7  *   3. SET DESIRED SECT/RTN CONFIGURATION
*                   *        IN D/E SWS 8-11, 12-15, RESPECTIVELY
*  0 1 0 1 0 1 0 0  *   4. DEPRESS CONSOLE INTERRUPT.
*********************************************************************
*      DATA ENTRY SWITCHES                          DESCRIPTION     *
*  0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15                            *
*                                                                   *
*                                     R  R  R  R. . ROUTINE # IN HEX*
*                                                    (0=RUN ALL RTNS)*
*                         S  S  S  S. . . . . . . . SECTION # IN HEX*
*                                                    (0=RUN ALL SECTS)*
*                                                                   *
*********************************************************************
```

4) DEVICE SELECTION. SW FNC 2 IS USED TO SELECT THE DEVICE UNDER TEST. THE UNIT ADDRESS IS PLACED IN THE 4 LOW-ORDER BITS OF THE D/E SWS (BITS 12-15). THE PRIMARY FILE CONTROL INTERFACE ADDRESS IS INSERTED IN BITS 8-11.

DISK INITIALIZER FUNCTION 2
----DEVICE SELECTION FUNCTION----

```
**********************
*  SENSE PROGRAM     *   1. SET FUNCTION 10 IN S/P SWS 0 AND 1.
*  0 1 2 3 4 5 6 7   *   2. SET PID IN S/P SWS 2-THRU-7.
*                    *   3. SET 2841/2311 ADDRESS INTO D/E SWS
*                    *      8-15, AS SHOWN.
*  1 0 0 1 0 1 0 0   *   4. PRESS CONSOLE INTERRUPT.
**********************************************************************
*       DATA ENTRY SWITCHES                          DESCRIPTION     *
*  0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15                             *
*                                                                    *
*                              U  U  U  U. . 2311 UNIT TO BE USED    *
*                     A A  A  A. . . . . . . . 2841 INTF ADDRESS     *
*                                                                    *
**********************************************************************
```

3.3 PROGRAM HALTS.

1400 *** SELECT OPTIONS ***

THIS HALT LOOP OCCURS PRIOR TO PROGRAM EXECUTION TO ALLOW SETTING OF THE FUNCTION (OPTION) SWITCHES. IF OPTIONS ARE DESIRED THEY MUST BE ENTERED BEFORE ENTERING FUNCTION SW 2 (INTERFACE-DEVICE SELECT), AS PROGRAM EXECUTION BEGINS AT THIS TIME.

```
1400 ***HALT-- DISK INITIALIZER  ADRS AAAA
        --TO CLEAR HALT SET SWITCHES
        S/P 00PP PPPP, P=PID
        DES XXXX XXXX XXXX XXX0
        -PRESS CONSOLE INTERRUPT
```

HALT AFTER ERROR, UNLESS BYPASSED, IS A LOOP THAT ALLOWS SELECTION AND LOOP EXIT USING THE SAME SWITCH FUNCTION (FNC 0). BESIDES THE NORMAL HALT AFTER ERROR DESCRIBED ABOVE, THERE ARE SEVERAL ERROR CONDITIONS IN WHICH THE PROGRAM CANNOT CONTINUE. (EXAMPLE ACCESS NOT READY, HANG UP BUSY, ETC.) THE ERROR MESSAGE WILL IDENTIFY SUCH CONDITIONS.

NECESSARY INSTRUCTION TO EXIT THE ERROR HALT LOOP ACCOMPANY ENTRY TO THE LOOP VIA A PRINTOUT. WHILE IN THE LOOP VARIOUS SWITCH FUNCTION 0 OPTIONS CAN BE ENTERED ALONG WITH BIT 15=0, WHICH PROVIDES THE EXIT. BIT 15=0 ALONE WILL RESULT IN A NORMAL EXIT, IN MOST CASES THE ROUTINE WILL TERMINATE.

1) SETTING BIT 12 WILL EXIT TO THE SEQUENCE THAT PRODUCED THE ERROR. THIS WILL USUALLY BE THE START OF THE ROUTINE.

2) SETTING BIT 8 WITH 13 WILL EXIT TO THE FAILING FUNCTION AND LOOP ON THE FUNCTION CAUSING THE ERROR WITHOUT ERROR PRINTOUTS. (TIGHT SCOPE LOOP)

3) SETTING BIT 13 WITH 12 WILL EXIT TO THE FAILING SEQUENCE AND LOOP THROUGH THE ROUTINE WITHOUT PRINTING ERRORS OR HALTING ON THE ERROR. (LONG SCOPE LOOP) THESE OPTIONS SHOULD BE THE MOST USEFUL. SEE TABLE OF OPTIONS FOR OTHER APPLICATIONS.

NOTE THIS PROGRAM IS DESIGNED TO BE THE MOST EFFECTIVE WHEN RUNNING UNDER HALT-AFTER-ERROR-PRINTOUT MODE. IF THE USER WISHES TO RUN IN THIS MODE, SW FUNCTION 0, BIT 14 MUST BE 'ON'.

NOTE IF THE SELECTOR CHANNEL AND THE LOG DEVICE SHARE A DATA CHANNEL, CAUSING A CONSOLE INTERRUPT MAY RESULT IN MONITOR 'WAIT 9'. (3009)

3.4 PROGRAM TERMINATION.

1400 **END OF DFT**

END-OF-DFT MESSAGE IS PRINTED AT COMPLETION OF NORMAL TEST. PROGRAM WILL TERMINATE UNLESS MONITOR SW FNC 0 LOOP PROGRAMS OPTION (BIT 11) IS SELECTED.

4. PRINTOUTS

MESSAGE FORMATS

ERROR MESSAGES

THE PRIMARY MESSAGE FROM THIS PROGRAM IS AN ERROR NUMBER. THE PURPOSE OF THE NUMBER IS TO REFER THE USER TO A DESCRIPTION OF THE ERROR CONDITION IN THIS DOCUMENT. (SECT 4.2) THE ERROR DESCRIPTION PROVIDES DIAGNOSTIC INFORMATION ABOUT THE ERROR AND SCOPE-LOOP OPTIONS.

ERROR NUMBER FORMAT

1) SIO, TIO, SENSE I/O ERRORS--

1400 **ERR- ERROR ON SIO, SECTION S, ROUTINE R, UNIT UU ADRS AAAA

2) ERROR NUMBER WITH MESSAGE.

1400 **ER XX ......MESSAGE...... UNIT UU ADRS AAAA

3) NORMAL ERROR NUMBER PRINTOUT.

1400 **ER SRXX UNIT UU ADRS AAAA

4) THE SECOND LINE OF AN ERROR PRINTOUT GIVES VARIABLE DATA ON MACHINE CONDITIONS. SENSE BYTES WILL USUALLY NOT BE PRINTED.

CAW KKKK CSW YYYY UUZZ ADRS CNTR SNS 8-8 8-8 8-8 8-8

5) LEGEND OF CHARACTERS-

S	SECTION NUMBER
R	ROUTINE NUMBER
XX	SEQUENTIAL ERROR NUMBER WITHIN EACH ROUTINE
UU	CHANNEL AND DEVICE ADDRESS ADDRESS IN HEX
AAAA	ADDRESS OF ERROR BRANCH & STORE I-REG INSTR IN PROGRAM LISTING.
KKKK	CHANNEL ADDRESS WORD FOR THE CCW CHAIN
ADRS	CHANNEL CCW ADDRESS REGISTER
YYYY	CHANNEL STATUS IN HEX
UUZZ	UNIT ADDRESS/UNIT STATUS IN HEX
CNTR	CHANNEL BYTE COUNT REGISTER
8-8	SENSE BYTES IN BINARY

4.1 OPERATOR MESSAGES

''CAUTION - THE ENTIRE PACK ON DRIVE SPECIFIED WILL BE RE-WRITTEN. TURN ON BIT 11 OF SWITCH FUNCTION 0 AND EXIT LOOP TO CONTINUE''

THIS MESSAGE FOLLOWS THE PROGRAM TITLE MESSAGE AND INSTRUCTIONS MUST BE FOLLOWED TO CONTINUE.

4.2 STATUS MESSAGES

4.2.1 2-DIGIT ERROR NUMBERS (ERXX)

THESE ERRORS ARE DETECTED AND PRINTED BY THE HOUSEKEEPING (COMMON) SUBROUTINES OF THE PROGRAM.

1400 **ER00 UNEXPECTED INTERRUPT

AN INTERRUPT OCCURRED ON THE SELECTOR CHANNEL WHILE THIS PROGRAM DID NOT 'OWN' THE CHANNEL, OR THE INTERRUPT WAS NOT FROM THE UNIT UNDER TEST. EXAMINE THE CSW FOR FURTHER INFORMATION.

1400 **ER02 ADAPTER HUNG BUSY

AN ADAPTER BUSY CONDITION WAS DETECTED ON THE TEST I/O AT THE BEGINNING OF THE START I/O SUBROUTINE.

'ADAPTER BUSY' INDICATES CHANNEL OR SUB-CHANNEL BUSY. THIS INDICATES MISSING DEVICE END ON PREVIOUS OPERATION. CAW PRINTOUT INDICATES PREVIOUSLY EXECUTED COMMAND CHAIN. RECOMMEND PLUGGING DISPLAY PORTION OF CE I/O MONITOR BOX.

USER SHOULD DO A RESET-RESTART TO CLEAR BUSY CHANNEL.

1400 **ER06 CHANNEL HUNG AFTER TEST I/O

THE CAW AND CSW ARE PRINTED WITH THIS MESSAGE. THIS MESSAGE INDICATES THAT AN ADAPTER BUSY CONDITION WAS DETECTED BY THE TEST I/O ROUTINE AFTER THE TEST I/O WAS ISSUED.

IF CONTROL UNIT IS HUNG-UP TRY RESET-RESTART.

1400 **ER21 ERROR ON SNS SECT X, RTN X

PROGRAM DETECTED UNIT CHECK ON A SENSE I/O IN THE SENSE I/O SUBROUTINE. TEST I/O AND START I/O HAVE ALREADY BEEN TESTED. SHOULD NOT GET THIS ERROR EXCEPT ON INTERMITTENT FAILURES. THE SECTION AND ROUTINE BEING EXECUTED WHEN THE ERROR OCCURED IS PRINTED WITH ERROR NUMBER. EXAMINE ACCUMULATED STATUS DATA IN CSW FOR CLUES TO FAILURES.

1400 **ER22 ERROR ON SNS SECT X, RTN X

PROGRAM EXECUTED A SENSE I/O AND RECEIVED A BUSY CONDITION. PRINTOUT GIVES SECTION AND ROUTINE BEING EXECUTED WHEN THE ERROR OCCURED.

DETERMINE WHY CONTROL UNIT WENT BUSY. SHOULD BE RELATED TO THE ROUTINE BEING EXECUTED. CAW PRINTOUT INDICATES PREVIOUSLY EXECUTED COMMAND CHAIN.

1) USER SHOULD DO A RESET-RESTART TO CLEAR BUSY CONDITION.
2) CONTROL UNIT HUNG UP - PROBABLY CAN'T LOOP.
3) TRY LOOPING IN ROUTINE.

1400 **ER23 ERROR ON SNS SECT X, RTN X

NOT OPERATIONAL ON SENSE I/O -

4.3 TITLE MESSAGES

4.3.1 PROGRAM TITLE MESSAGE

1400 DISK INITIALIZATION ON UNIT XX
PASS- XX

4.3.2 ROUTINE TITLE MESSAGES

TITLE MESSAGES ARE PRINTED PRIOR TO EXECUTION OF EACH ROUTINE IF BIT 10 OF SW FNC 0 IS ON.

1400 SECT 1,RT 1-
-2311 C.E. PACK INITIALIZATION-ROUT 1 WR HA AND R0-

1400 SECT 1,RT 2-
2311 C.E. PACK INITIALIZATION
-ROUT 2 WR CYLS 1 AND 199 WITH R0
EQ TO 100 BYTES OF WORST CASE DATA

4.4 OTHER MESSAGES

MESSAGES FOR SECT 1, RTN 1

THE FOLLOWING MESSAGE WILL BE PRINTED IF OPTION SW 10 (PRINT DATA TABLES) IS ON WHEN NO DATA COMPARE ERROR IS DETECTED.

```
1400 --OK  -HA RD  AAAABBBBCCCC    R0 RD      DDDDEEEEFFFFGGGG
```

THE FOLLOWING MESSAGE WILL BE PRINTED IF A DATA COMPARE ERROR IS DETECTED.

```
1400 --ERR -HA RD  AAAABBBBCCCC    R0 RD      DDDDEEEEFFFFGGGG
     --HA SHLD BE  AAAABBBBCCCC    R0 SHLD BE DDDDEEEEFFFFGGGG
```

MESSAGES FOR SECT 1, RTN 2

THE FOLLOWING MESSAGE WILL BE PRINTED IF OPTION SW 10 (PRINT DATA TABLES) IS ON WHEN NO DATA COMPARE ERROR IS DETECTED.

```
1400 --OK  -HA RD  AAAABBBBCCCC    R0 RD      DDDDEEEEFFFFGGGG
    E5E5E5............(TOTAL OF 50 BYTES IN THIS LINE).....E5E5
    E5E5E5............(TOTAL OF 50 BYTES IN THIS LINE).....E5E5
```

THE FOLLOWING MESSAGE WILL BE PRINTED IF A DATA COMPARE ERROR IS DETECTED.

```
1400 --ERR -HA RD  AAAABBBBCCCC    R0 RD      DDDDEEEEFFFFGGGG
    XXXXXX............(TOTAL OF 50 BYTES IN THIS LINE).....XXXX
    XXXXXX............(TOTAL OF 50 BYTES IN THIS LINE).....XXXX
     --HA SHLD BE  AAAABBBBCCCC    R0 SHLD BE DDDDEEEEFFFFGGGG
    E5E5E5............(TOTAL OF 50 BYTES IN THIS LINE).....E5E5
    E5E5E5............(TOTAL OF 50 BYTES IN THIS LINE).....E5E5
```

```
LEGEND  AAAA = HA FLAG (00FF)
        BBBB = HA CYL#
        CCCC = HA HD#
        DDDD = R0 CYL#
        EEEE = R0 HD #
        FFFF = R0 REC#/KEY LENGTH (0000)
        GGGG = R0 DATA LENGTH
        XXXX = DATA READ
```


5. COMMENTS

IF AN INTERMITTENT DATA ERROR OCCURS, THE PGM REQUIRES 10 SEQUENTIAL SUCCESSFUL RETRY OPERATIONS BEFORE ASSUMING THE ERROR TO BE RANDOM, THEREFORE IGNORING IT. IF A DATA COMPARE ERROR IS DETECTED THE PGM WILL ENTER THE 'RETRY' PHASE, EXPECTING THE 10 SUCCESSFUL REPEAT OPERATIONS. IF ANOTHER ERROR OCCURS PRIOR TO THE 10TH SUCCESSFUL REPEAT, THE #REPEATS COUNTER IS RE-INITIALIZED AND THE RETRY PHASE IS RESTARTED, AGAIN EXPECTING 10 SUCCESSFUL OPERATIONS. THIS PROCEDURE IS REPEATED UP TO 16 TIMES, IF NECESSARY. IF THE RETRY IS STILL UNSUCCESSFUL, A 'BAD PACK' MESSAGE IS PRINTED AND PROGRAM IS TERMINATED.

THE ERROR NUMBERS ARE REFERRED TO AS SRXX IN THE FOLLOWING ROUTINE DESCRIPTIONS. THE MESSAGES ARE DESCRIBED INDIVIDUALLY IN THE MESSAGE DESCRIPTION SECTION. THE 'XX' PORTION OF THESE MESSAGES MUST NOT BE CONFUSED WITH THE 2-DIGIT MESSAGE NUMBERS 'XX', WHICH ARE COMMON TO ALL SECTIONS/ROUTINES.

5.1 COMMENTS BY SECTION AND ROUTINE

5.1.1 SECTION 1, ROUTINE 1

THIS ROUTINE WRITES HOME ADDRESSES (HA) AND RECORD 0 (R0) ON ALL TRACKS OF ALL CYLINDERS EXCEPT THE HEAD-ALIGNMENT CYLINDERS (002-004, 071-075, AND 200-202). AFTER HA AND R0 HAVE BEEN WRITTEN ON EACH TRACK, THIS ROUTINE IMMEDIATELY READS THE HA AND R0 AND COMPARES THEM AGAINST THE EXPECTED HA AND R0 TO INSURE THAT INFORMATION CAN BE SUCCESSFULLY READ FROM EACH TRACK WITHOUT ERROR. AFTER ALL TRACKS OF ALL CYLINDERS HAVE BEEN THUS WRITTEN AND VERIFIED, A SECOND READ PASS IS MADE ACROSS ALL TRACKS OF ALL CYLINDERS, AGAIN READING HA AND R0, DOUBLE CHECKING THAT THE HA AND R0 CAN BE READ ERROR FREE, AND ALSO VERIFYING THAT THE SEEKS EXECUTED DURING THE WRITE PASS FUNCTIONED PROPERLY. ANY COMPARISON ERRORS, AS WELL AS STATUS ERRORS RECEIVED FROM THE DEVICE OR CHANNEL, ARE DISPLAYED ON THE PRINTER.

5.1.2 SECTION 1, ROUTINE 2

THIS ROUTINE WRITES AND VERIFIES 100 BYTES (50 WORDS) OF WORST/CASE DATA PATTERN (/E5) ON ALL TRACKS OF CYLINDERS 001 AND 199, WHICH IS REQUIRED BY OTHER 2311 DIAGNOSTIC PROGRAMS. A WRITE PASS IS MADE ON EACH TRACK, WRITING 100 BYTES OF R0, FOLLOWED IMMEDIATELY BY A READ AND COMPARE OF THE R0 JUST WRITTEN. THE R0 READ IS COMPARED AGAINST THE EXPECTED R0 TO INSURE THAT INFORMATION CAN BE SUCCESSFULLY READ FROM EACH TRACK WITHOUT ERROR. AFTER R0 HAS BEEN WRITTEN AND VERIFIED ON EACH TRACK OF CYLINDERS 001 AND 199, A SECOND READ PASS IS MADE ACROSS ALL TRACKS OF CYLINDERS 001 AND 199, DOUBLE CHECKING THAT INFORMATION CAN BE READ ERROR FREE FROM THOSE TRACKS, AND ALSO VERIFYING THAT THE SEEKS EXECUTED DURING THE WRITE PASS FUNCTIONED PROPERLY. ANY COMPARISON ERRORS, AS WELL AS STATUS ERRORS RECEIVED FROM THE DEVICE OR CHANNEL, ARE DISPLAYED ON THE PRINTER

5.2 COMMENTS BY ERROR NUMBER

```
1400 **ER-SR01  UNIT UU,ADRS AAAA
        CAW AAAA   CSW XXXX XXXX XXXX 0000  SNS X--X X--X X--X X--X
```

ERROR #	COMMENT
- SR01	THIS IS THE GENERAL ERROR NUMBER WHICH IS PRINTED IN THE EVENT OF ANY UNUSUAL DEVICE OR SELECTOR CHANNEL STATUS. EXAMINE THE CSW AND SENSE BYTES FOR DETAILS OF THE ERROR CONDITION. TAKE APPROPRIATE CORRECTIVE ACTION.

5.3 COMMON SUBROUTINES

1) GET SENSE
THIS SUBROUTINE IS USED BY MOST ROUTINES TO GET FOUR (4) SENSE BYTES OF ACCESS STATUS INFORMATION. AFTER THE SUBROUTINE HAS PERFORMED THE START I/O AND CHECKED THAT THE SENSE COMMAND HAS BEEN ACCEPTED, IT WILL WAIT IN A TEST I/O ADAPTER BUSY LOOP FOR THE 4 BYTES TO TRANSFER. THE PROGRAM WILL HANG-UP IF IT FOREVER RECEIVES ADAPTER BUSY.

2) START I/O
THIS SUBROUTINE IS USED BY ALL ROUTINES TO START A CHAIN OF CCW(S) (CHANNEL COMMAND WORDS). BEFORE THE START I/O IS EXECUTED, THE SUBROUTINE PERFORMS A TEST I/O TO CHECK THAT THE ACCESS IS AVAILABLE. THE PROGRAM THEN SETS UP THE CAW, EXECUTES A START I/O AND CHECKS THAT THE COMMAND WAS ACCEPTED. THE 'WAIT' SUBROUTINE IS USED TO WAIT FOR COMPLETION OF THE CHAIN OF COMMANDS BEFORE RETURNING TO THE CALLING ROUTINE.

3) EROUT
THIS SUBROUTINE IS USED BY ALL ROUTINES TO PRINT OUT AN ERROR NUMBER OR ERROR MESSAGE, THE CAW, CSW, AND/OR SENSE INFORMATION. THE ROUTINE ALSO PROVIDES FOR PRINTING A BLANK LINE AS A SEPARATOR, WILL GET THE SENSE BYTES, STOP AFTER PRINTING ERROR, RETURN TO PROGRAM VIA AN OPTIONAL REG, AND OR EXIT TO NEXT ROUTINE.

6. APPENDIX

6.1 CHANNEL STATUS WORDS DEVICE AND CHANNEL STATUS BITS LAYOUT IN HEX

CSW ADRS YYYY UUZZ CNTR

8000 . . . UNIT NOT OPERATIONAL
4000 . . . UNIT STATUS PENDING
2000 . . . PROGRAM CONTROL INTERRUPT
1000 . . . PROGRAM CHECK
0800 . . . DATA CHECK
0400 . . . CONTROL CHECK
0200 . . . INCORRECT LENGTH
0100 . . . ADAPTER BUSY

80. . . ATTENTION
40. . . STATUS MODIFIER
20. . . CONTROL UNIT END
10. . . BUSY
08. . . CHANNEL END
04. . . DEVICE END
02. . . UNIT CHECK
01. . . UNIT EXCEPTION

ADRS = CHANNEL CCW ADDRESS REGISTER
YYYY = CHANNEL STATUS IN HEX
UUZZ = UNIT ADDRESS/UNIT STATUS IN HEX
CNTR = CHANNEL BYTE COUNT REGISTER

6.2 SENSE BYTES RECEIVED ON A SENSE I/O COMMAND
BIT LAYOUT IN BINARY

BYTE 0, BIT 0 = COMMAND REJECT
1 = INTERVENTION REQUIRED
2 = BUS OUT PARITY
3 = EQUIP CHECK
4 = DATA (BURST) CHECK
5 = CHANNEL/2841 OVRN
6 = TRACK CONDITION CHECK
7 = SEEK CHECK

BYTE 1, BIT 0 = DATA CHECK IN COUNT FIELD
1 = TRACK OVERFLOW
2 = END OF CYLINDER
3 = INVALID SEQUENCE
4 = NO RECORD FOUND
5 = FILE PROTECTED
6 = MISSING ADDRESS MARKER
7 = OVERFLOW INCOMPLETE

BYTE 2, BIT 3 = UNSAFE
1 =
2 = SERDES CHECK
3 =
4 = 2841 ALU CHECK
5 = UNSELECTED FILE STATUS
6 =
7 =

BYTE 3, BIT 0 = DRIVE READY
1 = ON LINE
2 = UNSAFE
3 =
4 = ONLINE
5 = END OF CYLINDER
6 =
7 = SEEK INCOMPLETE

6.3

THE FOLLOWING EDIT CARDS ARE REQUIRED BY THIS PROGRAM:

1. CARD 0 - MUST CONTAIN 2 EDITS. THE FIRST MUST DEFINE THE LOG DEVICE AND THE SECOND MUST DEFINE THE SELECTOR CHANNEL.
2. END CARD - MUST HAVE FFFF IN COLUMNS 7-10.

THE DEVICE DEFINITION EDIT FIELD (DDEF) INCLUDES THE FOLLOWING:

1. THE INTERRUPT LEVEL ASSOCIATED WITH THE DEVICE.
2. THE ILSW BIT POSITION ASSOCIATED WITH THIS DEVICE.
3. THE CHANNEL ASSIGNED TO THIS DEVICE.

NOTE 1 - THIS PROGRAM HAS ITS OWN LOG ROUTINE. THE FIRST ENTRY ON THE EDIT CARD IS ASSOCIATED WITH THE C.E. LOG DEVICE.

NOTE 2 - THE SELECTOR CHANNEL EDIT ENTRY FOR THE DIAGNOSTIC MONITOR (DM) SHOULD NOT CONTAIN A UNIT ADDRESS FOR A 2311 DISK DRIVE OR A 2841 CONTROL UNIT.
i.e. 9000

	PROGRAM I.D.		CARD SEQUENCE NR.		NUMBER OF ENTRIES	DDEF LOG DEV. NOTE 1. INTERRUPT LEVEL (HEX)	ILSW BIT CHANNEL OR F	DDEF SEL. CHAN. NOTE 2. INTERRUPT LEVEL (HEX)	ILSW BIT CHANNEL
COLUMN	1 2 3 4 5	6 7 8	9 10	11 12 13	14 15 16	17 18 19 20 21		26	
CARD 0	E 1 4 0 0	E D	0 0	0 0	0 2	X X X X		X X X X	
END EC.	E 1 4 0 0	F F	F F						

DATE 14NOV69 30JAN70 22NOV71

EC NO. 431319 431319A 431328

TABLE OF CONTENTS

1. PURPOSE

THE AUX CORE FUNCTION TEST IS DESIGNED TO TEST THE 1800 FEAT 2 AUX CORE FOR COMPLIANCE WITH THE PRODUCT SPECIFICATIONS.

2. REQUIREMENTS

2.1 PROGRAM REQUIREMENTS

THIS PROGRAM RUNS UNDER CONTROL OF THE DIAGNOSTIC MONITOR. THIS PROGRAM THEREFORE REQUIRES THE SAME PREREQUISITES AND DECKS AS THE DIAGNOSTIC MONITOR. (REFERENCE DIAGNOSTIC MONITOR, PID 0801, SECTION 2). MAIN MEMORY AND THE CPU MUST BOTH BE OPERATING CORRECTLY PRIOR TO RUNNING THIS PROGRAM.

*** NOTE ***
THIS PROGRAM WILL NOT RUN ON-LINE UNDER THE MPX SYSTEM.

2.2 EQUIPMENT REQUIREMENTS

A. 1800 FEAT 2 AUXILLARY MEMORY.
B. HARDWARE AS REQUIRED BY DIAGNOSTIC MONITOR. (PID 0801-SECTION 2)

3. OPERATING PRECEDURE

3.1 PROGRAM LOADING

THE STANDARD LOADING PROCEDURE AS DESCRIBED IN THE DIAGNOSTIC MONITOR OPERATING PROCEDURE. (PID 0801-SECTION 3)

3.2 PROGRAM OPERATION

THE STANDARD DIAGNOSTIC MONITOR OPERATING PROCEDURES APPLY. THESE PROCEDURES ARE SUMMARIZED HERE. REFERENCE DIAGNOSTIC MONITOR OPERATING PROCEDURES FOR THE DETAILS OF PARTS 1 THROUGH 4 AND 6 BELOW. (PID 0801-SECTION 3)

1. CLEAR STORAGE.
2. LOAD DIAGNOSTIC MONITOR.
3. SELECT MODE OF EXECUTION.
4. SELECT MONITOR CONTROL OPTIONS.
5. SELECT THIS PROGRAMS OPTIONS FROM TABLES 0 THRU 2 BELOW.

   IF NO OPTIONS ARE SELECTED, THE PROGRAM WILL AUTOMATICALLY RUN ALL ROUTINES IN SEQUENCE. EACH ROUTINE WILL TEST ALL OF AUX CORE. WHEN ALL ROUTINES ARE COMPLETED THE PROGRAM WILL TERMINATE, UNLESS THE DIAGNOSTIC MONITOR OPTION, 'LOOP ALL PROGRAMS', IS SELECTED.

   TABLE 0-PROGRAM CONTROL FUNCTION
   TABLE 1-ROUTINE SELECT FUNCTION
   TABLE 2-STARTING ADDRESS SELECTION.

6. INSTRUCT MONITOR TO EXECUTE.

```
******************** WARNING ********************
*                                                *
*   DATA STORED IN AUX CORE WILL BE DESTROYED    *
*   AS A RESULT OF RUNNING THIS PROGRAM. BEFORE  *
*   RUNNING, DUMP ERROR LOGS. BEFORE RETURNING   *
*   MACHINE TO THE CUSTOMER, CLEAR AUX CORE AS   *
*   PER INSTRUCTIONS GIVEN IN SECTION 3.4.       *
*   RELOAD AUX LOADER AND AUX 1442 EXERCISER     *
*   (IF DESIRED).                                *
*                                                *
************************************************
```

3.2.1 TABLE 0 PROGRAM CONTROL FUNCTION

```
******************  1. SET FUNCTION 00 IN SENSE/PROGRAM SWITCHES 0 AND 1.
*                *     (AS SHOWN)
*   SENSE/PROGRAM *  2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7.
*                *     (AS SHOWN)
* 0 1 2 3 4 5 6 7 *  3. SET DESIRED CONTROL OPTIONS IN DATA ENTRY SWITCHES 0-15.
*                *  4. PRESS CONSOLE INTERRUPT.
* 0 0 0 1 1 1 1 1 *
*************************************************************************
*          DATA ENTRY SWITCHES        * DESCRIPTION                     *
* 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 *                               *
*                  .  .  .  .     .  .     1..TERMINATE PROGRAM. THIS OPTION WILL *
*                  .  .  .  .     .  .        CAUSE THE PROGRAM TO TERMINATE      *
*                  .  .  .  .     .  .        IMMEDIATELY.                        *
*                  .  .  .  .     .  .                                            *
*                  .  .  .  .     .  1.......BYPASS LOG MESSAGES. ALL PRINTOUTS  *
*                  .  .  .  .     .           EXCEPT ERROR MESSAGES ARE BYPASSED. *
*                  .  .  .  .     .           (REFERENCE DIAG. MON. OPTIONS TO    *
*                  .  .  .  .     .           BYPASS ERROR MESSAGES)              *
*                  .  .  .  .     .                                               *
*                  .  .  .  .     1...........LOCK ON ERROR. THE PROGRAM WILL LOOP *
*                  .  .  .  .                 THE PORTION OF THE ROUTINE          *
*                  .  .  .  .                 ENCOUNTERING THE ERROR AS LONG AS   *
*                  .  .  .  .                 THE ERROR PERSISTS.                 *
*                  .  .  .  .                                                     *
*                  .  .  .  1.................PRINT 1ST ERROR ONLY. THE PROGRAM   *
*                  .  .  .                    WILL PRINT ONLY THE FIRST ERROR     *
*                  .  .  .                    ENCOUNTERED IN EACH TEST ROUTINE.   *
*                  .  .  .                                                        *
*                  .  .  1....................REQUEST ROUTINE BEGINNING MESSAGES. *
*                  .  .                       THE PROGRAM WILL PROVIDE A STATUS   *
*                  .  .                       MESSAGE AS EACH TEST ROUTINE BEGINS.*
*                  .  .                                                           *
*                  .  1.......................LOCK ON SINGLE ADDRESS. EACH ROUTINE *
*                  .                          WILL TEST ONLY THE SINGLE AUX ADDRESS*
*                  .                          SPECIFIED IN SWITCH FUNCTION 3 (TABLE*
*                  .                          2)                                   *
*                  .                                                               *
*                  1...........................LOCK ON SINGLE BLOCK. EACH ROUTINE  *
*                                              WILL BEGIN TESTING WITH THE AUX     *
*                                              ADDRESS SPECIFIED IN SWITCH FUNCTION*
*                                              3 (TABLE 2) AND CONTINUE TO THE END *
*                                              OF THAT 256 WORD BLOCK OF AUX CORE. *
*                                                                                  *
*  NOTE-IF BOTH BITS 7 AND 8 ARE SELECTED THE PROGRAM WILL LOCK ON SINGLE          *
*       ADDRESS.                                                                   *
************************************************************************************
```


3.2.2 TABLE 1 ROUTINE SELECT FUNCTION

```
******************  1. SET FUNCTION 01 IN SENSE/PROGRAM SWITCHES 0 AND 1.
*                *     (AS SHOWN)
*   SENSE/PROGRAM *  2. SET PID IN SENSE/PROGRAM SWITCHES 2-7.
*                *     (AS SHOWN)
* 0 1 2 3 4 5 6 7 *  3. SET DESIRED ROUTINE IN DATA ENTRY SWITCHES 12-15.
*                *  4. PRESS CONSOLE INTERRUPT.
* 0 1 0 1 1 1 1 1 *
************************************************************************************
*          DATA ENTRY SWITCHES        * DESCRIPTION                                *
* 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 *                                          *
*                              X  X  X  X...ROUTINE TO BE LOOPED.                  *
*                                            ENTER A HEX NUMBER FROM 1 TO 9.       *
*  NOTE-                                                                           *
*  A NUMBER GREATER THAN 9 OR A NEGATIVE NUMBER ENTERED IN THIS FUNCTION           *
*  WILL RESULT IN AN ERROR MESSAGE AND TERMINATION OF THE PROGRAM.                 *
*                                                                                  *
*  THE PROGRAM CAN BE CAUSED TO START WITH A SELECTED ROUTINE AND THEN             *
*  RUN THE REMAINING ROUTINES IN SEQUENCE BY-                                      *
*        A.  ENTER STARTING ROUTINE INTO THIS FUNCTION.                            *
*        B.  EXECUTE THIS PROGRAM.                                                 *
*        C.  ENTER HEX 0000 INTO THIS FUNCTION.                                    *
*                                                                                  *
*  WHEN THIS FUNCTION CONTAINS HEX 0000 ALL ROUTINES ARE RUN IN SEQUENCE           *
*                                                                                  *
* ROUTINE NUMBER              DESCRIPTION                                          *
*                                                                                  *
*      1          TEST INSTRUCTIONS WHICH CAN REFERENCE AUX CORE                  *
*      2          AUX CORE ADDRESSING TEST                                        *
*      3          FLOATING ONE PATTERN TEST                                       *
*      4          FLOATING ZERO PATTERN TEST                                      *
*      5          WORST CASE PATTERN TEST                                         *
*      6          COMPLEMENT WORST CASE PATTERN TEST                              *
*      7          ALTERNATE ZERO/ONE BIT PATTERN TEST                             *
*      8          ALTERNATE ONE/ZERO BIT PATTERN TEST                             *
*      9          ILLEGAL ADDRESSING TEST                                         *
*                                                                                  *
* REFERENCE SECTION 5.2 FOR A COMPLETE DESCRIPTION OF EACH TEST ROUTINE.           *
************************************************************************************
```

3.2.3 TABLE 2 STARTING ADDRESS FUNCTION

```
*******************  1. SET FUNCTION 11 IN SENSE/PROGRAM SWITCHES 0 AND 1.
*                 *     (AS SHOWN)
*   SENSE/PROGRAM *  2. SET PID IN SENSE/PROGRAM SWITCHES 2-7.
*                 *     (AS SHOWN)
*                 *  3. SET SELECTED ADDRESS IN DATA ENTRY SWITCHES 0-15.
* 0 1 2 3 4 5 6 7 *  4. PRESS CONSOLE INTERRUPT
*                 *
* 1 1 0 1 1 1 1 1 *
*******************************************************************************
*          DATA ENTRY SWITCHES          * DESCRIPTION                         *
* 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 *                                    *
* X X X X 0 0 0 X X  X  X  X  X  X  X...STARTING AUX CORE ADDRESS. ENTER     *
*                                       ANY LEGAL AUX ADRS HEX 0000-F1FF.    *
*   THIS ADDRESS IS USED IN THE PROGRAM AS FOLLOWS-                          *
*                                                                            *
*   SWITCH FUNCTION 00                                                       *
*   BITS 7-8 = 00-EACH TEST ROUTINE BEGINS WITH THE ADDRESS IN THIS SW. FNC. *
*                 AND CONTINUES TESTING SEQUENTIAL ADDRESSES THRU THE MAXIMUM*
*                 ADDRESS AS ENTERED ON THE EDIT CARD.                       *
*                                                                            *
*   BITS 7-8 = 10-EACH TEST ROUTINE BEGINS WITH THE ADDRESS IN THIS SW. FNC. *
*                 AND CONTINUES TESTING SEQUENTIAL ADDRESSES THRU THE END    *
*                 OF THE 256 WORD BLOCK ASSOCIATED WITH THIS ADDRESS.        *
*                                                                            *
*   BITS 7-8 = 01                                                            *
*   BITS 7-8 = 11-EACH TEST ROUTINE WILL TEST ONLY THE SINGLE ADDRESS        *
*                 SPECIFIED BY THIS SWITCH FUNCTION.                         *
*                                                                            *
*  *** NOTE ***                                                              *
*   ANY OF THE FOLLOWING CONDITIONS IN THE ADDRESS ENTERED WILL RESULT IN    *
*   AN ERROR MESSAGE AND TERMINATION OF THE PROGRAM.                         *
*                                                                            *
*         1. ANY OF BITS 4-5-6 = 1.                                          *
*         2. BIT 3 = 1 AND BIT 7 = 0.                                        *
*         3. BIT 3 = 0 AND BIT 7 = 1.                                        *
*         4. SELECTION OF AN ADDRESS WHICH IS GREATER THAN THE MAXIMUM       *
*            ADDRESS ENTERED ON THE PROGRAM EDIT CARD.                       *
*******************************************************************************
```


3.2.4 AUX CORE ADJUST PROCEDURE (SHMOO)

1. SELECT ROUTINE 5 AS ROUTINE TO BE LOOPED.
2. CLEAR SWITCH FUNCTION 11.
3. SET BIT 9 TO A ONE IN SWITCH FUNCTION 00.
4. EXECUTE PROGRAM.
5. WHEN THE 'A001' MESSAGE IS RECEIVED THE SECOND TIME - PRESS THE 'STOP' BUTTON ON THE CONSOLE.
6. SET 'I-COUNTER' TO THE DESIRED AUX CORE 256 WORD BLOCK.
7. PLACE MODE SWITCH IN 'DISPLAY'.
8. SET THE 'FORCE AUX' SWITCH TO ON.
9. WHILE HOLDING DOWN THE CLEAR STORAGE PUSHBUTTON DEPRESS THE START PUSHBUTTON.
10. LOWER V(REF) UNTIL A PARITY FAILURE OCCURS. RECORD THE VALUE OF V(REF).
11. SET V(REF) TO A POINT WITHIN THE OPERATABLE RANGE AND REPEAT STEPS 6 THROUGH 9.
12. RAISE V(REF) UNTIL A PARITY ERROR OCCURS. RECORD THE VALUE OF V(REF).
13. SELECT ROUTINE 6 AS THE ROUTINE TO BE LOOPED.
14. SET V(REF) TO A POINT WITHIN THE OPERATABLE RANGE AND REPEAT STEPS 2 THROUGH 11.
15. SET V(Z) AT V(Z) NOMINAL+6 PERCENT.
16. REPEAT STEPS 1 THROUGH 11 FOR THIS VALUE OF V(Z).
17. TAKE THE HIGHEST OF THE VALUES OF V(REF) FOUND BY LOWERING V(REF) AND THE LOWEST OF THE FOUR VALUES OF V(REF) FOUND BY RAISING V(REF). SET V(REF) TO THE VALUE WHICH IS THE AVERAGE OF THESE TWO VOLTAGES.
18. REPEAT STEPS 1 THROUGH 17 UNTIL ALL V(REF) POTENTIOMETERS HAVE BEEN ADJUSTED.

3.3 PROGRAM HALTS

THERE ARE NO WAITS IN THIS PROGRAM, THEREFORE, IT SHOULD NEVER WAIT UNLESS THE DIAGNOSTIC MONITOR OPTION OF HALT ON ERROR IS SELECTED.

3.4 PROGRAM TERMINATION

THE PROGRAM NORMALLY TERMINATES AT THE COMPLETION OF ALL TEST ROUTINES. THE PROGRAM CAN BE MANUALLY TERMINATED PRIOR TO NORMAL TERMINATION-

1. THROUGH USE OF THE MONITOR DE-EXECUTE OPTION.
2. THROUGH USE OF THE SW FNC 00-BIT 15 OPTION IN THIS PROGRAM.

THE PROGRAM WILL FORCE TERMINATION (AFTER AN ERROR MESSAGE) IF ONE OF THE FOLLOWING ERRORS ARE ENCOUNTERED-

1. THE MAXIMUM ADDRESS EDIT ENTRY IS IN ERROR.

   A. ANY OF BITS 4-5-6 ARE EQUAL TO 1.
   B. BIT 3 IS EQUAL TO 0 AND BIT 7 IS EQUAL TO 1.
   C. BIT 3 IS EQUAL TO 1 AND BIT 7 IS EQUAL TO 0.

2. AN ILLEGAL ROUTINE NUMBER IS SELECTED IN SWITCH FUNCTION 01.

   A. NUMBER IN SWITCH FUNCTION 01 IS GREATER THAN 9.
   B. NUMBER IN SWITCH FUNCTION 01 IS NEGATIVE.

3. AN ILLEGAL ADDRESS IS SELECTED IN SWITCH FUNCTION 11.

   A. ADDRESS IN SWITCH FUNCTION 11 IS GREATER THAN THE MAXIMUM ADDRESS AS ENTERED ON EDIT CARD ED00.
   B. ANY OF BITS 4-5-6 ARE EQUAL TO 1.
   C. BIT 3 IS EQUAL TO 1 AND BIT 7 IS EQUAL TO 0.
   D. BIT 3 IS EQUAL TO 0 AND BIT 7 IS EQUAL TO 1.

4. AN ATTEMPT BY THE PROGRAM TO STORE INTO AUX ADDRESS-0000 RESULTED IN STORING INTO MAIN MEMORY AT ADDRESS 0000.

AT THE CONCLUSION OF RUNNING THIS PROGRAM (JUST PRIOR TO RETURNING THE MACHINE TO THE CUSTOMER), CLEAR AUX CORE IN THE FOLLOWING WAY.

1. TURN 'FORCE AUX' SWITCH ON.
2. LOAD I-REG TO EACH OF THE FOLLOWING LOCATIONS AND CLEAR EACH BLOCK OF AUX CORE TO ZERO. (D.E. SWITCHES TO /0000 UNTIL 'STOP SWITCH' DEPRESSED

/0000	/1100	
9) ~~/2000~~	/3100	F1 0C
B) ~~/4000~~	/5100	
D) ~~/6000~~	/7100	

3. RELOAD AUX LOADER (PID 08A1).
4. TURN 'FORCE AUX' SWITCH OFF.
5. LOAD AUX 1442 (PID 08A9 OR 08AA) PROGRAM IF DESIRED.
6. IF 2790 IS PRESENT, RESET A.S. ERR CNTS WITH THE CE CORELOAD.

THE ABOVE PROCEDURE WILL RESET ERROR LOGS AND RESTORE AUX CORE.

Refer to page 8 for Aux Cell Locations (Thereare 16 locations) 128 positions in each AUX core

4. PRINTOUTS

ALL PRINTOUTS PROVIDED BY THIS PROGRAM ARE STRUCTURED IN THE FOLLOWING MANNER.

PID MID RID RAD MOD1 -------MOD7

WHERE-
PID -PROGRAM ID IN HEX (1F00)
MID -MESSAGE ID IN HEX (AXXX-STATUS MESSAGES, EXXX-ERROR MESSAGES)
RID -ROUTINE NUMBER IN HEX.
RAD -ROUTINE ADDRESS IN HEX.
MOD1 THROUGH MOD7 ARE OPTIONAL HEX WORDS. REFERENCE INDIVIDUAL MESSAGES.

4.1 STATUS MESSAGES

PID MID RID RAD
1F00 A001 XXXX XXXX
THE ROUTINE SPECIFIED BY RID IS BEGINNING. THIS PRINTOUT IS OPTIONAL AND OCCURS ONLY IF SELECTED IN SWITCH FUNCTION 00. (REFERENCE 3.2-TABLE O)

PID MID RID RAD
1F00 A002 0008 XXXX
THE PROGRAM IS COMPLETE. RID AND RAD HAVE NO MEANING IN THIS MESSAGE.

PID MID RID RAD
1F00 A003 XXXX XXXX
THE PROGRAM IS TERMINATED BECAUSE OF OPERATOR REQUEST THRU BIT 15 OF SWITCH FUNCTION 00. RID AND RAD SPECIFY THE ROUTINE WHICH WAS RUNNING AT THE TIME OF THE TERMINATION.

4.2 ERROR MESSAGES

PID MID RID RAD MOD1
1F00 E001 0000 XXXX XXXX
THE MAXIMUM ADDRESS EDITED INTO THE PROGRAM IS ILLEGAL. THE PROGRAM IS TERMINATED. RID AND RAD HAVE NO MEANING IN THIS MESSAGE.

MOD1-CONTENTS OF EDIT ENTRY IN HEX.

EDIT CARD ED00 CONTAINS ONE OR MORE OF THE FOLLOWING ERRORS IN THE MAXIMUM AUX CORE ADDRESS ENTRY. THE PROGRAM IS TERMINATED.
1. ONE OR MORE OF BITS 4-5-6 IS EQUAL TO 1.
2. BIT 3 EQUAL TO 0 AND BIT 7 EQUAL TO 1.
3. BIT 3 EQUAL TO 1 AND BIT 7 EQUAL TO 0.

PID MID RID RAD MOD1
1F00 E002 XXXX XXXX XXXX
AN ILLEGAL ROUTINE NUMBER IS SELECTED IN SWITCH FUNCTION 01. THE PROGRAM IS TERMINATED.

MOD1-CONTENTS OF SWITCH FUNCTION 01 IN HEX.

SWITCH FUNCTION 01 CONTAINS ONE OF THE FOLLOWING ERRORS.

1. A NUMBER GREATER THAN 9.
2. A NEGATIVE NUMBER.

PID MID RID RAD MOD1
1F00 E003 XXXX XXXX XXXX
AN ILLEGAL AUX ADDRESS IS SPECIFIED IN SWITCH FUNCTION 11. THE PROGRAM IS TERMINATED.

MOD1-CONTENTS OF SWITCH FUNCTION 11 IN HEX.

SWITCH FUNCTION 11 CONTAINS ONE OR MORE OF THE FOLLOWING ERRORS.

1. AN ADDRESS GREATER THAN THE MAXIMUM AUX ADDRESS EDITED INTO THE PROGRAM.
2. ONE OR MORE OF BITS 4-5-6 IS EQUAL TO 1.
3. BIT 3 IS EQUAL TO 0 AND BIT 7 IS EQUAL TO 1.
4. BIT 3 IS EQUAL TO 1 AND BIT 7 IS EQUAL TO 0.

PID MID RID RAD
1F00 E004 0000 XXXX
AN ATTEMPT TO STORE INTO AUX ADDRESS HEX 0000 RESULTED IN STORING INTO MAIN ADDRESS HEX 0000. THE PROGRAM IS TERMINATED UNLESS LOCK ON ERROR OPTION IS SELECTED IN SWITCH FUNCTION 00. RID AND RAD HAVE NO MEANING IN THIS MESSAGE.

PID MID RID RAD MOD1 MOD2 MOD3
1F00 E005 XXXX XXXX XXXX XXXX XXXX
AN ATTEMPT TO REFERENCE A LEGAL AUX CORE ADDRESS RESULTED IN AN INTERNAL ERROR INTERRUPT. THE MOST PROBABLE CAUSE IS THE STORAGE PROTECT BIT IS SET ON THIS ADDRESS. CLEAR AUX CORE AND RETRY THE TEST.

MOD1-FAILING AUX CORE ADDRESS IN HEX.
MOD2-THE INSTRUCTION (IN HEX) WHICH CAUSED THE FAILURE.
MOD3-THE ADDRESS PORTION OF THE FAILING INSTRUCTION.

*** NOTE ***
IN THE CASE OF INDEXED OR INDIRECT INSTRUCTIONS 'MOD1' AND 'MOD3' WILL NOT AGREE IN THE ABOVE PRINTOUT. 'MOD1' WILL ALWAYS SPECIFY THE ACTUAL AUX ADDRESS REFERENCED BY THE INSTRUCTION IN 'MOD2' AND 'MOD3'.

PID MID RID RAD MOD1 MOD2 MOD3 MOD4
1F00 E006 0001 XXXX XXXX FFFF 0000 XXXX
THE SEQUENCE 'STO L'-'LD L' USING AUX CORE FAILED.

MOD1-AUX ADDRESS BEING TESTED IN HEX.
MOD2-THE CONTENTS OF THE A-REGISTER PRIOR TO ISSUING THE STORE INSTRUCTION. (SHOULD BE)
MOD3-THE PRE-SET CONTENTS OF THE A-REGISTER PRIOR TO ISSUING THE LOAD INSTRUCTION.
MOD4-THE CONTENTS OF THE A-REGISTER AFTER ISSUING THE LOAD INSTRUCTION. (WAS)

PID MID RID RAD MOD1 MOD2 MOD3 MOD4
1F00 E007 0001 XXXX XXXX 0000 FFFF XXXX
THE SEQUENCE 'STO I'-'LD I' USING AUX CORE FAILED. REFERENCE MESSAGE 'E006' FOR THE MEANING OF MOD1 THROUGH MOD4.

PID MID RID RAD MOD1 MOD2 MOD2 MOD4
1F00 E008 0001 XXXX XXXX FFFF 0000 XXXX
THE SEQUENCE 'STO I'-'LD I' USING AUX CORE FAILED. REFERENCE MESSAGE 'E006' FOR THE MEANING OF MOD1 THROUGH MOD4.

PID MID RID RAD MOD1 MOD2 MOD3 MOD4
1F00 E009 0001 XXXX XXXX 0000 FFFF XXXX
THE SEQUENCE 'STO I'-'LD L1' USING AUX CORE FAILED. REFERENCE MESSAGE 'E006' FOR THE MEANING OF MOD1 THROUGH MOD4.

PID MID RID RAD MOD1 MOD2 MOD3 MOD4
1F00 E010 0001 XXXX XXXX FFFF 0000 XXXX
THE SEQUENCE 'STO L1'-'LD L' USING AUX CORE FAILED. REFERENCE MESSAGE 'E006' FOR THE MEANING OF MOD1 THROUGH MOD4.

PID MID RID RAD MOD1 MOD2 MOD3 MOD4 MOD5 MOD6 MOD7
1F00 E011 0001 XXXX XXXX 0000 0000 FFFF FFFF XXXX XXXX
THE SEQUENCE 'STD L'-'LDD L' USING AUX CORE FAILED.

MOD1-THE EVEN ADDRESS OF THE EVEN/ODD ADDRESSES BEING TESTED IN HEX.
MOD2-THE CONTENTS OF THE A-REGISTER PRIOR TO ISSUING THE STORE DOUBLE INSTRUCTION. (SHOULD BE)
MOD3-THE CONTENTS OF THE Q-REGISTER PRIOR TO ISSUING THE STORE DOUBLE INSTRUCTION. (SHOULD BE)
MOD4-THE PRE-SET CONTENTS OF THE A-REGISTER PRIOR TO ISSUING THE LOAD DOUBLE INSTRUCTION.
MOD5-THE PRE-SET CONTENTS OF THE Q-REGISTER PRIOR TO ISSUING THE LOAD DOUBLE INSTRUCTION.
MOD6-THE CONTENTS OF THE A-REGISTER AFTER ISSUING THE LOAD DOUBLE INSTRUCTION. (WAS)
MOD7-THE CONTENTS OF THE Q-REGISTER AFTER ISSUING THE LOAD DOUBLE INSTRUCTION. (WAS)

PID MID RID RAD MOD1 MOD2 MOD3 MOD4 MOD5 MOD6 MOD7
1F00 E012 0001 XXXX XXXX AAAA AAAA 0000 0000 XXXX XXXX
THE SEQUENCE 'STD I'-'LDD I' USING AUX CORE FAILED. REFERENCE MESSAGE 'E011' FOR THE MEANING OF MOD1 THROUGH MOD7.

PID MID RID RAD MOD1 MOD2 MOD3 MOD4 MOD5 MOD6 MOD7
1F00 E013 0001 XXXX XXXX 5555 5555 0000 0000 XXXX XXXX
THE SEQUENCE 'STD L2'-'LDD L2' USING AUX CORE FAILED. REFERENCE MESSAGE 'E011' FOR THE MEANING OF MOD1 THROUGH MOD7.

PID MID RID RAD MOD1 MOD2 MOD3 MOD4 MOD5
1F00 E014 0001 XXXX XXXX AAAA 5555 0000 XXXX
THE SEQUENCE 'STO I'-'AND L' USING AUX CORE FAILED.

MOD1-THE AUX ADDRESS BEING TESTED IN HEX.
MOD2-THE CONTENTS OF THE A-REGISTER PRIOR TO ISSUING THE STORE INDIRECT INSTRUCTION.
MOD3-THE PRE-SET CONTENTS OF THE A-REGISTER PRIOR TO ISSUING THE 'AND' ('OR'-'EOR') INSTRUCTION.
MOD4-THE EXPECTED CONTENTS OF THE A-REGISTER AFTER ISSUING THE 'AND' ('OR'-'EOR') INSTRUCTION.
MOD5-THE ACTUAL CONTENTS OF THE A-REGISTER AFTER ISSUING THE 'AND' ('OR'-'EOR') INSTRUCTION.

PID MID RID RAD MOD1 MOD2 MOD3 MOD4 MOD5
1F00 E015 0001 XXXX XXXX AAAA FFFF AAAA XXXX
THE SEQUENCE 'STO I'-'AND I' USING AUX CORE FAILED. REFERENCE MESSAGE 'E014' FOR THE MEANING OF MOD1 THROUGH MOD5.

PID MID RID RAD MOD1 MOD2 MOD3 MOD4 MOD5
1F00 E016 0001 XXXX XXXX AAAA 5555 0000 XXXX
THE SEQUENCE 'STO I'-'AND L3' USING AUX CORE FAILED. REFERENCE MESSAGE 'E014' FOR THE MEANING OF MOD1 THROUGH MOD5.

PID MID RID RAD MOD1 MOD2 MOD3 MOD4 MOD5
1F00 E017 0001 XXXX XXXX AAAA 0000 AAAA XXXX
THE SEQUENCE 'STO I'-'OR L' USING AUX CORE FAILED. REFERENCE MESSAGE 'E014' FOR THE MEANING OF MOD1 THROUGH MOD5.

PID MID RID RAD MOD1 MOD2 MOD3 MOD4 MOD5
1F00 E018 0001 XXXX XXXX AAAA 0000 AAAA XXXX
THE SEQUENCE 'STO I'-'OR I' USING AUX CORE FAILED. REFERENCE MESSAGE 'E014' FOR THE MEANING OF MOD1 THROUGH MOD5.

```
PID  MID  RID  RAD  MOD1 MOD2 MOD3 MOD4 MOD5
1F00 E019 0001 XXXX XXXX AAAA 0000 AAAA XXXX
    THE SEQUENCE 'STO I'-'OR L1' USING AUX CORE FAILED.  REFERENCE MESSAGE
    'E014' FOR THE MEANING OF MOD1 THROUGH MOD5.

PID  MID  RID  RAD  MOD1 MOD2 MOD3 MOD4 MOD5
1F00 E020 0001 XXXX XXXX AAAA AAAA 0000 XXXX
    THE SEQUENCE 'STO I'-'EOR L' USING AUX CORE FAILED.  REFERENCE MESSAGE
    'E014' FOR THE MEANING OF MOD1 THROUGH MOD5.

PID  MID  RID  RAD  MOD1 MOD2 MOD3 MOD4 MOD5
1F00 E021 0001 XXXX XXXX AAAA AAAA 0000 XXXX
    THE SEQUENCE 'STO I'-'EOR I' USING AUX CORE FAILED.  REFERENCE MESSAGE
    'E014' FOR THE MEANING OF MOD1 THROUGH MOD5.

PID  MID  RID  RAD  MOD1 MOD2 MOD3 MOD4 MOD5
1F00 E022 0001 XXXX XXXX AAAA 0000 AAAA XXXX
    THE SEQUENCE 'STO I'-'EOR L2' USING AUX CORE FAILED.  REFERENCE MESSAGE
    'E014' FOR THE MEANING OF MOD1 THROUGH MOD5.

PID  MID  RID  RAD  MOD1 MOD2 MOD3
1F00 E023 0002 XXXX XXXX XXXX XXXX
    THE ADDRESSING TEST FAILED.  THIS ROUTINE STORES ITS OWN ADDRESS INTO
    EACH AUX CORE ADDRESS AND CHECKS THAT EACH ADDRESS CONTAINS ITS OWN
    ADDRESS.  THE ROUTINE USES THE SEQUENCE 'STO I'-'LD I'.

          MOD1-AUX ADDRESS BEING TESTED IN HEX.
          MOD2-DATA WHICH WAS STORED INTO AUX CORE  (SHOULD BE)
          MOD3-DATA RECEIVED FROM AUX CORE  (WAS)

PID  MID  RID  RAD  MOD1 MOD2 MOD3
1F00 E024 0003 XXXX XXXX XXXX XXXX
    THE FLOATING ONE PATTERN TEST FAILED.  THIS ROUTINE STORES AND TESTS EACH
    OF THE FLOATING ONE PATTERN WORDS INTO EACH AUX CORE LOCATION USING THE
    SEQUENCE 'STO I'-'LD I'.  REFERENCE MESSAGE 'E023' FOR THE MEANING OF
    MOD1 THROUGH MOD3.

PID  MID  RID  RAD  MOD1 MOD2 MOD3
1F00 E025 0004 XXXX XXXX XXXX XXXX
    THE FLOATING ZERO PATTERN TEST FAILED.  THIS ROUTINE STORES AND TESTS EACH
    OF THE FLOATING ZERO PATTERN WORDS INTO EACH AUX CORE LOCATION USING THE
    SEQUENCE 'STO I'-'LD I'.  REFERENCE MESSAGE 'E023' FOR THE MEANING OF
    MOD1 THROUGH MOD3.

PID  MID  RID  RAD  MOD1 MOD2 MOD3
1F00 E026 000X XXXX XXXX XXXX XXXX
    RID = 0005-THE WORST CASE PATTERN TEST FAILED.
    RID = 0006-THE COMPLEMENT WORST CASE PATTERN TEST FAILED.
    THIS ROUTINE SETS AUX CORE TO THE PATTERN USING A 'STO I'.  THE ROUTINE
    THEN CHECKS EACH AUX CORE LOCATION FOR THE CORRECT DATA USING A 'LD I'.
    REFERENCE MESSAGE 'E023' FOR THE MEANING OF MOD1 THROUGH MOD3.

PID  MID  RID  RAD  MOD1 MOD2 MOD3
1F00 E027 0007 XXXX XXXX 5555 XXXX
    THE ALTERNATE 0/1 PATTERN TEST FAILED.  THIS ROUTINE SETS AUX CORE TO THE
    DATA PATTERN OF HEX 5555 USING A 'STO I'.  THE ROUTINE THEN CHECKS EACH AUX
    CORE LOCATION FOR THE CORRECT DATA USING A 'LD I'.  REFERENCE MESSAGE
    'E023' FOR THE MEANING OF MOD1 THROUGH MOD3.
```



```
PID  MID  RID  RAD  MOD1 MOD2 MOD3
1F00 E028 0008 XXXX XXXX AAAA XXXX
    THE ALTERNATE 1/0 PATTERN TEST FAILED.  THIS ROUTINE SETS AUX CORE TO THE
    DATA PATTERN OF HEX AAAA USING A 'STO I'.  THE ROUTINE THEN CHECKS EACH AUX
    CORE LOCATION FOR THE CORRECT DATA USING A 'LD I'.  REFERENCE MESSAGE
    'E023' FOR THE MEANING OF MOD1 THROUGH MOD3.

PID  MID  RID  RAD  MOD1
1F00 E029 0009 XXXX XXXX
    WHEN A 'LD I' FROM AUX CORE WAS EXECUTED USING AN ILLEGAL AUX ADDRESS, THE
    INTERNAL ERROR INTERRUPT FAILED TO OCCUR.

          MOD1-ILLEGAL AUX ADDRESS BEING USED.  (IN HEX)
```

5. COMMENTS

5.1 PROGRAM DESCRIPTION

THIS PROGRAM RUNS UNDER CONTROL OF THE DIAGNOSTIC MONITOR AND THEREFORE CONFORMS TO ALL REQUIREMENTS OF THE MONITOR. THE PROGRAM BASICALLY CONSISTS OF A CONTROL ROUTINE AND A SERIES OF TEST ROUTINES.

THERE IS ONE COMMON TABLE AROUND WHICH ALL ROUTINES ARE ORIENTED. THIS COMMON TABLE CONTAINS ALL THE CONSTANTS, PROGRAM SWITCHES AND WORK LOCATIONS USED BY THE PROGRAM.

5.2 TEST ROUTINES

ROUTINE NUMBER	ROUTINE DESCRIPTION
1	THIS ROUTINE TESTS THE INSTRUCTIONS WHICH CAN REFERENCE AUX CORE. THE ROUTINE CHECKS ONE AUX ADDRESS USING ALL THE BELOW SEQUENCES BEFORE ADVANCING TO THE NEXT ADDRESS. THE ROUTINE CONTINUES TO THE END OF AUX CORE, UNLESS LOCK ON SINGLE ADDRESS OR LOCK ON SINGLE BLOCK OPTION IS SELECTED. THE ROUTINE FORCES ALL ODD ADDRESSES TO EVEN WHEN TESTING THE LOAD AND STORE DOUBLE SEQUENCES. THE INSTRUCTION SEQUENCES TESTED ARE- 1. STO L - LD L 2. STO I - LD I 3. STO I - LD L1 4. STO L1 - LD L 5. STD L - LDD L 6. STD I - LDD I 7. STD L2 - LDD L2 8. STO I - AND L 9. STO I - AND I 10. STO I - AND L3 11. STO I - OR L 12. STO I - OR I 13. STO I - OR L1 14. STO I - EOR L 15. STO I - EOR I 16. STO I - EOR L2 THIS ROUTINE PROVIDES A UNIQUE ERROR MESSAGE FOR EACH OF THE ABOVE COMBINATIONS IN CASE OF A FAILURE.

2 THIS ROUTINE WILL SET AN AUX CORE LOCATION TO ITS OWN ADDRESS USING A 'STO I' INSTRUCTION. THE LOCATION WILL THEN BE LOADED USING A 'LD I' INSTRUCTION AND THE RESULT CHECKED FOR ACCURACY. THE ROUTINE PROVIDES A UNIQUE ERROR MESSAGE IN CASE OF A FAILURE. AS EACH ADDRESS IS TESTED THE ROUTINE THEN PROCEEDS TO THE NEXT ADDRESS UNTIL ALL OF AUX CORE HAS BEEN TESTED. (UNLESS LOCK ON SINGLE ADDRESS OR LOCK ON SINGLE BLOCK OPTION IS SELECTED)

3 THIS ROUTINE IS THE SAME AS ROUTINE 2 EXCEPT THAT A FLOATING ONE PATTERN IS USED. EACH AUX LOCATION IS TESTED USING EACH OF THE PATTERN WORDS BELOW BEFORE ADVANCING TO THE NEXT LOCATION.

THE PATTERN WORDS USED ARE HEX-

1. 0000
2. 8000
3. 4000
4. 2000
5. 1000
6. 0800
7. 0400
8. 0200
9. 0100
10. 0080
11. 0040
12. 0020
13. 0010
14. 0008
15. 0004
16. 0002
17. 0001

4 THIS ROUTINE IS THE SAME AS ROUTINE 3 EXCEPT A FLOATING ZERO PATTERN IS USED.

THE PATTERN WORDS USED ARE HEX-

1. 7FFF
2. BFFF
3. DFFF
4. EFFF
5. F7FF
6. FBFF
7. FDFF
8. FEFF
9. FF7F
10. FFBF
11. FFDF
12. FFEF
13. FFF7
14. FFFB
15. FFFD
16. FFFE

5 THIS IS THE WORST CASE PATTERN TEST. THE ROUTINE IS A TWO PASS ROUTINE. ON THE FIRST PASS ALL OF AUX CORE IS SET TO THE WORST CASE PATTERN, UNLESS LOCK ON SINGLE ADDRESS OR LOCK ON SINGLE BLOCK OPTION IS SELECTED. IN THIS CASE ALL THE SELECTED AUX CORE IS SET TO THE PATTERN. ON THE SECOND PASS THE ROUTINE CHECKS ALL THE PREVIOUSLY SET CORE FOR THE CORRECT DATA. A UNIQUE ERROR MESSAGE IS PROVIDED IN CASE OF A FAILURE.

THE PATTERN USED IS HEX-

FFFF (64 WORDS)
0000 (64 WORDS)
FFFF (64 WORDS)
0000 (64 WORDS)
0000 (64 WORDS)
FFFF (64 WORDS)
0000 (64 WORDS)
FFFF (64 WORDS)
REPEAT THE ENTIRE PATTERN

6 THIS ROUTINE IS THE SAME AS ROUTINE 5, EXCEPT THE COMPLEMENT WORST CASE PATTERN IS USED.

THE PATTERN USED IS HEX-

0000 (64 WORDS)
FFFF (64 WORDS)
0000 (64 WORDS)
FFFF (64 WORDS)
FFFF (64 WORDS)
0000 (64 WORDS)
FFFF (64 WORDS)
0000 (64 WORDS)
REPEAT THE ENTIRE PATTERN

7 THIS ROUTINE SETS ALL SELECTED AUX CORE TO THE HEX VALUE OF 5555. EACH CORE LOCATION IS THEN CHECKED FOR CORRECT DATA. A UNIQUE ERROR MESSAGE IS PROVIDED IN CASE OF AN ERROR.

8 THIS ROUTINE IS THE SAME AS ROUTINE 7 EXCEPT THE DATA USED IS HEX AAAA.

9 THIS ROUTINE SETS BIT 6 = 1 IN EACH LEGAL AUX ADDRESS SELECTED AND EXECUTES A 'LD I' INSTRUCTION TO AUX CORE. IF THIS DOES NOT RESULT IN AN INTERNAL ERROR INTERRUPT AN ERROR MESSAGE IS PROVIDED.

```
**********************************************************************
**********************************************************************
**                                                                  **
**                                                                  **
**    NN          NN  OOOOOOOOOOOO  TTTTTTTTTTTT  EEEEEEEEEEE     **
**    NNN         NN  OOOOOOOOOOOO  TTTTTTTTTTTT  EEEEEEEEEEE     **
**    NNNN        NN  OO        OO      TT        EE              **
**    NN NN       NN  OO        OO      TT        EE              **
**    NN  NN      NN  OO        OO      TT        EE              **
**    NN   NN     NN  OO        OO      TT        EEEEEEEE        **
**    NN    NN    NN  OO        OO      TT        EEEEEEEE        **
**    NN     NN   NN  OO        OO      TT        EE              **
**    NN      NN  NN  OO        OO      TT        EE              **
**    NN       NNNN   OO        OO      TT        EE              **
**    NN        NNN   OOOOOOOOOOOO      TT        EEEEEEEEEEE     **
**    NN         NN   OOOOOOOOOOOO      TT        EEEEEEEEEEE     **
**                                                                  **
**                                                                  **
**********************     1 APPENDEX PAGE TO FOLLOW     **********
**                                                                  **
**********************************************************************
**********************************************************************
```

6 APPENDIX

6.1 EDIT PROCEDURE

THIS PROGRAM REQUIRES THE ENTRY OF THE MAXIMUM AUXILLARY CORE ADDRESS AVAILABLE ON EDIT CARD NUMBER 00 IN PLACE OF "XXXX" AS BASED ON MAIN MEMORY SIZE IN THE BELOW TABLE.

MAIN MEMORY SIZE	VALUE TO BE ENTERED IN XXXX BELOW
4K	00FF
8K	11FF
16K	31FF
24K	51FF
32K	71FF
40K	91FF
49K	B1FF
57K	D1FF
65K	F1FF

0000 - 00FF
1000
2000 - 10FF
3100 - 20FF
4000 31FF
5100
6000
7100
8000
9100
A000
B100
A000
D100
E000
F1000
- F1FF

NOTE--THE PROGRAM WILL PERFORM CHECKS ON THE VALUE EDITED INTO THE PROGRAM AT RUN TIME.

ANY OF THE FOLLOWING ERRORS WILL CAUSE PROGRAM TERMINATION, FOLLOWING AN ERROR MESSAGE, WHEN THE PROGRAM IS EXECUTED.

1. ANY OF BITS-4-5-6 EQUAL TO 1.
2. BIT 3 EQUAL TO 0 AND BIT 7 EQUAL TO 1.
3. BIT 3 EQUAL TO 1 AND BIT 7 EQUAL TO 0.

		PROGRAM I.D.					CARD SEQUENCE NUMBER					NUMBER OF ENTRIES					MAXIMUM AUX CORE ADDRESS FROM ABOVE TABLE				
COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
CARD 0	E	1	F	0	0	▨	E	D	0	0	▨	0	0	0	1	▨	X	X	X	X	▨
END CD.	E	1	F	0	0	▨	F	F	F	F	▨					▨					▨
						▨					▨					▨					▨
						▨					▨					▨					▨
						▨					▨					▨					▨

26 31 36 41 46 51 56 61 66 71

DATE 14NOV69 16DEC70
EC NO. 431319 431323

```
07FF                    ORG     *+2047                                  81F00020
                        ********************************************** 81F00030
                        *                TABLE OF MONITOR EQUATE       * 81F00040
                        *                STATEMENTS                    * 81F00050
                        ********************************************** 81F00060
012C 0                  BEGIN EQU     300                               81F00070
012D 0                  START EQU     BEGIN+1                           81F00080
012E 0                  END   EQU     START+1                           81F00090
012F 0                  LOG   EQU     END+1                             81F00100
0130 0                  ERROR EQU     LOG+1                             81F00110
0131 0                  REQDV EQU     ERROR+1                           81F00120
0132 0                  RELDV EQU     REQDV+1                           81F00130
0133 0                  CRCK  EQU     RELDV+1                           81F00140
0134 0                  MATO  EQU     CRCK+1                            81F00150
                        *                                               81F00160
                        ********************************************** 81F00170
                        *                MONITOR INTERFACE TABLES      * 81F00180
                        ********************************************** 81F00190
                        *                                               81F00200
07FF 0 1F00             PID   DC      /1F00     PROGRAM ID              81F00210
0800 0 0000             RID   DC      *-*       ROUTINE ID              81F00220
0801 0 0000             RAD   DC      *-*       ROUTINE ADDRESS         81F00230
                        *                                               81F00240
0802 0 0000             SW0   DC      *-*       SWITCH STORAGE-FUNCTION 0 81F00250
0803 0 0000             SW1   DC      *-*                             1 81F00260
0804 0 0000             SW2   DC      *-*                             2 81F00270
0805 0 0000             SW3   DC      *-*                             3 81F00280
                        *                                               81F00290
0806 1 0812             IPA   DC      ZIPA      INITIALIZATION ADDRESS  81F00300
0807 1 0812             LPA   DC      ZIPA      LOOP PROGRAM ADDRESS    81F00310
0808 1 0841             EPA   DC      ZEPA      END PROGRAM ADDRESS     81F00320
                        *                                               81F00330
0809 0 0000             MLSCF DC      *-*       MAIN LINE SEQUENCE CONTROL 81F00340
080A 0 FFFF             TERM  DC      /FFFF     TERMINATOR              81F00350
                        *                                               81F00360
080B 1 0E0E                   DC      PEND      LAST PROGRAM ADDRESS    81F00370
                        *                                               81F00380
080C 0 0000                   DC      0         RESERVED FOR MONITOR USE 81F00390
080D 0 0000                   DC      0         *                       81F00400
080E 0 0000                   DC      0         *                       81F00410
080F 0 0000                   DC      0         *                       81F00420
0810 0 0000             COMPT DC      0         THIS LOCATION EQUAL TO  81F00430
                        *                       ZERO PREVENTS THIS PROGRAM 81F00440
                        *                       FROM RUNNING ON-LINE WITH 81F00450
                        *                       THE DIMAL SYSTEM.       81F00460
                        *                                               81F00470
0811 0 0000             DDEF  DC      *-*       EDIT FIELD-MAX AUX ADDRESS 81F00480
                        *                                               81F00490
                        ********************************************** 81F00500
                        *                INITIALIZATION ROUTINE        * 81F00510
                        ********************************************** 81F00520
                        *                                               81F00530
0812 0 0000             ZIPA  DC      *-*       ENTRY POINT             81F00540
0813 0 1010                   SLA     16        CLEAR ACCUMULATOR       81F00550
0814 0 D0EB                   STO     RID       CLEAR ROUTINE ID        81F00560
0815 0 D0EB                   STO     RAD       CLEAR ROUTINE ADDRESS   81F00570
0816 0 C0FA                   LD      DDEF      GET MAX AUX ADDRESS     81F00580
0817 1 D400 0C73              STO   L MOD1      SAVE FOR PRINT          81F00590
0819 0 1004                   SLA     4         CHECK BITS 4-5-6        81F00600
081A 0 180D                   SRA     13        *                       81F00610
081B 1 4C20 0832              BSC   L ZIPB,Z    BRANCH IF NOT CLEAR     81F00620
081D 0 C0F3                   LD      DDEF      GET EDIT ENTRY          81F00630
081E 0 1003                   SLA     3         CHECK BIT 3             81F00640
081F 1 4C10 0825              BSC   L ZIPC,-    BRANCH IF 0             81F00650
0821 0 1004                   SLA     4         CHECK BIT 7             81F00660
0822 1 4C28 0829              BSC   L ZIPD,+Z   BRANCH IF 1             81F00670
0824 0 700D                   MDX     ZIPB      SET ERROR RETURN        81F00680
0825 0 1004             ZIPC  SLA     4         CHECK BIT 7             81F00690
```



```
0826 1 4C10 0829              BSC   L ZIPD,-    BRANCH IF ZERO          81F00700
0828 0 7009                   MDX     ZIPB      SET ERROR RETURN        81F00710
0829 0 C0E7             ZIPD  LD      DDEF      GET MAX AUX ADDRESS     81F00720
082A 1 D400 0C5B              STO   L MAXAD     SAVE                    81F00730
082C 1 6500 0847              LDX   L1 TR9      SET RETURN              81F00740
082E 1 6D00 0809        ZIPE  STX   L1 MLSCF    *                       81F00750
0830 1 4C80 0812              BSC   I ZIPA      EXIT TO MONITOR         81F00760
                        *                                               81F00770
                        *                SET ERROR RETURN               81F00780
                        *                                               81F00790
0832 1 6500 0835        ZIPB  LDX   L1 EDERR    ERROR ADDRESS           81F00800
0834 0 70F9                   MDX     ZIPE      GO SET                  81F00810
                        *                                               81F00820
                        ********************************************** 81F00830
                        *                EDIT ENTRY IS ILLEGAL         * 81F00840
                        *                 1.  ONE OR MORE OF BITS 4-5-6 * 81F00850
                        *                     IS EQUAL TO 1             * 81F00860
                        *                 2.  BIT 3 = 0 AND BIT 7 = 1   * 81F00870
                        *                 3.  BIT 3 = 1 AND BIT 7 = 0   * 81F00880
                        ********************************************** 81F00890
                        *                                               81F00900
0835 1 C400 0811        EDERR LD    L DDEF      GET EDIT ENTRY          81F00910
0837 1 D400 0C73              STO   L MOD1      SAVE FOR PRINT          81F00920
0839 1 4400 0CE1              BSI   L PRINT     PRINT ERROR             81F00930
083B 0 E001                   DC      /E001     MESSAGE ID              81F00940
083C 1 0C73                   DC      MOD1      MESSAGE ADDRESS         81F00950
083D 0 0001                   DC      1         WORD COUNT              81F00960
083E 0 0000                   DC      0         DUMMY ENTRY             81F00970
083F 0 4C80 012E              BSC   I END       TERMINATE PROGRAM       81F00980
                        ********************************************** 81F00990
                        *                PROGRAM END ROUTINE           * 81F01000
                        ********************************************** 81F01010
                        *                                               81F01020
0841 0 0000             ZEPA  DC      *-*       ENTRY POINT             81F01030
0842 1 4C80 0841              BSC   I ZEPA      EXIT ROUTINE            81F01040
                        *                                               81F01050
                        ********************************************** 81F01060
                        *                BEGIN ROUTINE                 * 81F01070
                        ********************************************** 81F01080
                        *                                               81F01090
0844 0 4480 012C        BEG   BSI   I BEGIN     EXIT TO MONITOR         81F01100
0846 1 07FF                   DC      PID       ADRS OF PID             81F01110
                        *                                               81F01120
                        ********************************************** 81F01130
                        *                CHECK BASIC ABILITY TO        * 81F01140
                        *                REFERENCE AUX CORE.  TERMINATE * 81F01150
                        *                THE PROGRAM IF NOT SUCCESSFUL * 81F01160
                        ********************************************** 81F01170
                        *                                               81F01180
0847 1 6700 0C5A        TR9   LDX   L3 CMN        INITIALIZE INDEX 3      81F01190
0849 0 C400 0000              LD    L /0000     SAVE MAIN CORE          81F01200
084B 0 D303                   STO     3 ADRS1-CMN *                     81F01210
084C 1 C400 07FF              LD    L PID       INFORM MONITOR INTERNAL 81F01220
084E 0 D400 0133              STO   L CRCK      * INTRPT IS EXPECTED    81F01230
0850 0 C30A                   LD      3 HFFFF-CMN GET PATTERN WORD        81F01240
0851 0 D440                   DC      /D440     INSTRUCTION =           81F01250
0852 0 0000                   DC      /0000     * STO L /0000 INTO AUX  81F01260
0853 0 C400 0000              LD    L /0000     GET MAIN CORE           81F01270
0855 0 D311                   STO     3 TSTCT-CMN SAVE                  81F01280
0856 0 C303                   LD      3 ADRS1-CMN RESTORE MAIN CORE     81F01290
0857 0 D400 0000              STO   L /0000     *                       81F01300
0859 0 1010                   SLA     16        CLEAR MONITOR INDICATOR 81F01310
085A 0 D400 0133              STO   L CRCK      *                       81F01320
085C 0 C311                   LD      3 TSTCT-CMN GET STORE RESULT      81F01330
085D 0 F30A                   EOR     3 HFFFF-CMN CHECK RESULT          81F01340
085E 1 4C20 0868              BSC   L CNTL,Z    BRANCH IF CORRECT       81F01350
0860 1 4400 0CE1              BSI   L PRINT     PRINT ERROR             81F01360
0862 0 E004                   DC      /E004     MESSAGE ID              81F01370
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0863 0 0000                DC    0          DUMMY ENTRY                    81F01380
0864 0 0000                DC    0          *                              81F01390
0865 1 0847                DC    TR9        LOCK RETURN                    81F01400
0866 0 4C80 012E           BSC   I  END     TERMINATE PROGRAM              81F01410
                     *                                                     81F01420
                     ***************************************************** 81F01430
                     *                CONTROL ROUTINE                    * 81F01440
                     ***************************************************** 81F01450
                     *                                                     81F01460
0868 1 6700 0C5A     CNTL  LDX  L3 CMN        INITIALIZE INDEX 3           81F01470
086A 0 1010                SLA    16         CLEAR ERROR OCCURRED SW        81F01480
086B 0 D310                STO    3 EROC-CMN  *                              81F01490
086C 1 C400 0803           LD   L SW1        GET SWITCH FNC 1               81F01500
086E 0 D319                STO    3 MOD1-CMN  SAVE FOR PRINT                 81F01510
086F 1 4C18 088B           BSC  L CNTLB,+-   BRANCH IF CLEAR                81F01520
0871 1 4C28 0897           BSC  L CNTLC,+Z   BRANCH IF NEGATIVE             81F01530
0873 1 9400 0C6E           S    L NRTNS      SUB MAX SETTING                81F01540
0875 1 4C30 0897           BSC  L CNTLC,-Z   BRANCH IF ILLEGAL              81F01550
0877 0 C319                LD     3 MOD1-CMN  GET SWITCH FNC 1               81F01560
0878 1 D400 0800           STO  L RID        SET AS ROUTINE NUMBER          81F01570
087A 1 C400 0802     CNTLK LD   L SW0        GET SWITCH FNC 0               81F01580
087C 1 4C04 08A7           BSC  L CNTLO,E    BRANCH IF TERMINATE            81F01590
087E 0 1008                SLA    8          IS SINGLE ADDRESS SELECTED     81F01600
087F 1 4C28 08AF           BSC  L CNTLE,+Z   BRANCH IF YES                  81F01610
0881 0 1010                SLA    16         CLEAR SINGLE ADRS SW           81F01620
0882 0 D30E                STO    3 SNAD-CMN  *                              81F01630
0883 1 C400 0802           LD   L SW0        GET SWITCH FUNCTION 0          81F01640
0885 0 1007                SLA    7          IS SINGLE BLOCK SELECTED       81F01650
0886 1 4C28 08D8           BSC  L CNTLG,+Z   BRANCH IF YES                  81F01660
0888 0 1010                SLA    16         CLEAR SINGLE BLOCK SW          81F01670
0889 0 D30F                STO    3 SNBK-CMN  *                              81F01680
088A 0 7026                MDX    CNTLL      CONTINUE                       81F01690
                     *                                                     81F01700
088B 1 C400 0800     CNTLB LD   L RID        GET ROUTINE NUMBER             81F01710
088D 1 9400 0C6E           S    L NRTNS      CHECK PROGRAM COMPLETE         81F01720
088F 1 4C18 089F           BSC  L CNTLD,+-   BRANCH IF COMPLETE             81F01730
0891 1 C400 0800           LD   L RID        INCR ROUTINE NUMBER            81F01740
0893 0 830B                A    3 K1-CMN     *                              81F01750
0894 1 D400 0800           STO  L RID        *                              81F01760
0896 0 70E3                MDX    CNTLK      CONTINUE                       81F01770
                     *                                                     81F01780
                     *              ILLEGAL ROUTINE SELECTED               81F01790
                     *                                                     81F01800
0897 1 4400 0CE1     CNTLC BSI  L PRINT      PRINT MESSAGE                  81F01810
0899 0 E002                DC     /E002      MESSAGE ID                     81F01820
089A 1 0C73                DC     MOD1       MESSAGE ADDRESS                81F01830
089B 0 0001                DC     1          NUMBER OF MODIFIERS            81F01840
089C 0 0000                DC     0          DUMMY ENTRY                    81F01850
089D 0 4C80 012E           BSC  I END        END PROGRAM                    81F01860
                     *                                                     81F01870
                     *              PROGRAM COMPLETE                       81F01880
                     *                                                     81F01890
089F 1 4400 0CE1     CNTLD BSI  L PRINT      PRINT MESSAGE                  81F01900
08A1 0 A002                DC     /A002      MESSAGE ID                     81F01910
08A2 0 0000                DC     0          DUMMY ENTRY                    81F01920
08A3 0 0000                DC     0          DUMMY ENTRY                    81F01930
08A4 0 0000                DC     0          DUMMY ENTRY                    81F01940
08A5 0 4C80 012E           BSC  I END        END PROGRAM                    81F01950
                     *                                                     81F01960
                     *              PROGRAM TERMINATION REQUESTED          81F01970
                     *                                                     81F01980
08A7 1 4400 0CE1     CNTLO BSI  L PRINT      PRINT MESSAGE                  81F01990
08A9 0 A003                DC     /A003      MESSAGE ID                     81F02000
08AA 0 0000                DC     0          DUMMY ENTRY                    81F02010
08AB 0 0000                DC     0          *                              81F02020
08AC 0 0000                DC     0          *                              81F02030
08AD 0 4C80 012E           BSC  I END        TERMINATE PROGRAM              81F02040
                     *                                                     81F02050
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                     *              SINGLE ADDRESS SELECTED                81F02060
                     *                                                     81F02070
08AF 0 C30A          CNTLE LD     3 HFFFF-CMN  SET SINGLE ADRS SW          81F02080
08B0 0 D30E                STO    3 SNAD-CMN   *                           81F02090
08B1 1 C400 0805     CNTLL LD   L SW3          GET SWITCH FUNCTION 3       81F02100
08B3 0 D319          CNTLJ STO    3 MOD1-CMN   SAVE FOR PRINT              81F02110
08B4 0 1004                SLA    4          CHECK ILLEGAL BITS           81F02120
08B5 0 180D                SRA    13         *                            81F02130
08B6 1 4C20 08D0           BSC  L CNTLF,Z    BRANCH IF ILLEGAL            81F02140
08B8 0 C319                LD     3 MOD1-CMN  GET ADDRESS SELECTED         81F02150
08B9 0 1003                SLA    3          CHECK BIT 3                  81F02160
08BA 1 4C10 08C0           BSC  L CNTLM,-    BRANCH IF 0                  81F02170
08BC 0 1004                SLA    4          CHECK BIT 7                  81F02180
08BD 1 4C28 08C4           BSC  L CNTLN,+Z   BRANCH IF 1                  81F02190
08BF 0 7010                MDX    CNTLF      PRINT ERROR                  81F02200
08C0 0 1004          CNTLM SLA    4          CHECK BIT 7                  81F02210
08C1 1 4C10 08C4           BSC  L CNTLN,-    BRANCH IF 0                  81F02220
08C3 0 700C                MDX    CNTLF      PRINT ERROR                  81F02230
08C4 0 C319          CNTLN LD     3 MOD1-CMN  GET CONTENTS SW FNC 3        81F02240
08C5 0 D303                STO    3 ADRS1-CMN SAVE                         81F02250
08C6 0 1010                SLA    16         CLEAR ODD ADDRESS            81F02260
08C7 0 D302                STO    3 ADRS-CMN  *                            81F02270
08C8 0 CB00                LDD    3 CMN-CMN   GET A=0000-Q=MAXAD           81F02280
08C9 0 BB02                DCM    3 ADRS-CMN  COMPARE 0000-SW3             81F02290
08CA 0 7001                MDX    CNTLP      MAXAD GREATER                81F02300
08CB 0 7004                MDX    CNTLF      SW3 GREATER                  81F02310
08CC 0 C319          CNTLP LD     3 MOD1-CMN  SET ADDRESS                  81F02320
08CD 0 D302                STO    3 ADRS-CMN  *                            81F02330
08CE 1 4C00 08DD           BSC  L TR         CONTINUE                     81F02340
                     *                                                     81F02350
08D0 1 4400 0CE1     CNTLF BSI  L PRINT      PRINT ILLEGAL SWS            81F02360
08D2 0 E003                DC     /E003      MESSAGE ID                   81F02370
08D3 1 0C73                DC     MOD1       ADRS OF MESSAGE              81F02380
08D4 0 0001                DC     1          NUMBER OF MODIFIERS          81F02390
08D5 0 0000                DC     0          DUMMY ENTRY                  81F02400
08D6 0 4C80 012E           BSC  I END        END PROGRAM                  81F02410
                     *                                                     81F02420
                     *              SINGLE BLOCK REQUESTED                 81F02430
                     *                                                     81F02440
08D8 0 C30A          CNTLG LD     3 HFFFF-CMN  SET SINGLE BLOCK SW         81F02450
08D9 0 D30F                STO    3 SNBK-CMN  *                            81F02460
08DA 1 C400 0805           LD   L SW3         GET SW FNC 3                 81F02470
08DC 0 70D6                MDX    CNTLJ      CHECK LEGALITY               81F02480
                     *                                                     81F02490
                     ***************************************************** 81F02500
                     *                COMMON TEST ROUTINE                  81F02510
                     ***************************************************** 81F02520
                     *                                                     81F02530
                     * THIS ROUTINE WILL DETERMINE THE PATTERN TO BE       81F02540
                     * SET IN AUXILLARY CORE AND BRANCH TO THE PROPER      81F02550
                     * ROUTINE TO TEST THAT PATTERN.  THE ROUTINE WILL     81F02560
                     * CHECK THE LOOP ON SINGLE ADDRESS AND LOOP ON        81F02570
                     * SINGLE BLOCK OPTIONS AND IF SELECTED-TEST ONLY      81F02580
                     * THAT PORTION OF AUX CORE.  IF SINGLE                81F02590
                     * ADDRESS OR SINGLE BLOCK OPTIONS ARE NOT SELECTED    81F02600
                     * THE ROUTINE WILL CHECK ALL OF CORE.                 81F02610
                     *                                                     81F02620
                     *                                                     81F02630
                     *                PRINT INFORMATION MESSAGE            81F02640
                     *                IF REQUESTED                         81F02650
                     *                                                     81F02660
08DD 1 6680 0800     TR    LDX  I2 RID         IX 2 = ROUTINE NUMBER      81F02670
08DF 1 C400 0802           LD   L SW0          GET SWITCH FUNCTION 0      81F02680
08E1 0 1009                SLA    9           CHECK MSG REQ SW           81F02690
08E2 1 4C10 08EA           BSC  L TRA,-       BRANCH IF NOT REQUESTED    81F02700
08E4 1 4400 0CE1           BSI  L PRINT       PRINT INFO MESSAGE         81F02710
08E6 0 A001                DC     /A001       MESSAGE ID                 81F02720
08E7 0 0000                DC     0           DUMMY ENTRY                81F02730
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08E8 0 0000            DC    0          DUMMY ENTRY                    81F02740
08E9 0 0000            DC    0          DUMMY ENTRY                    81F02750
                       *                                               81F02760
                       *                DETERMINE TEST ROUTINE TO RUN  81F02770
                       *                                               81F02780
08EA 1 4E80 0C7D       TRA   BSC  I2 RTTBL-1   BRANCH TO PATTERN ROUTINE 81F02790
                       *                                               81F02800
                       *                CHECK FOR ROUTINE COMPLETE     81F02810
                       *                                               81F02820
08EC 1 7400 0C68       TRB   MDX  L  SNAD,0    SKIP IF NOT SINGLE ADRS  81F02830
08EE 0 7019            MDX   TRC      SINGLE ADRS-ROUTINE CMPLT        81F02840
08EF 1 C400 0802       LD    L  SW0    GET SWITCH FUNCTION 0            81F02850
08F1 1 4C04 08A7       BSC   L  CNTLO,E BRANCH IF TERMINATION REQ       81F02860
                       *                                               81F02870
                       *                                               81F02880
                       *                CHECK FOR END OF CORE          81F02890
                       *                                               81F02900
08F3 0 C302            LD    3  ADRS-CMN  GET CURRENT ADDRESS           81F02910
08F4 0 9301            S     3  MAXAD-CMN SUBTRACT MAXIMUM ADDRESS      81F02920
08F5 1 4C18 0908       BSC   L  TRC,+-    BRANCH IF ROUTINE COMPLETE    81F02930
08F7 1 4400 0CCC       BSI   L  MNEX      EXIT TO MONITOR               81F02940
08F9 1 08FA            DC       TRF       RETURN ADDRESS                81F02950
                       *                                               81F02960
08FA 0 C302            TRF   LD    3  ADRS-CMN  GET ADRS                81F02970
08FB 0 8308            A     3  K1-CMN   ADD ONE                       81F02980
08FC 0 D302            STO   3  ADRS-CMN  SAVE                         81F02990
08FD 0 1008            SLA      8         CHECK FOR END OF BLOCK        81F03000
08FE 0 4820            BSC      Z         SKIP IF YES                   81F03010
08FF 0 70EA            MDX      TRA       CONTINUE ROUTINE              81F03020
                       *                                               81F03030
                       *                AT END OF BLOCK                81F03040
                       *                                               81F03050
0900 1 7400 0C69       MDX   L  SNBK,0    CHECK FOR SINGLE BLOCK        81F03060
0902 0 7005            MDX      TRC       BRANCH = ROUTINE COMPLETE     81F03070
                       *                                               81F03080
                       *                AT END OF A 256 BLOCK BUT      81F03090
                       *                SINGLE BLOCK IS NOT SELECTED   81F03100
                       *                                               81F03110
0903 0 C302            LD    3  ADRS-CMN  ADJUST ADRS TO NEXT BLOCK     81F03120
0904 0 8305            A     3  H1000-CMN *                            81F03130
0905 0 E309            AND   3  HF1FF-CMN *                            81F03140
0906 0 D302            STO   3  ADRS-CMN  *                            81F03150
0907 0 70E2            MDX      TRA       CONTINUE ROUTINE              81F03160
                       *                                               81F03170
                       *                ROUTINE IS COMPLETE            81F03180
                       *                                               81F03190
0908 1 4C00 0868       TRC   BSC  L  CNTL       EXIT TO CONTROL ROUTINE 81F03200
                       *                                               81F03210
                       *                                               81F03220
                       ************************************************81F03230
                       *                CHECK INSTRUCTIONS AFFECTING  * 81F03240
                       *                AUX CORE                      * 81F03250
                       ************************************************81F03260
                       *                                               81F03270
                       *                                               81F03280
                       *                CHECK 'STO L' AND 'LD L' USING 81F03290
                       *                A PATTERN OF /FFFF             81F03300
                       *                                               81F03310
090A 0 C302            TR1   LD    3  ADRS-CMN  GET ADDRESS TO CHECK    81F03320
090B 0 D319            STO   3  MOD1-CMN  SAVE FOR PRINT               81F03330
090C 0 D005            STO      TR1A      SET IN ROUTINE                81F03340
090D 0 D00B            STO      TR1B      *                             81F03350
090E 0 C30A            LD    3  HFFFF-CMN GET PATTERN WORD              81F03360
090F 0 D31A            STO   3  MOD2-CMN  SAVE FOR PRINT               81F03370
0910 0 43B8            BSI   3  STINT-CMN SET MONITOR INDICATOR        81F03380
0911 0 D440            DC       /D440     INSTRUCTION =                 81F03390
0912 0 0000            TR1A  DC       *-*       * STO L *-* INTO AUX CORE 81F03400
0913 0 43CD            BSI   3  CKINT-CMN CHECK INTERNAL INTERRUPT     81F03410
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0914 1 0C5C            DC    ADRS       ADDRESS BEING TESTED          81F03420
0915 0 1010            SLA   16         CLEAR ACC                     81F03430
0916 0 D31B            STO   3  MOD3-CMN  SAVE FOR PRINT               81F03440
0917 0 43B8            BSI   3  STINT-CMN SET MONITOR INDICATOR        81F03450
0918 0 C440            DC       /C440     INSTRUCTION =                 81F03460
0919 0 0000            TR1B  DC       *-*       * LD L *-* FROM AUX CORE 81F03470
091A 0 43CD            BSI   3  CKINT-CMN CHECK INTERNAL INTERRUPT     81F03480
091B 1 0C5C            DC       ADRS      ADDRESS BEING TESTED          81F03490
091C 0 D31C            STO   3  MOD4-CMN  SAVE FOR PRINT               81F03500
091D 0 F31A            EOR   3  MOD2-CMN  CHECK RESULTS                81F03510
091E 1 4C18 0926       BSC   L  TR1C,+-   BRANCH IF CORRECT            81F03520
0920 1 4400 0CE1       BSI   L  PRINT     PRINT ERROR                   81F03530
0922 0 E006            DC       /E006     MSG ID                        81F03540
0923 1 0C73            DC       MOD1      MESSAGE ADDRESS               81F03550
0924 0 0004            DC       4         WORD COUNT                    81F03560
0925 1 090A            DC       TR1       LOCK RETURN                   81F03570
                       *                                               81F03580
                       *                CHECK 'STO I' AND 'LD I' USING 81F03590
                       *                A PATTERN OF /0000             81F03600
                       *                                               81F03610
0926 0 C302            TR1C  LD    3  ADRS-CMN  SAVE ADDRESS FOR PRINT  81F03620
0927 0 D319            STO   3  MOD1-CMN  *                            81F03630
0928 0 1010            SLA      16        CLEAR ACC                     81F03640
0929 0 D31A            STO   3  MOD2-CMN  SAVE FOR PRINT               81F03650
092A 0 43B8            BSI   3  STINT-CMN SET MONITOR INDICATOR        81F03660
092B 0 D4C0            DC       /D4C0     INSTRUCTION =                 81F03670
092C 1 0C5C            DC       ADRS      * STO I ADRS INTO AUX CORE    81F03680
092D 0 43CD            BSI   3  CKINT-CMN CHECK INTERNAL INTERRUPT     81F03690
092E 1 0C5C            DC       ADRS      ADDRESS BEING TESTED          81F03700
092F 0 C30A            LD    3  HFFFF-CMN PRE-SET ACC                  81F03710
0930 0 D31B            STO   3  MOD3-CMN  SAVE FOR PRINT               81F03720
0931 0 43B8            BSI   3  STINT-CMN SET MONITOR INDICATOR        81F03730
0932 0 C4C0            DC       /C4C0     INSTRUCTION =                 81F03740
0933 1 0C5C            DC       ADRS      * LD I ADRS FROM AUX CORE     81F03750
0934 0 43CD            BSI   3  CKINT-CMN CHECK INTERNAL INTERRUPT     81F03760
0935 1 0C5C            DC       ADRS      ADDRESS BEING TESTED          81F03770
0936 0 D31C            STO   3  MOD4-CMN  SAVE FOR PRINT               81F03780
0937 1 4C18 093F       BSC   L  TR1E,+-   BRANCH IF CORRECT            81F03790
0939 1 4400 0CE1       BSI   L  PRINT     PRINT ERROR                   81F03800
093B 0 E007            DC       /E007     MSG ID                        81F03810
093C 1 0C73            DC       MOD1      MESSAGE ADDRESS               81F03820
093D 0 0004            DC       4         WORD COUNT                    81F03830
093E 1 0926            DC       TR1C      LOCK RETURN                   81F03840
                       *                                               81F03850
                       *                CHECK 'STO I' AND 'LD I'-USING 81F03860
                       *                A PATTERN OF /FFFF             81F03870
                       *                                               81F03880
093F 0 C302            TR1E  LD    3  ADRS-CMN  SAVE ADDRESS FOR PRINT  81F03890
0940 0 D319            STO   3  MOD1-CMN  *                            81F03900
0941 0 C30A            LD    3  HFFFF-CMN GET PATTERN                  81F03910
0942 0 D31A            STO   3  MOD2-CMN  SAVE FOR PRINT               81F03920
0943 0 43B8            BSI   3  STINT-CMN SET MONITOR INDICATOR        81F03930
0944 0 D4C0            DC       /D4C0     INSTRUCTION =                 81F03940
0945 1 0C5C            DC       ADRS      * STO I ADRS INTO AUX CORE    81F03950
0946 0 43CD            BSI   3  CKINT-CMN CHECK INTERNAL INTERRUPT     81F03960
0947 1 0C5C            DC       ADRS      ADDRESS BEING TESTED          81F03970
0948 0 1010            SLA      16        PRE-SET ACC                   81F03980
0949 0 D31B            STO   3  MOD3-CMN  SAVE FOR PRINT               81F03990
094A 0 43B8            BSI   3  STINT-CMN SET MONITOR INDICATOR        81F04000
094B 0 C4C0            DC       /C4C0     INSTRUCTION =                 81F04010
094C 1 0C5C            DC       ADRS      * LD I ADRS FROM AUX CORE     81F04020
094D 0 43CD            BSI   3  CKINT-CMN CHECK INTERNAL INTERRUPT     81F04030
094E 1 0C5C            DC       ADRS      ADDRESS BEING TESTED          81F04040
094F 0 D31C            STO   3  MOD4-CMN  SAVE FOR PRINT               81F04050
0950 0 F31A            EOR   3  MOD2-CMN  CHECK RESULT                 81F04060
0951 1 4C18 0959       BSC   L  TR1F,+-   BRANCH IF CORRECT            81F04070
0953 1 4400 0CE1       BSI   L  PRINT     PRINT ERROR                   81F04080
0955 0 E008            DC       /E008     MESSAGE ID                    81F04090
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0956 1 0C73          DC       MOD1         MESSAGE ADDRESS             81F04100
0957 0 0004          DC       4            WORD COUNT                  81F04110
0958 1 093F          DC       TR1E         LOCK RETURN                 81F04120
               *                                                       81F04130
               *               CHECK 'STO I' AND 'LD L1' USING         81F04140
               *               A PATTERN OF /0000                      81F04150
               *                                                       81F04160
0959 0 C302    TR1F  LD     3 ADRS-CMN     GET ADDRESS                 81F04170
095A 0 D319          STO    3 MOD1-CMN     SAVE FOR PRINT              81F04180
095B 0 830B          A      3 K1-CMN       ADD 1                       81F04190
095C 0 D010          STO      TR1G         SAVE                        81F04200
095D 0 1010          SLA      16           CLEAR ACC                   81F04210
095E 0 D31A          STO    3 MOD2-CMN     SAVE FOR PRINT              81F04220
095F 0 43B8          BSI    3 STINT-CMN    SET MONITOR INDICATOR       81F04230
0960 0 D4C0          DC       /D4C0        INSTRUCTION =               81F04240
0961 1 0C5C          DC       ADRS         * STO I ADRS INTO AUX COR   81F04250
0962 0 43CD          BSI    3 CKINT-CMN    CHECK INTERNAL INTERRUPT    81F04260
0963 1 0C5C          DC       ADRS         ADDRESS BEING TESTED        81F04270
0964 1 6D00 0B12     STX   L1 TR1AM+1      SAVE INDEXING               81F04280
0966 1 6E00 0B14     STX   L2 TR1AN+1      *                           81F04290
0968 0 61FF          LDX    1 -1           SET IX 1                    81F04300
0969 0 C30A          LD     3 HFFFF-CMN    PRE-SET ACCUMULATOR         81F04310
096A 0 D31B          STO    3 MOD3-CMN     SAVE FOR PRINT              81F04320
096B 0 43B8          BSI    3 STINT-CMN    SET MONITOR INDICATOR       81F04330
096C 0 C540          DC       /C540        INSTRUCTION =               81F04340
096D 0 0000    TR1G  DC       *-*          * LD L1 *-* FROM AUX CORE   81F04350
096E 0 43CD          BSI    3 CKINT-CMN    CHECK INTERNAL INTERRUPT    81F04360
096F 1 0C5C          DC       ADRS         ADDRESS BEING TESTED        81F04370
0970 0 D31C          STO    3 MOD4-CMN     SAVE FOR PRINT              81F04380
0971 1 4C18 0979     BSC   L  TR1H,+-      BRANCH IF CORRECT           81F04390
0973 1 4400 0CE1     BSI   L  PRINT        PRINT ERROR                 81F04400
0975 0 E009          DC       /E009        MESSAGE ID                  81F04410
0976 1 0C73          DC       MOD1         MESSAGE ADDRESS             81F04420
0977 0 0004          DC       4            WORD COUNT                  81F04430
0978 1 0959          DC       TR1F         LOCK RETURN                 81F04440
               *                                                       81F04450
               *               CHECK 'STO L1'-'LD L' USING             81F04460
               *               A PATTERN OF /FFFF                      81F04470
               *                                                       81F04480
0979 0 C302    TR1H  LD     3 ADRS-CMN     GET ADDRESS                 81F04490
097A 0 830B          A      3 K1-CMN       ADD ONE                     81F04500
097B 0 D005          STO      TR1HA        SET IN ROUTINE              81F04510
097C 0 C30A          LD     3 HFFFF-CMN    GET PATTERN                 81F04520
097D 0 D31A          STO    3 MOD2-CMN     SAVE FOR PRINT              81F04530
097E 0 61FF          LDX    1 -1           SET INDEX                   81F04540
097F 0 43B8          BSI    3 STINT-CMN    SET MONITOR INDICATOR       81F04550
0980 0 D540          DC       /D540        INSTRUCTION =               81F04560
0981 0 0000    TR1HA DC       *-*          * STO L1 *-* INTO AUX CORE  81F04570
0982 0 43CD          BSI    3 CKINT-CMN    CHECK INTERNAL INTERRUPT    81F04580
0983 1 0C5C          DC     . ADRS         ADDRESS BEING TESTED        81F04590
0984 0 C302          LD     3 ADRS-CMN     GET ADDRESS                 81F04600
0985 0 D319          STO    3 MOD1-CMN     SAVE FOR PRINT              81F04610
0986 0 D004          STO      TR1I         SET IN ROUTINE              81F04620
0987 0 1010          SLA      16           PRE-SET ACCUMULATOR         81F04630
0988 0 D31B          STO    3 MOD3-CMN     SAVE FOR PRINT              81F04640
0989 0 43B8          BSI    3 STINT-CMN    SET MONITOR INDICATOR       81F04650
098A 0 C440          DC       /C440        INSTRUCTION =               81F04660
098B 0 0000    TR1I  DC       *-*          * LD L *-* FROM AUX CORE    81F04670
098C 0 43CD          BSI    3 CKINT-CMN    CHECK INTERNAL INTERRUPT    81F04680
098D 1 0C5C          DC       ADRS         ADDRESS BEING TESTED        81F04690
098E 0 D31C          STO    3 MOD4-CMN     SAVE FOR PRINT              81F04700
098F 0 F31A          EOR    3 MOD2-CMN     CHECK RESULT                81F04710
0990 1 4C18 0998     BSC   L  TR1J,+-      BRANCH IF CORRECT           81F04720
0992 1 4400 0CE1     BSI   L  PRINT        PRINT ERROR                 81F04730
0994 0 E010          DC       /E010        MESSAGE ID                  81F04740
0995 1 0C73          DC       MOD1         MESSAGE ADDRESS             81F04750
0996 0 0004          DC       4            WORD COUNT                  81F04760
0997 1 0979          DC       TR1H         LOCK RETURN                 81F04770
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               *                                                       81F04780
               *               CHECK 'STD L'-'LDD L' USING             81F04790
               *               A PATTERN OF /0000-/0000                81F04800
               *                                                       81F04810
0998 0 C302    TR1J  LD     3 ADRS-CMN     GET ADDRESS                 81F04820
0999 0 1801          SRA      1            MAKE IT EVEN                81F04830
099A 0 1001          SLA      1            *                           81F04840
099B 0 D319          STO    3 MOD1-CMN     SAVE FOR PRINT              81F04850
099C 0 D005          STO      TR1K         SET IN RTN                  81F04860
099D 0 D00C          STO      TR1L         *                           81F04870
099E 0 10A0          SLT      32           CLEAR A AND Q               81F04880
099F 0 DB1A          STD    3 MOD2-CMN     SAVE FOR PRINT              81F04890
09A0 0 43B8          BSI    3 STINT-CMN    SET MONITOR INDICATOR       81F04900
09A1 0 DC40          DC       /DC40        INSTRUCTION =               81F04910
09A2 0 0000    TR1K  DC       *-*          * STD L *-* INTO AUX CORE   81F04920
09A3 0 43CD          BSI    3 CKINT-CMN    CHECK INTERNAL INTERRUPT    81F04930
09A4 1 09A2          DC       TR1K         ADDRESS BEING TESTED        81F04940
09A5 0 C30A          LD     3 HFFFF-CMN    PRE-SET A AND Q             81F04950
09A6 0 1890          SRT      16           *                           81F04960
09A7 0 DB1C          STD    3 MOD4-CMN     SAVE FOR PRINT              81F04970
09A8 0 43B8          BSI    3 STINT-CMN    SET MONITOR INDICATOR       81F04980
09A9 0 CC40          DC       /CC40        INSTRUCTION =               81F04990
09AA 0 0000    TR1L  DC       *-*          * LDD L *-* FROM AUX CORE   81F05000
09AB 0 43CD          BSI    3 CKINT-CMN    CHECK INTERNAL INTERRUPT    81F05010
09AC 1 09A2          DC       TR1K         ADDRESS BEING TESTED        81F05020
09AD 0 DB1E          STD    3 MOD6-CMN     SAVE FOR PRINT              81F05030
09AE 1 4C20 09B3     BSC   L  TR1M,Z       BRANCH IF ERROR             81F05040
09B0 0 1090          SLT      16           GET Q                       81F05050
09B1 1 4C18 09B9     BSC   L  TR1P,+-      BRANCH IF CORRECT           81F05060
09B3 1 4400 0CE1 TR1M BSI  L  PRINT        PRINT ERROR                 81F05070
09B5 0 E011          DC       /E011        MESSAGE ID                  81F05080
09B6 1 0C73          DC       MOD1         MESSAGE ADDRESS             81F05090
09B7 0 0007          DC       7            WORD COUNT                  81F05100
09B8 1 0998          DC       TR1J         LOCK RETURN                 81F05110
               *                                                       81F05120
               *               CHECK 'STD I'-'LDD I' USING             81F05130
               *               A PATTERN OF /AAAA-/AAAA                81F05140
               *                                                       81F05150
09B9 0 C302    TR1P  LD     3 ADRS-CMN     GET ADDRESS                 81F05160
09BA 0 1801          SRA      1            MAKE IT EVEN                81F05170
09BB 0 1001          SLA      1            *                           81F05180
09BC 0 D303          STO    3 ADRS1-CMN    SET FOR ROUTINE             81F05190
09BD 0 D319          STO    3 MOD1-CMN     SAVE FOR PRINT              81F05200
09BE 0 C307          LD     3 HAAAA-CMN    GET PATTERN                 81F05210
09BF 0 1890          SRT      16           SET Q                       81F05220
09C0 0 C307          LD     3 HAAAA-CMN    SET A                       81F05230
09C1 0 DB1A          STD    3 MOD2-CMN     SAVE FOR PRINT              81F05240
09C2 0 43B8          BSI    3 STINT-CMN    SET MONITOR INDICATOR       81F05250
09C3 0 DCC0          DC       /DCC0        INSTRUCTION =               81F05260
09C4 1 0C5D          DC       ADRS1        * STD I ADRS1 INTO AUX      81F05270
09C5 0 43CD          BSI    3 CKINT-CMN    CHECK INTERNAL INTERRUPT    81F05280
09C6 1 0C5D          DC       ADRS1        ADDRESS BEING TESTED        81F05290
09C7 0 10A0          SLT      32           CLEAR A AND Q               81F05300
09C8 0 DB1C          STD    3 MOD4-CMN     SAVE FOR PRINT              81F05310
09C9 0 43B8          BSI    3 STINT-CMN    SET MONITOR INDICATOR       81F05320
09CA 0 CCC0          DC       /CCC0        INSTRUCTION =               81F05330
09CB 1 0C5D          DC       ADRS1        * LDD I ADRS1 FROM AUX      81F05340
09CC 0 43CD          BSI    3 CKINT-CMN    CHECK INTERNAL INTERRUPT    81F05350
09CD 1 0C5D          DC       ADRS1        ADDRESS BEING TESTED        81F05360
09CE 0 DB1E          STD    3 MOD6-CMN     SAVE FOR PRINT              81F05370
09CF 0 F307          EOR    3 HAAAA-CMN    CHECK DATA                  81F05380
09D0 1 4C20 09D6     BSC   L  TR1R,Z       BRANCH IF ERROR             81F05390
09D2 0 1090          SLT      16           GET Q                       81F05400
09D3 0 F307          EOR    3 HAAAA-CMN    CHECK DATA                  81F05410
09D4 1 4C18 09DC     BSC   L  TR1S,+-      BRANCH IF CORRECT           81F05420
09D6 1 4400 0CE1 TR1R BSI  L  PRINT        PRINT ERROR                 81F05430
09D8 0 E012          DC       /E012        MESSAGE ID                  81F05440
09D9 1 0C73          DC       MOD1         MESSAGE ADDRESS             81F05450
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09DA 0 0007                DC       7          WORD COUNT                 81F05460
09DB 1 09B9                DC       TR1P       LOCK RETURN                81F05470
                     *                                                    81F05480
                     *                    CHECK 'STD L2'-'LDD L2' USING   81F05490
                     *                    A PATTERN OF /5555-/5555        81F05500
                     *                                                    81F05510
09DC 0 C302          TR1S  LD     3 ADRS-CMN   GET ADDRESS                81F05520
09DD 0 1801                SRA      1          MAKE IT EVEN               81F05530
09DE 0 1001                SLA      1          *                          81F05540
09DF 0 D319                STO    3 MOD1-CMN   SAVE FOR PRINT             81F05550
09E0 0 830B                A      3 K1-CMN     MAKE ODD                   81F05560
09E1 0 D008                STO      TR1T       SET IN ROUTINE             81F05570
09E2 0 D00E                STO      TR1U       *                          81F05580
09E3 0 62FF                LDX    2 -1         SET INDEX                  81F05590
09E4 0 C306                LD     3 H5555-CMN  GET PATTERN                81F05600
09E5 0 1890                SRT      16         SET IN Q                   81F05610
09E6 0 C306                LD     3 H5555-CMN  RESET A                    81F05620
09E7 0 DB1A                STD    3 MOD2-CMN   SAVE FOR PRINT             81F05630
09E8 0 43B8                BSI    3 STINT-CMN  SET MONITOR INDICATOR      81F05640
09E9 0 DE40                DC       /DE40      INSTRUCTION =              81F05650
09EA 0 0000          TR1T  DC       *-*        * STD L2 *-* INTO AUX      81F05660
09EB 0 43CD                BSI    3 CKINT-CMN  CHECK INTERNAL INTERRUPT   81F05670
09EC 1 0C73                DC       MOD1       ADDRESS BEING TESTED       81F05680
09ED 0 10A0                SLT      32         CLEAR A AND Q              81F05690
09EE 0 DB1C                STD    3 MOD4-CMN   SAVE FOR PRINT             81F05700
09EF 0 43B8                BSI    3 STINT-CMN  SET MONITOR INDICATOR      81F05710
09F0 0 CE40                DC       /CE40      INSTRUCTION =              81F05720
09F1 0 0000          TR1U  DC       *-*        * LDD L2 *-* FROM AUX      81F05730
09F2 0 43CD                BSI    3 CKINT-CMN  CHECK INTERNAL INTERRUPT   81F05740
09F3 1 0C73                DC       MOD1       ADDRESS BEING TESTED       81F05750
09F4 0 DB1E                STD    3 MOD6-CMN   SAVE FOR PRINT             81F05760
09F5 0 F306                EOR    3 H5555-CMN  CHECK A                    81F05770
09F6 1 4C20 09FC           BSC  L   TR1W,Z     BRANCH IF ERROR            81F05780
09F8 0 1090                SLT      16         GET Q                      81F05790
09F9 0 F306                EOR    3 H5555-CMN  CHECK DATA                 81F05800
09FA 1 4C18 0A02           BSC  L   TR1X,+-    BRANCH IF CORRECT          81F05810
09FC 1 4400 0CE1     TR1W  BSI  L   PRINT      PRINT ERROR                81F05820
09FE 0 E013                DC       /E013      MESSAGE ID                 81F05830
09FF 1 0C73                DC       MOD1       MESSAGE ADDRESS            81F05840
0A00 0 0007                DC       7          WORD COUNT                 81F05850
0A01 1 09DC                DC       TR1S       LCCK RETURN                81F05860
                     *                                                    81F05870
                     *                   EXIT TO MONITOR TO ALLOW OVERLAP 81F05880
                     *                                                    81F05890
0A02 1 4400 0CCC     TR1X  BSI  L   MNEX       EXIT TO MONITOR            81F05900
0A04 1 0A05                DC       TR1XA      RETURN ADDRESS             81F05910
                     *                                                    81F05920
                     *                   CHECK 'STO I'-'AND L'            81F05930
                     *                   CORE = /AAAA                     81F05940
                     *                   ACCUMULATOR = /5555              81F05950
                     *                   EXPECTED RESULT = /0000          81F05960
                     *                                                    81F05970
0A05 0 C302          TR1XA LD     3 ADRS-CMN   GET ADDRESS                81F05980
0A06 0 D00E                STO      TR1Y       SET IN ROUTINE             81F05990
0A07 0 D319                STO    3 MOD1-CMN   SAVE FOR PRINT             81F06000
0A08 0 C307                LD     3 HAAAA-CMN  GET PATTERN                81F06010
0A09 0 D31A                STO    3 MOD2-CMN   SAVE FOR PRINT             81F06020
0A0A 0 43B8                BSI    3 STINT-CMN  SET MONITOR INDICATOR      81F06030
0A0B 0 D4C0                DC       /D4C0      INSTRUCTION =              81F06040
0A0C 1 0C5C                DC       ADRS       * STO I ADRS INTO AUX      81F06050
0A0D 0 43CD                BSI    3 CKINT-CMN  CHECK INTERNAL INTERRUPT   81F06060
0A0E 1 0C5C                DC       ADRS       ADDRESS BEING TESTED       81F06070
0A0F 0 1010                SLA      16         SET EXPECTED RESULT FOR PR 81F06080
0A10 0 D31C                STO    3 MOD4-CMN   *                          81F06090
0A11 0 C306                LD     3 H5555-CMN  SET ACCUMULATOR            81F06100
0A12 0 D31B                STO    3 MOD3-CMN   SAVE FOR PRINT             81F06110
0A13 0 43B8                BSI    3 STINT-CMN  SET MONITOR INDICATOR      81F06120
0A14 0 E440                DC       /E440      INSTRUCTION =              81F06130
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0A15 0 0000          TR1Y  DC       *-*        * AND L *-* FROM AUX CORE  81F06140
0A16 0 43CD                BSI    3 CKINT-CMN  CHECK INTERNAL INTERRUPT   81F06150
0A17 1 0C5C                DC       ADRS       ADDRESS BEING TESTED       81F06160
0A18 0 D31D                STO    3 MOD5-CMN   SAVE RESULT FOR PRINT      81F06170
0A19 1 4C18 0A21           BSC  L   TR1Z,+-    BRANCH IF CORRECT          81F06180
0A1B 1 4400 0CE1           BSI  L   PRINT      PRINT ERROR                81F06190
0A1D 0 E014                DC       /E014      MESSAGE ID                 81F06200
0A1E 1 0C73                DC       MOD1       MESSAGE ADDRESS            81F06210
0A1F 0 0005                DC       5          WORD COUNT                 81F06220
0A20 1 0A05                DC       TR1XA      LOCK RETURN                81F06230
                     *                                                    81F06240
                     *                   CHECK 'STO I'-'AND I'            81F06250
                     *                   CORE = /AAAA                     81F06260
                     *                   ACCUMULATOR = /FFFF              81F06270
                     *                   EXPECTED RESULT = /AAAA          81F06280
                     *                                                    81F06290
0A21 0 C307          TR1Z  LD     3 HAAAA-CMN  GET PATTERN                81F06300
0A22 0 D31A                STO    3 MOD2-CMN   SAVE FOR PRINT             81F06310
0A23 0 43B8                BSI    3 STINT-CMN  SET MONITOR INDICATOR      81F06320
0A24 0 D4C0                DC       /D4C0      INSTRUCTION =              81F06330
0A25 1 0C5C                DC       ADRS       * STO I ADRS INTO AUX CORE 81F06340
0A26 0 43CD                BSI    3 CKINT-CMN  CHECK INTERNAL INTERRUPT   81F06350
0A27 1 0C5C                DC       ADRS       ADDRESS BEING TESTED       81F06360
0A28 0 C307                LD     3 HAAAA-CMN  SET EXPECTED RESULT FOR PR 81F06370
0A29 0 D31C                STO    3 MOD4-CMN   *                          81F06380
0A2A 0 C30A                LD     3 HFFFF-CMN  SET ACC                    81F06390
0A2B 0 D31B                STO    3 MOD3-CMN   SAVE FOR PRINT             81F06400
0A2C 0 43B8                BSI    3 STINT-CMN  SET MONITOR INDICATOR      81F06410
0A2D 0 E4C0                DC       /E4C0      INSTRUCTION =              81F06420
0A2E 1 0C5C                DC       ADRS       * AND I ADRS FROM AUX      81F06430
0A2F 0 43CD                BSI    3 CKINT-CMN  CHECK INTERNAL INTERRUPT   81F06440
0A30 1 0C5C                DC       ADRS       ADDRESS BEING TESTED       81F06450
0A31 0 D31D                STO    3 MOD5-CMN   SAVE RESULT FOR PRINT      81F06460
0A32 0 F307                EOR    3 HAAAA-CMN  CHECK RESULT               81F06470
0A33 1 4C18 0A3D           BSC  L   TR1AA,+-   BRANCH IF CORRECT          81F06480
0A35 0 C302                LD     3 ADRS-CMN   SAVE ADDRESS FOR PRINT     81F06490
0A36 0 D319                STO    3 MOD1-CMN   *                          81F06500
0A37 1 4400 0CE1           BSI  L   PRINT      PRINT ERROR                81F06510
0A39 0 E015                DC       /E015      MESSAGE ID                 81F06520
0A3A 1 0C73                DC       MOD1       MESSAGE ADDRESS            81F06530
0A3B 0 0005                DC       5          WORD COUNT                 81F06540
0A3C 1 0A21                DC       TR1Z       LOCK RETURN                81F06550
                     *                                                    81F06560
                     *                   CHECK 'STO I'-'AND L3'           81F06570
                     *                   CORE = /AAAA                     81F06580
                     *                   ACCUMULATOR = /5555              81F06590
                     *                   EXPECTED RESULT = /0000          81F06600
                     *                                                    81F06610
0A3D 0 C307          TR1AA LD     3 HAAAA-CMN  GET PATTERN                81F06620
0A3E 0 D31A                STO    3 MOD2-CMN   SAVE FOR PRINT             81F06630
0A3F 0 43B8                BSI    3 STINT-CMN  SET MONITOR INDICATOR      81F06640
0A40 0 D4C0                DC       /D4C0      INSTRUCTION =              81F06650
0A41 1 0C5C                DC       ADRS       * STO I ADRS INTO AUX CORE 81F06660
0A42 0 43CD                BSI    3 CKINT-CMN  CHECK INTERNAL INTERRUPT   81F06670
0A43 1 0C5C                DC       ADRS       ADDRESS BEING TESTED       81F06680
0A44 0 C302                LD     3 ADRS-CMN   GET ADDRESS                81F06690
0A45 0 830B                A      3 K1-CMN     ADD 1                      81F06700
0A46 0 D009                STO      TR1BA                                 81F06710
0A47 0 1010                SLA      16         SET EXPECTED RESULT FOR PR 81F06720
0A48 0 D31C                STO    3 MOD4-CMN   *                          81F06730
0A49 0 C306                LD     3 H5555-CMN  GET PATTERN                81F06740
0A4A 0 D31B                STO    3 MOD3-CMN   SAVE FOR PRINT             81F06750
0A4B 0 6B09                STX    3 TR1AB+1    SAVE IX 3                  81F06760
0A4C 0 63FF                LDX    3 -1         SET INDEX                  81F06770
0A4D 1 4400 0C12           BSI  L   STINT      SET MONITOR INDICATOR      81F06780
0A4F 0 E740                DC       /E740      INSTRUCTION =              81F06790
0A50 0 0000          TR1BA DC       *-*        * AND L3 *-* FROM AUX CORE 81F06800
0A51 1 4400 0C27           BSI  L   CKINT      CHECK INTERNAL INTERRUPT   81F06810
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0A53 1 0C5C                DC     ADRS        ADDRESS BEING TESTED          81F06820
0A54 0 67C0 0000  TR1AB    LDX    L3 *-*      RESTORE INDEX 3               81F06830
0A56 0 D31D                STO    3 MOD5-CMN  SAVE RESULT FOR PRINT         81F06840
0A57 1 4C18 0A61           BSC    L  TR1AC,+- BRANCH IF CORRECT             81F06850
0A59 0 C302                LD     3 ADRS-CMN  SAVE ADDRESS FOR PRINT        81F06860
0A5A 0 D319                STO    3 MOD1-CMN  *                             81F06870
0A5B 1 4400 0CE1           BSI    L  PRINT    PRINT ERROR                   81F06880
0A5D 0 E016                DC     /E016       MESSAGE ID                    81F06890
0A5E 1 0C73                DC     MOD1        MESSAGE ADDRESS               81F06900
0A5F 0 0005                DC     5           WORD COUNT                    81F06910
0A60 1 0A3D                DC     TR1AA       LOCK RETURN                   81F06920
                      *                                                     81F06930
                      *          CHECK 'STO I'-'OR L'                       81F06940
                      *          CORE = /AAAA                               81F06950
                      *          ACCUMULATOR = /0000                        81F06960
                      *          EXPECTED RESULT = /AAAA                    81F06970
                      *                                                     81F06980
0A61 0 C307       TR1AC    LD     3 HAAAA-CMN GET PATTERN                   81F06990
0A62 0 D31A                STO    3 MOD2-CMN  SAVE FOR PRINT                81F07000
0A63 0 43B8                BSI    3 STINT-CMN SET MONITOR INDICATOR         81F07010
0A64 0 D4C0                DC     /D4C0       INSTRUCTION =                 81F07020
0A65 1 0C5C                DC     ADRS        * STO I ADRS INTO AUX CORE    81F07030
0A66 0 43CD                BSI    3 CKINT-CMN CHECK INTERNAL INTERRUPT      81F07040
0A67 1 0C5C                DC     ADRS        ADDRESS BEING TESTED          81F07050
0A68 0 C3C2                LD     3 ADRS-CMN  GET ADDRESS                   81F07060
0A69 0 D007                STO    TR1AD       SET IN ROUTINE                81F07070
0A6A 0 D319                STO    3 MOD1-CMN  SAVE FOR PRINT                81F07080
0A6B 0 C307                LD     3 HAAAA-CMN SET EXPECTED RESULT FOR PR    81F07090
0A6C 0 D31C                STO    3 MOD4-CMN  *                             81F07100
0A6D 0 1010                SLA    16          CLEAR ACC                     81F07110
0A6E 0 D31B                STO    3 MOD3-CMN  SAVE FOR PRINT                81F07120
0A6F 0 43B8                BSI    3 STINT-CMN SET MONITOR INDICATOR         81F07130
0A70 0 EC40                DC     /EC40       INSTRUCTION =                 81F07140
0A71 0 00C0       TR1AD    DC     *-*         * OR L *-* FROM AUX CORE      81F07150
0A72 0 43CD                BSI    3 CKINT-CMN CHECK INTERNAL INTERRUPT      81F07160
0A73 1 0C5C                DC     ADRS        ADDRESS BEING TESTED          81F07170
0A74 0 D31D                STO    3 MOD5-CMN  SAVE RESULT FOR PRINT         81F07180
0A75 0 F307                EOR    3 HAAAA-CMN CHECK RESULT                  81F07190
0A76 1 4C18 0A7E           BSC    L  TR1AE,+- BRANCH IF CORRECT             81F07200
0A78 1 4400 0CE1           BSI    L  PRINT    PRINT ERROR                   81F07210
0A7A 0 E017                DC     /E017       MESSAGE ID                    81F07220
0A7B 1 0C73                DC     MOD1        MESSAGE ADDRESS               81F07230
0A7C 0 00C5                DC     5           WORD COUNT                    81F07240
0A7D 1 0A61                DC     TR1AC       LOCK RETURN                   81F07250
                      *                                                     81F07260
                      *          CHECK 'STO I'-'OR I'                       81F07270
                      *          CORE = /AAAA                               81F07280
                      *          ACCUMULATOR = /0000                        81F07290
                      *          EXPECTED RESULT = /AAAA                    81F07300
                      *                                                     81F07310
0A7E 0 C307       TR1AE    LD     3 HAAAA-CMN GET PATTERN                   81F07320
0A7F 0 D31A                STO    3 MOD2-CMN  SAVE FOR PRINT                81F07330
0A80 0 43B8                BSI    3 STINT-CMN SET MONITOR INDICATOR         81F07340
0A81 0 D4C0                DC     /D4C0       INSTRUCTION =                 81F07350
0A82 1 0C5C                DC     ADRS        * STO I ADRS INTO AUX CORE    81F07360
0A83 0 43CD                BSI    3 CKINT-CMN CHECK INTERNAL INTERRUPT      81F07370
0A84 1 0C5C                DC     ADRS        ADDRESS BEING TESTED          81F07380
0A85 0 C307                LD     3 HAAAA-CMN SET EXPECTED RESULT FOR PR    81F07390
0A86 0 D31C                STO    3 MOD4-CMN  *                             81F07400
0A87 0 1010                SLA    16          CLEAR ACC                     81F07410
0A88 0 D31B                STO    3 MOD3-CMN  SAVE FOR PRINT                81F07420
0A89 0 43B8                BSI    3 STINT-CMN SET MONITOR INDICATOR         81F07430
0A8A 0 ECC0                DC     /ECC0       INSTRUCTION =                 81F07440
0A8B 1 0C5C                DC     ADRS        * OR I ADRS FROM AUX CORE     81F07450
0A8C 0 43CD                BSI    3 CKINT-CMN CHECK INTERNAL INTERRUPT      81F07460
0A8D 1 0C5C                DC     ADRS        ADDRESS BEING TESTED          81F07470
0A8E 0 D31D                STO    3 MOD5-CMN  SAVE RESULT FOR PRINT         81F07480
0A8F 0 F307                EOR    3 HAAAA-CMN CHECK RESULT                  81F07490
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0A90 1 4C18 0A9A           BSC    L  TR1AF,+- BRANCH IF CORRECT             81F07500
0A92 0 C302                LD     3 ADRS-CMN  SAVE ADDRESS FOR PRINT        81F07510
0A93 0 D319                STO    3 MOD1-CMN  *                             81F07520
0A94 1 4400 0CE1           BSI    L  PRINT    PRINT ERROR                   81F07530
0A96 0 E018                DC     /E018       MESSAGE ID                    81F07540
0A97 1 0C73                DC     MOD1        MESSAGE ADDRESS               81F07550
0A98 0 0005                DC     5           WORD COUNT                    81F07560
0A99 1 0A7E                DC     TR1AE       LOCK RETURN                   81F07570
                      *                                                     81F07580
                      *          CHECK 'STO I'-'OR L1'                      81F07590
                      *          CORE = /AAAA                               81F07600
                      *          ACCUMULATOR = /0000                        81F07610
                      *          EXPECTED RESULT = /AAAA                    81F07620
                      *                                                     81F07630
0A9A 0 C307       TR1AF    LD     3 HAAAA-CMN GET PATTERN                   81F07640
0A9B 0 D31A                STO    3 MOD2-CMN  SAVE FOR PRINT                81F07650
0A9C 0 43B8                BSI    3 STINT-CMN SET MONITOR INDICATOR         81F07660
0A9D 0 D4C0                DC     /D4C0       INSTRUCTION =                 81F07670
0A9E 1 0C5C                DC     ADRS        * STO I ADRS INTO AUX CORE    81F07680
0A9F 0 43CD                BSI    3 CKINT-CMN CHECK INTERNAL INTERRUPT      81F07690
0AA0 1 0C5C                DC     ADRS        ADDRESS BEING TESTED          81F07700
0AA1 0 61FF                LDX    1 -1        SET INDEX                     81F07710
0AA2 0 C302                LD     3 ADRS-CMN  GET ADDRESS                   81F07720
0AA3 0 830B                A      3 K1-CMN    ADD 1                         81F07730
0AA4 0 D006                STO    TR1AG       SET IN ROUTINE                81F07740
0AA5 0 C307                LD     3 HAAAA-CMN SET EXPECTED RESULT FOR PR    81F07750
0AA6 0 D31C                STO    3 MOD4-CMN  *                             81F07760
0AA7 0 1010                SLA    16          CLEAR ACC                     81F07770
0AA8 0 D31B                STO    3 MOD3-CMN  SAVE FOR PRINT                81F07780
0AA9 0 43B8                BSI    3 STINT-CMN SET MONITOR INDICATOR         81F07790
0AAA 0 ED40                DC     /ED40       INSTRUCTION =                 81F07800
0AAB 0 0000       TR1AG    DC     *-*         * OR L1 *-* FROM AUX CORE     81F07810
0AAC 0 43CD                BSI    3 CKINT-CMN CHECK INTERNAL INTERRUPT      81F07820
0AAD 1 0C5C                DC     ADRS        ADDRESS BEING TESTED          81F07830
0AAE 0 D31D                STO    3 MOD5-CMN  SAVE RESULT FOR PRINT         81F07840
0AAF 0 F307                EOR    3 HAAAA-CMN CHECK RESULT                  81F07850
0AB0 1 4C18 0ABA           BSC    L  TR1AH,+- BRANCH IF CORRECT             81F07860
0AB2 0 C302                LD     3 ADRS-CMN  GET ADDRESS                   81F07870
0AB3 0 D319                STO    3 MOD1-CMN  SAVE FOR PRINT                81F07880
0AB4 1 4400 0CE1           BSI    L  PRINT    PRINT ERROR                   81F07890
0AB6 0 E019                DC     /E019       MESSAGE ID                    81F07900
0AB7 1 0C73                DC     MOD1        MESSAGE ADDRESS               81F07910
0AB8 0 0005                DC     5           WORD COUNT                    81F07920
0AB9 1 0A9A                DC     TR1AF       LOCK RETURN                   81F07930
                      *                                                     81F07940
                      *          CHECK 'STO I'-'EOR L'                      81F07950
                      *          CORE = /AAAA                               81F07960
                      *          ACCUMULATOR = /AAAA                        81F07970
                      *          EXPECTED RESULTS = /0000                   81F07980
                      *                                                     81F07990
0ABA 0 C307       TR1AH    LD     3 HAAAA-CMN GET PATTERN                   81F08000
0ABB 0 D31A                STO    3 MOD2-CMN  SAVE FOR PRINT                81F08010
0ABC 0 43B8                BSI    3 STINT-CMN SET MONITOR INDICATOR         81F08020
0ABD 0 D4C0                DC     /D4C0       INSTRUCTION =                 81F08030
0ABE 1 0C5C                DC     ADRS        * STO I ADRS INTO AUX CORE    81F08040
0ABF 0 43CD                BSI    3 CKINT-CMN CHECK INTERNAL INTERRUPT      81F08050
0AC0 1 0C5C                DC     ADRS        ADDRESS BEING TESTED          81F08060
0AC1 0 C302                LD     3 ADRS-CMN  GET ADDRESS                   81F08070
0AC2 0 D007                STO    TR1AI       SET IN ROUTINE                81F08080
0AC3 0 D319                STO    3 MOD1-CMN  SAVE FOR PRINT                81F08090
0AC4 0 1010                SLA    16          SET EXPECTED RESULT FOR PR    81F08100
0AC5 0 D31C                STO    3 MOD4-CMN  *                             81F08110
0AC6 0 C307                LD     3 HAAAA-CMN SET ACC                       81F08120
0AC7 0 D31B                STO    3 MOD3-CMN  SAVE FOR PRINT                81F08130
0AC8 0 43B8                BSI    3 STINT-CMN SET MONITOR INDICATOR         81F08140
0AC9 0 F440                DC     /F440       INSTRUCTION =                 81F08150
0ACA 0 0000       TR1AI    DC     *-*         * EOR L *-* FROM AUX CORE     81F08160
0ACB 0 43CD                BSI    3 CKINT-CMN CHECK INTERNAL INTERRUPT      81F08170
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0ACC 1 0C5C            DC     ADRS        ADDRESS BEING TESTED          81F08180
0ACD 0 D31D            STO  3 MOD5-CMN    SAVE RESULT FOR PRINT         81F08190
0ACE 1 4C18 0AD6       BSC  L TR1AJ,+-    BRANCH IF CORRECT             81F08200
0AD0 1 4400 0CE1       BSI  L PRINT       PRINT ERROR                   81F08210
0AD2 0 E020            DC     /E020       MESSAGE ID                    81F08220
0AD3 1 0C73            DC     MOD1        MESSAGE ADDRESS               81F08230
0AD4 0 0005            DC     5           WORD COUNT                    81F08240
0AD5 1 0ABA            DC     TR1AH       LOCK RETURN                   81F08250
                     *                                                  81F08260
                     *          CHECK 'STO I'-'EOR I'                   81F08270
                     *          CORE = /AAAA                            81F08280
                     *          ACCUMULATOR = /AAAA                     81F08290
                     *          EXPECTED RESULT = /0000                 81F08300
                     *                                                  81F08310
0AD6 0 C307          TR1AJ LD   3 HAAAA-CMN GET PATTERN                 81F08320
0AD7 0 D31A            STO  3 MOD2-CMN    SAVE FOR PRINT                81F08330
0AD8 0 43B8            BSI  3 STINT-CMN   SET MONITOR INDICATOR         81F08340
0AD9 0 D4C0            DC     /D4C0       INSTRUCTION =                 81F08350
0ADA 1 0C5C            DC     ADRS        * STO I ADRS INTO AUX CORE    81F08360
0ADB 0 43CD            BSI  3 CKINT-CMN   CHECK INTERNAL INTERRUPT      81F08370
0ADC 1 0C5C            DC     ADRS        ADDRESS BEING TESTED          81F08380
0ADD 0 1010            SLA    16          SET EXPECTED RESULT FOR PR    81F08390
0ADE 0 D31C            STO  3 MOD4-CMN    *                             81F08400
0ADF 0 C307            LD   3 HAAAA-CMN   SET ACC                       81F08410
0AE0 0 D31B            STO  3 MOD3-CMN    SAVE FOR PRINT                81F08420
0AE1 0 43B8            BSI  3 STINT-CMN   SET MONITOR INDICATOR         81F08430
0AE2 0 F4C0            DC     /F4C0       INSTRUCTION =                 81F08440
0AE3 1 0C5C            DC     ADRS        * EOR I ADRS FROM AUX         81F08450
0AE4 0 43CD            BSI  3 CKINT-CMN   CHECK INTERNAL INTERRUPT      81F08460
0AE5 1 0C5C            DC     ADRS        ADDRESS BEING TESTED          81F08470
0AE6 0 D31D            STO  3 MOD5-CMN    SAVE RESULT FOR PRINT         81F08480
0AE7 1 4C18 0AF1       BSC  L TR1AK,+-    BRANCH IF CORRECT             81F08490
0AE9 0 C302            LD   3 ADRS-CMN    GET ADDRESS                   81F08500
0AEA 0 D319            STO  3 MOD1-CMN    SAVE FOR PRINT                81F08510
0AEB 1 4400 0CE1       BSI  L PRINT       PRINT ERROR                   81F08520
0AED 0 E021            DC     /E021       MESSAGE ID                    81F08530
0AEE 1 0C73            DC     MOD1        MESSAGE ADDRESS               81F08540
0AEF 0 0005            DC     5           WORD COUNT                    81F08550
0AF0 1 0AD6            DC     TR1AJ       LOCK RETURN                   81F08560
                     *                                                  81F08570
                     *          CHECK 'STO I'-'EOR L2'                  81F08580
                     *          CORE = /AAAA                            81F08590
                     *          ACCUMULATOR = /0000                     81F08600
                     *          EXPECTED RESULT = /AAAA                 81F08610
                     *                                                  81F08620
0AF1 0 C307          TR1AK LD   3 HAAAA-CMN GET PATTERN                 81F08630
0AF2 0 D31A            STO  3 MOD2-CMN    SAVE FOR PRINT                81F08640
0AF3 0 43B8            BSI  3 STINT-CMN   SET MONITOR INDICATOR         81F08650
0AF4 0 D4C0            DC     /D4C0       INSTRUCTION =                 81F08660
0AF5 1 0C5C            DC     ADRS        * STO I ADRS INTO AUX CORE    81F08670
0AF6 0 43CD            BSI  3 CKINT-CMN   CHECK INTERNAL INTERRUPT      81F08680
0AF7 1 0C5C            DC     ADRS        ADDRESS BEING TESTED          81F08690
0AF8 0 C302            LD   3 ADRS-CMN    GET ADDRESS                   81F08700
0AF9 0 830B            A    3 K1-CMN      ADD 1                         81F08710
0AFA 0 D007            STO    TR1AL       SET IN ROUTINE                81F08720
0AFB 0 62FF            LDX  2 -1          SET INDEX                     81F08730
0AFC 0 C307            LD   3 HAAAA-CMN   SET EXPECTED RESULT FOR PR    81F08740
0AFD 0 D31C            STO  3 MOD4-CMN    *                             81F08750
0AFE 0 1010            SLA    16          CLEAR ACC                     81F08760
0AFF 0 D31B            STO  3 MOD3-CMN    SAVE FOR PRINT                81F08770
0B00 0 43B8            BSI  3 STINT-CMN   SET MONITOR INDICATOR         81F08780
0B01 0 F640            DC     /F640       INSTRUCTION =                 81F08790
0B02 0 0000          TR1AL DC     *-*       * EOR L2 *-* FROM AUX         81F08800
0B03 0 43CD            BSI  3 CKINT-CMN   CHECK INTERNAL INTERRUPT      81F08810
0B04 1 0C5C            DC     ADRS        ADDRESS BEING TESTED          81F08820
0B05 0 D31D            STO  3 MOD5-CMN    SAVE RESULT FOR PRINT         81F08830
0B06 0 F307            EOR  3 HAAAA-CMN   CHECK RESULT                  81F08840
0B07 1 4C18 0B11       BSC  L TR1AM,+-    BRANCH IF CORRECT             81F08850
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0B09 0 C302            LD   3 ADRS-CMN    SAVE ADDRESS FOR PRINT        81F08860
0B0A 0 D319            STO  3 MOD1-CMN    *                             81F08870
0B0B 1 4400 0CE1       BSI  L PRINT       PRINT ERROR                   81F08880
0B0D 0 E022            DC     /E022       MESSAGE ID                    81F08890
0B0E 1 0C73            DC     MOD1        MESSAGE ADDRESS               81F08900
0B0F 0 0005            DC     5           WORD COUNT                    81F08910
0B10 1 0AF1            DC     TR1AK       LOCK RETURN                   81F08920
                     *                                                  81F08930
                     *          RESTORE INDEXING AND EXIT               81F08940
                     *                                                  81F08950
0B11 0 6500 0000     TR1AM LDX  L1 *-*     RESTORE INDEXING              81F08960
0B13 0 6600 0000     TR1AN LDX  L2 *-*     *                             81F08970
0B15 1 4C00 08EC       BSC  L TRB          RETURN TO COMMON              81F08980
                     ************************************************** 81F08990
                     *          SET AND TEST ONE CORE LOCATION        * 81F09000
                     *          USING ADDRESSING PATTERN              * 81F09010
                     ************************************************** 81F09020
                     * THIS ROUTINE WILL SET THE CONTENTS OF LOCATION  * 81F09030
                     * 'ADRS' INTO THE CORE LOCATION REFERENCED BY THE * 81F09040
                     * CONTENTS OF LOCATION 'ADRS' AND CHECK THE       * 81F09050
                     * RESULTS.                                       * 81F09060
                     ************************************************** 81F09070
                     *                                                  81F09080
0B17 0 C302          TR2    LD   3 ADRS-CMN    GET CONTENTS OF LOC 'ADRS' 81F09090
0B18 0 D319            STO  3 MOD1-CMN    SAVE FOR PRINT                81F09100
0B19 0 43B8            BSI  3 STINT-CMN   SET MONITOR INDICATOR         81F09110
0B1A 0 D4C0            DC     /D4C0       INSTRUCTION =                 81F09120
0B1B 1 0C5C            DC     ADRS        * STO I ADRS INTO AUX CORE    81F09130
0B1C 0 43CD            BSI  3 CKINT-CMN   CHECK INTERNAL INTERRUPT      81F09140
0B1D 1 0C5C            DC     ADRS        ADDRESS BEING TESTED          81F09150
0B1E 0 43B8            BSI  3 STINT-CMN   SET MONITOR INDICATOR         81F09160
0B1F 0 C4C0            DC     /C4C0       INSTRUCTION =                 81F09170
0B20 1 0C5C            DC     ADRS        * LD I ADRS FROM AUX CORE     81F09180
0B21 0 43CD            BSI  3 CKINT-CMN   CHECK INTERNAL INTERRUPT      81F09190
0B22 1 0C5C            DC     ADRS        ADDRESS BEING TESTED          81F09200
0B23 0 D31B            STO  3 MOD3-CMN    SAVE FOR PRINT                81F09210
0B24 0 C302            LD   3 ADRS-CMN    GET PATTERN WORD              81F09220
0B25 0 D31A            STO  3 MOD2-CMN    SAVE FOR PRINT                81F09230
0B26 0 F31B            EOR  3 MOD3-CMN    CHECK WORD                    81F09240
0B27 1 4C18 0B2F       BSC  L TR2A,+-     BRANCH IF CORRECT             81F09250
0B29 1 4400 0CE1       BSI  L PRINT       PRINT ERROR                   81F09260
0B2B 0 E023            DC     /E023       MESSAGE ID                    81F09270
0B2C 1 0C73            DC     MOD1        MESSAGE ADDRESS               81F09280
0B2D 0 0003            DC     3           WORD COUNT                    81F09290
0B2E 1 0B17            DC     TR2         LOCK RETURN                   81F09300
0B2F 1 4C00 08EC     TR2A  BSC  L TRB      EXIT                          81F09310
                     ************************************************** 81F09320
                     *          SET AND TEST ONE AUX CORE ADRS        * 81F09330
                     *          USING A FLOATING ONE PATTERN          * 81F09340
                     ************************************************** 81F09350
                     *                                                  81F09360
0B31 0 6111          TR3    LDX  1 17          SET INDEXING              81F09370
0B32 0 C302            LD   3 ADRS-CMN    SAVE ADDRESS FOR PRINT        81F09380
0B33 0 D319            STO  3 MOD1-CMN    *                             81F09390
0B34 1 C500 0C86     TR3A  LD   L1 FLONE-1    GET PATTERN WORD          81F09400
0B36 0 D31A            STO  3 MOD2-CMN    SAVE FOR PRINT                81F09410
0B37 0 43B8            BSI  3 STINT-CMN   SET MONITOR INDICATOR         81F09420
0B38 0 D4C0            DC     /D4C0       INSTRUCTION =                 81F09430
0B39 1 0C5C            DC     ADRS        * STO I ADRS INTO AUX CORE    81F09440
0B3A 0 43CD            BSI  3 CKINT-CMN   CHECK INTERNAL INTERRUPT      81F09450
0B3B 1 0C5C            DC     ADRS        ADDRESS BEING TESTED          81F09460
0B3C 0 43B8            BSI  3 STINT-CMN   SET MONITOR INDICATOR         81F09470
0B3D 0 C4C0            DC     /C4C0       INSTRUCTION =                 81F09480
0B3E 1 0C5C            DC     ADRS        * LD I ADRS FROM AUX CORE     81F09490
0B3F 0 43CD            BSI  3 CKINT-CMN   CHECK INTERNAL INTERRUPT      81F09500
0B40 1 0C5C            DC     ADRS        ADDRESS BEING TESTED          81F09510
0B41 0 D31B            STO  3 MOD3-CMN    SAVE FOR PRINT                81F09520
0B42 0 F31A            EOR  3 MOD2-CMN    CHECK WORD                    81F09530
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0B43 1 4C18 0B4B          BSC  L  TR3B,+-     BRANCH IF CORRECT          81F09540
0B45 1 4400 0CE1          BSI  L  PRINT       PRINT ERROR                81F09550
0B47 0 E024               DC      /E024       MESSAGE ID                 81F09560
0B48 1 0C73               DC      MOD1        MESSAGE ADDRESS            81F09570
0B49 0 0003               DC      3           WORD COUNT                 81F09580
0B4A 1 0B34               DC      TR3A        LOCK RETURN                81F09590
0B4B 0 71FF          TR3B MDX     1 -1        DECR INDEX                 81F09600
0B4C 0 70E7               MDX     TR3A        LOOP                       81F09610
0B4D 1 4C00 08EC          BSC  L  TRB         EXIT                       81F09620
                     *                                                   81F09630
                     ***************************************************81F09640
                     *                SET AND TEST ONE AUX CORE      *   81F09650
                     *                LOCATION USING A FLOATING      *   81F09660
                     *                ZERO PATTERN                   *   81F09670
                     ***************************************************81F09680
                     *                                                   81F09690
0B4F 0 6110          TR4  LDX     1 16        SET INDEXING               81F09700
0B50 0 C302               LD      3 ADRS-CMN  SAVE ADDRESS FOR PRINT     81F09710
0B51 0 D319               STO     3 MOD1-CMN  *                          81F09720
0B52 1 C500 0C97     TR4A LD     L1 FLZRO-1   GET PATTERN WORD           81F09730
0B54 0 D31A               STO     3 MOD2-CMN  SAVE FOR PRINT             81F09740
0B55 0 43B8               BSI     3 STINT-CMN SET MONITOR INDICATOR      81F09750
0B56 0 D4C0               DC        /D4C0     INSTRUCTION =              81F09760
0B57 1 0C5C               DC        ADRS      * STO I ADRS INTO AUX CORE 81F09770
0B58 0 43CD               BSI     3 CKINT-CMN CHECK INTERNAL INTERRUPT   81F09780
0B59 1 0C5C               DC        ADRS      ADDRESS BEING TESTED       81F09790
0B5A 0 43B8               BSI     3 STINT-CMN SET MONITOR INDICATOR      81F09800
0B5B 0 C4C0               DC        /C4C0     INSTRUCTION =              81F09810
0B5C 1 0C5C               DC        ADRS      * LD I ADRS FROM AUX CORE  81F09820
0B5D 0 43CD               BSI     3 CKINT-CMN CHECK INTERNAL INTERRUPT   81F09830
0B5E 1 0C5C               DC        ADRS      ADDRESS BEING TESTED       81F09840
0B5F 0 D31B               STO     3 MOD3-CMN  SAVE FOR PRINT             81F09850
0B60 0 F31A               EOR     3 MOD2-CMN  CHECK WORD                 81F09860
0B61 1 4C18 0B69          BSC  L  TR4B,+-     BRANCH IF CORRECT          81F09870
0B63 1 4400 0CE1          BSI  L  PRINT       PRINT ERROR                81F09880
0B65 0 E025               DC      /E025       MESSAGE ID                 81F09890
0B66 1 0C73               DC      MOD1        MESSAGE ADDRESS            81F09900
0B67 0 0003               DC      3           WORD COUNT                 81F09910
0B68 1 0B52               DC      TR4A        LOCK RETURN                81F09920
0B69 0 71FF          TR4B MDX     1 -1        DECR INDEX                 81F09930
0B6A 0 70E7               MDX     TR4A        LOOP                       81F09940
0B6B 1 4C00 08EC          BSC  L  TRB         RETURN TO COMMON           81F09950
                     ***************************************************81F09960
                     *                TEST AUX CORE USING THE WORST  *   81F09970
                     *                CASE PATTERN.                  *   81F09980
                     ***************************************************81F09990
                     *                                                   81F10000
                     *                THE PATTERN USED IS                81F10010
                     *                                                   81F10020
                     *          64 WORDS-FFFF                            81F10030
                     *          64 WORDS-0000                            81F10040
                     *          64 WORDS-FFFF                            81F10050
                     *          64 WORDS-0000                            81F10060
                     *          64 WORDS-0000                            81F10070
                     *          64 WORDS-FFFF                            81F10080
                     *          64 WORDS-0000                            81F10090
                     *          64 WORDS-FFFF                            81F10100
                     *          REPEAT THE SEQUENCE                      81F10110
                     ***************************************************81F10120
                     *                                                   81F10130
0B6D 0 C320          TR5  LD      3 HE026-CMN SET MESSAGE ID             81F10140
0B6E 1 D400 0BCB          STO  L  TR5PR       * IN PRINT CALL            81F10150
0B70 0 C34E               LD      3 WCPT-CMN  GET PATTERN ADDRESS        81F10160
0B71 1 D400 0B8C     TR67 STO  L  TR5P+1      SET IN COMMON ROUTINE      81F10170
0B73 1 D400 0BBC          STO  L  TR5Q+1      *                          81F10180
0B75 1 4C00 0B86          BSC  L  TR567       GO TO COMMON ROUTINE       81F10190
                     *                                                   81F10200
                     ***************************************************81F10210
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                     *                TEST  AUX CORE USING THE       * 81F10220
                     *                COMPLIMENT WORST CASE PATTERN  * 81F10230
                     ***************************************************81F10240
                     *                                                   81F10250
                     *                THE PATTERN USED IS                81F10260
                     *                                                   81F10270
                     *          64 WORDS-0000                            81F10280
                     *          64 WORDS-FFFF                            81F10290
                     *          64 WORDS-0000                            81F10300
                     *          64 WORDS-FFFF                            81F10310
                     *          64 WORDS-FFFF                            81F10320
                     *          64 WORDS-0000                            81F10330
                     *          64 WORDS-FFFF                            81F10340
                     *          64 WORDS-0000                            81F10350
                     *          REPEAT THE SEQUENCE                      81F10360
                     ***************************************************81F10370
                     *                                                   81F10380
0B77 0 C320          T5   LD      3 HE026-CMN SET MESSAGE ID             81F10390
0B78 1 D400 0BCB          STO  L  TR5PR       * IN PRINT CALL            81F10400
0B7A 0 C351               LD      3 CMWC-CMN  GET PATTERN ADDRESS        81F10410
0B7B 0 70F5               MDX       TR67      SET IN COMMON ROUTINE      81F10420
                     *                                                   81F10430
                     ***************************************************81F10440
                     *                SET AND CHECK A PATTERN OF     *   81F10450
                     *                0101--- INTO EACH AUX CORE     *   81F10460
                     *                LOCATION.  THE PATTERN WORD    *   81F10470
                     *                USED IS HEX 5555.              *   81F10480
                     ***************************************************81F10490
                     *                                                   81F10500
0B7C 0 C321          TR6  LD      3 HE027-CMN SET MESSAGE ID             81F10510
0B7D 1 D400 0BCB          STO  L  TR5PR       * IN PRINT CALL            81F10520
0B7F 0 C34F               LD      3 AL01-CMN  GET PATTERN ADDRESS        81F10530
0B80 0 70F0               MDX       TR67      SET IN COMMON ROUTINE      81F10540
                     *                                                   81F10550
                     ***************************************************81F10560
                     *                SET AND CHECK A PATTERN OF     *   81F10570
                     *                1010--- INTO EACH AUX CORE     *   81F10580
                     *                LOCATION.  THE PATTERN WORD    *   81F10590
                     *                USED IS HEX AAAA.              *   81F10600
                     ***************************************************81F10610
                     *                                                   81F10620
0B81 0 C322          TR7  LD      3 HE028-CMN SET MESSAGE ID             81F10630
0B82 1 D400 0BCB          STO  L  TR5PR       * IN PRINT CALL            81F10640
0B84 0 C350               LD      3 AL10-CMN  GET PATTERN ADDRESS        81F10650
0B85 0 70EB               MDX       TR67      SET IN COMMON ROUTINE      81F10660
                     *                                                   81F10670
                     ***************************************************81F10680
                     *                COMMON ROUTINE TO TR4, TR5     *   81F10690
                     *                AND TR6.  THIS ROUTINE WILL    *   81F10700
                     *                SET AND TEST THE WORST CASE    *   81F10710
                     *                PATTERN, ALTERNATE 0-1 PATTERN *   81F10720
                     *                AND ALTERNATE 1-0 PATTERN.     *   81F10730
                     ***************************************************81F10740
                     *                                                   81F10750
0B86 0 6108          TR567 LDX    1 8         SET PATTERN INDEX          81F10760
0B87 0 6A6A               STX     2 TR5K+1    SAVE IX 2                  81F10770
0B88 0 C302               LD      3 ADRS-CMN  GET LOC ADRS               81F10780
0B89 0 D311               STO     3 TSTCT-CMN SAVE                       81F10790
0B8A 0 6240          TR5A LDX     2 64        SET LENGTH INDEX           81F10800
0B8B 0 C500 0000     TR5P LD     L1 *-*       GET A PATTERN WORD         81F10810
0B8D 0 43B8               BSI     3 STINT-CMN SET MONITOR INDICATOR      81F10820
0B8E 0 D4C0               DC        /D4C0     INSTRUCTION =              81F10830
0B8F 1 0C5C               DC        ADRS      * STO I ADRS  INTO AUX     81F10840
0B90 0 43CD               BSI     3 CKINT-CMN CHECK INTERNAL INTERRUPT   81F10850
0B91 1 0C5C               DC        ADRS      ADDRESS BEING TESTED       81F10860
0B92 1 7400 0C68          MDX  L  SNAD,0      CHECK SINGLE ADDRESS SW    81F10870
0B94 0 701F               MDX       TR5E      BRANCH IF SINGLE ADDRESS   81F10880
0B95 1 C400 0802          LD   L  SW0         GET SWITCH FUNCTION 0      81F10890
```

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0B97 1 4C04 08A7          BSC  L  CNTLO,E    BRANCH IF TERMINATION REQ  81F10900
                          *                                            81F10910
                          *                CHECK FOR END OF CORE       81F10920
                          *                                            81F10930
0B99 0 C302               LD     3 ADRS-CMN  GET CURRENT ADDRESS        81F10940
0B9A 0 9301               S      3 MAXAD-CMN SUBTRACT MAXIMUM ADDRESS   81F10950
0B9B 1 4C18 0BB4          BSC  L  TR5E,+-     BRANCH IF END OF CORE      81F10960
                          *                                            81F10970
0B9D 1 4400 0CCC          BSI  L  MNEX        EXIT TO MONITOR            81F10980
0B9F 1 0BA0               DC      TR5L        RETURN ADDRESS             81F10990
                          *                                            81F11000
0BA0 0 C302      TR5L     LD     3 ADRS-CMN   INCREMENT ADDRESS          81F11010
0BA1 0 830B               A      3 K1-CMN     *                          81F11020
0BA2 0 D302               STO    3 ADRS-CMN   *                          81F11030
0BA3 0 1008               SLA      8          CHECK FOR END OF BLOCK     81F11040
0BA4 1 4C18 0BAC          BSC  L  TR5D,+-     BR IF END OF BLOCK         81F11050
0BA6 0 72FF      TR5C     MDX    2 -1         DECR LENGTH INDEX          81F11060
0BA7 0 70E3               MDX      TR5P       CONTINUE PATTERN           81F11070
0BA8 0 71FF               MDX    1 -1         DECR PATTERN INDEX         81F11080
0BA9 0 70E0               MDX      TR5A       CONTINUE PATTERN           81F11090
0BAA 0 6108               LDX    1 8          RESET PATTERN INDEX        81F11100
0BAB 0 70DE               MDX      TR5A       CONTINUE PATTERN           81F11110
                          *                                            81F11120
0BAC 1 7400 0C69 TR5D     MDX  L  SNBK,0      CHECK SINGLE BLOCK SW      81F11130
0BAE 0 7005               MDX      TR5E       BRANCH IF SINGLE BLOCK     81F11140
                          *                                            81F11150
0BAF 0 C302               LD     3 ADRS-CMN   ADJUST ADRS TO NEXT BLOCK  81F11160
0BB0 0 8305               A      3 H1000-CMN  *                          81F11170
0BB1 0 E309               AND    3 HF1FF-CMN  *                          81F11180
0BB2 0 D302               STO    3 ADRS-CMN   *                          81F11190
0BB3 0 70F2               MDX      TR5C       CONTINUE ROUTINE           81F11200
                          *                                            81F11210
                          *                                            81F11220
                          *                                            81F11230
                          *              PATTERN IS SET-CHECK          81F11240
                          *                                            81F11250
0BB4 1 4400 0CCC TR5E     BSI  L  MNEX        EXIT TO MONITOR            81F11260
0BB6 1 0BB7               DC      TR5N        RETURN ADDRESS             81F11270
0BB7 0 6108      TR5N     LDX    1 8          SET PATTERN INDEX          81F11280
0BB8 0 C311               LD     3 TSTCT-CMN  RESTORE STARTING ADDRESS   81F11290
0BB9 0 D302               STO    3 ADRS-CMN   *                          81F11300
0BBA 0 6240      TR5F     LDX    2 64         SET LENGTH INDEX           81F11310
0BBB 0 C500 0000 TR5Q     LD     L1 *-*       GET PATTERN WORD           81F11320
0BBD 0 D31A               STO    3 MOD2-CMN   SAVE FOR PRINT             81F11330
0BBE 0 43B8               BSI    3 STINT-CMN  SET MONITOR INDICATOR      81F11340
0BBF 0 C4C0               DC       /C4C0      INSTRUCTION =              81F11350
0BC0 1 0C5C               DC       ADRS       * LD I ADRS  FROM AUX CORE 81F11360
0BC1 0 43CD               BSI    3 CKINT-CMN  CHECK INTERNAL INTERRUPT   81F11370
0BC2 1 0C5C               DC       ADRS       ADDRESS BEING TESTED       81F11380
0BC3 0 D31B               STO    3 MOD3-CMN   SAVE FOR PRINT             81F11390
0BC4 0 F31A               EOR    3 MOD2-CMN   CHECK WORD                 81F11400
0BC5 1 4C18 0BCF          BSC  L  TR5M,+-     BRANCH IF CORRECT          81F11410
0BC7 0 C302               LD     3 ADRS-CMN   SAVE ADDRESS FOR PRINT     81F11420
0BC8 0 D319               STO    3 MOD1-CMN   *                          81F11430
0BC9 1 4400 0CE1          BSI  L  PRINT       PRINT ERROR                81F11440
0BCB 0 0000      TR5PR    DC       *-*        MESSAGE ID                 81F11450
0BCC 1 0C73               DC       MOD1       MESSAGE ADDRESS            81F11460
0BCD 0 0003               DC       3          WORD COUNT                 81F11470
0BCE 1 0BBB               DC       TR5Q       LOCK RETURN                81F11480
                          *                                            81F11490
0BCF 1 7400 0C68 TR5M     MDX  L  SNAD,0      CHECK SINGLE ADDRESS SW    81F11500
0BD1 0 701F               MDX      TR5K       BRANCH IF SINGLE ADDRESS   81F11510
0BD2 1 C400 0802          LD   L  SW0         GET SWITCH FUNCTION 0      81F11520
0BD4 1 4C04 08A7          BSC  L  CNTLO,E     BRANCH IF TERMINATION REQ  81F11530
                          *                                            81F11540
                          *                CHECK FOR END OF CORE       81F11550
                          *                                            81F11560
0BD6 0 C302               LD     3 ADRS-CMN   GET CURRENT ADDRESS        81F11570
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0BD7 0 9301               S      3 MAXAD-CMN  SUBTRACT MAXIMUM ADDRESS   81F11580
0BD8 1 4C18 0BF1          BSC  L  TR5K,+-     BRANCH IF AT END OF CORE   81F11590
                          *                                            81F11600
0BDA 1 4400 0CCC          BSI  L  MNEX        EXIT TO MONITOR            81F11610
0BDC 1 0BDD               DC      TR5O        RETURN ADDRESS             81F11620
                          *                                            81F11630
0BDD 0 C302      TR5O     LD     3 ADRS-CMN   INCREMENT ADDRESS          81F11640
0BDE 0 830B               A      3 K1-CMN     *                          81F11650
0BDF 0 D302               STO    3 ADRS-CMN   *                          81F11660
0BE0 0 1008               SLA      8          CHECK FOR END OF BLOCK     81F11670
0BE1 1 4C18 0BE9          BSC  L  TR5J,+-     BRANCH IF END OF BLOCK     81F11680
0BE3 0 72FF      TR5H     MDX    2 -1         DECR LENGTH INDEX          81F11690
0BE4 0 70D6               MDX      TR5Q       CONTINUE                   81F11700
0BE5 0 71FF               MDX    1 -1         DECR PATTERN INDEX         81F11710
0BE6 0 70D3               MDX      TR5F       CONTINUE                   81F11720
0BE7 0 6108               LDX    1 8          RESTORE PATTERN INDEX      81F11730
0BE8 0 70D1               MDX      TR5F       CONTINUE                   81F11740
                          *                                            81F11750
0BE9 1 7400 0C69 TR5J     MDX  L  SNBK,0      CHECK SINGLE BLOCK SW      81F11760
0BEB 0 7005               MDX      TR5K       BRANCH IF SINGLE BLOCK     81F11770
                          *                                            81F11780
0BEC 0 C302               LD     3 ADRS-CMN   ADJUST ADRS TO NEXT BLOCK  81F11790
0BED 0 8305               A      3 H1000-CMN  *                          81F11800
0BEE 0 E309               AND    3 HF1FF-CMN  *                          81F11810
0BEF 0 D302               STO    3 ADRS-CMN   *                          81F11820
0BF0 0 70F2               MDX      TR5H       CONTINUE ROUTINE           81F11830
                          *                                            81F11840
0BF1 0 6600 0000 TR5K     LDX  L2 *-*         RESTORE INDEX 2            81F11850
0BF3 1 4C00 0908          BSC  L  TRC         ROUTINE COMPLETE           81F11860
                          *                                            81F11870
                          ********************************************** 81F11880
                          *              TEST AUX CORE FOR INTERNAL    * 81F11890
                          *              INTERRUPT ON ILLEGAL ADDRESS  * 81F11900
                          ********************************************** 81F11910
                          *                                            81F11920
0BF5 0 C302      TR8      LD     3 ADRS-CMN   GET LEGAL ADDRESS          81F11930
0BF6 0 EB04               OR     3 H0200-CMN  SET BIT 6 = 1              81F11940
0BF7 0 D303               STO    3 ADRS1-CMN  SAVE ILLEGAL ADDRESS       81F11950
0BF8 1 C400 07FF TR8A     LD   L  PID         INFORM MONITOR TO EXPECT   81F11960
0BFA 0 D400 0133          STO  L  CRCK        * INTERNAL INTERRUPT       81F11970
0BFC 0 C4C0               DC       /C4C0      INSTRUCTION =              81F11980
0BFD 1 0C5D               DC       ADRS1      * LD  I ADRS1 INTO AUX     81F11990
0BFE 0 610A               LDX    1 10         DELAY FOR INTERRUPT        81F12000
0BFF 0 71FF      TR8B     MDX    1 -1         *                          81F12010
0C00 0 70FE               MDX      TR8B       *                          81F12020
0C01 0 7400 0133          MDX  L  CRCK,0      DID INTERRUPT OCCUR        81F12030
0C03 0 7002               MDX      TR8D       BRANCH IF NOT              81F12040
0C04 1 4C00 08EC TR8C     BSC  L  TRB         EXIT ROUTINE               81F12050
                          *                                            81F12060
                          *                INTERRUPT DID NOT OCCUR     81F12070
                          *                                            81F12080
0C06 0 1010      TR8D     SLA      16         CLEAR MONITOR INDICATOR    81F12090
0C07 0 D400 0133          STO  L  CRCK        *                          81F12100
0C09 0 C303               LD     3 ADRS1-CMN  GET ILLEGAL ADDRESS        81F12110
0C0A 0 D319               STO    3 MOD1-CMN   SAVE FOR PRINT             81F12120
0C0B 1 4400 0CE1          BSI  L  PRINT       PRINT ERROR                81F12130
0C0D 0 E029               DC       /E029      MESSAGE ID                 81F12140
0C0E 1 0C73               DC       MOD1       MESSAGE ID                 81F12150
0C0F 0 0001               DC       1          WORD COUNT                 81F12160
0C10 1 0BF8               DC       TR8A       LOCK RETURN                81F12170
0C11 0 70F2               MDX      TR8C       GO EXIT ROUTINE            81F12180
                          *                                            81F12190
                          ********************************************** 81F12200
                          *              TABLE OF COMMON VALUES        * 81F12210
                          ********************************************** 81F12220
                          *                                            81F12230
                          ********************************************** 81F12240
                          *              ROUTINE TO INFORM MONITOR TO  * 81F12250
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                        *                  IGNORE INTERNAL INTERRUPT IF   * 81F12260
                        *                  THIS PROGRAM IS RUNNING       * 81F12270
                        ************************************************** 81F12280
                        *                                                 81F12290
0C12 0 0000             STINT DC     *-*       ENTRY POINT               81F12300
0C13 0 D058                   STO    TMP       SAVE A REGISTER           81F12310
0C14 0 690E                   STX    1 STINA+1 SAVE INDEX 1              81F12320
0C15 1 6580 0C12              LDX    I1 STINT  INDEX = CALL ADDRESS      81F12330
0C17 0 C100                   LD     1 0       GET INSTRUCTION           81F12340
0C18 0 D03F                   STO    MOD02     SAVE FOR PRINT            81F12350
0C19 0 C101                   LD     1 1       GET INSTRUCTION ADDRESS   81F12360
0C1A 0 D03E                   STO    MOD03     SAVE FOR PRINT            81F12370
0C1B 0 71FF                   MDX    1 -1      SET LOCK RETURN           81F12380
0C1C 1 6D00 0C51              STX    L1 RTRN1  SAVE LOCK ADDRESS         81F12390
0C1E 1 C400 07FF              LD     L  PID    SET MONITOR INDICATOR     81F12400
0C20 0 D400 0133              STO    L  CRCK   *                         81F12410
0C22 0 6500 0000        STINA LDX    L1 *-*    RESTORE INDEX 1           81F12420
0C24 0 C047                   LD     TMP       RESTORE A REGISTER        81F12430
0C25 1 4C80 0C12              BSC    I  STINT  ROUTINE EXIT              81F12440
                        ************************************************** 81F12450
                        *                  CHECK CURRENT ADDRESS FOR     * 81F12460
                        *                  UNEXPECTED INTERRUPT(INTERNAL) * 81F12470
                        ************************************************** 81F12480
                        *                                                 81F12490
0C27 0 0000             CKINT DC     *-*       ENTRY POINT               81F12500
0C28 0 D043                   STO    TMP       SAVE A REGISTER           81F12510
0C29 0 C400 0133              LD     L  CRCK   CHECK IF INTRPT OCCURRED   81F12520
0C2B 1 4C20 0C44              BSC    L  CKINB,Z BRANCH IF NOT            81F12530
0C2D 0 6915                   STX    1 CKINA+1 SAVE INDEX 1              81F12540
0C2E 1 6580 0C27              LDX    I1 CKINT  INDEX = CALL ADDRESS      81F12550
0C30 0 C580 0000              LD     I1 0      GET TEST ADDRESS          81F12560
0C32 0 D024                   STO    MOD01     SAVE FOR PRINT            81F12570
0C33 0 C018                   LD     RTRNA     SET PRINT RETURN          81F12580
0C34 1 D400 0CE1              STO    L  PRINT  *                         81F12590
0C36 0 C016                   LD     MSAD1     SET MESSAGE ADDRESS       81F12600
0C37 1 D400 0D2C              STO    L  PRNTP+2 *                        81F12610
0C39 1 D400 0CF2              STO    L  PRNTI+1 *                        81F12620
0C3B 0 802A                   A      K2        *                         81F12630
0C3C 1 D400 0D08              STO    L  PRNTB+1 *                        81F12640
0C3E 1 6580 0C43              LDX    I1 CKINA+1 RESTORE IX 1 IN CASE OF LK 81F12650
0C40 1 4C00 0CE9              BSC    L  PRNTO  PRINT MESSAGE             81F12660
0C42 0 6500 0000        CKINA LDX    L1 *-*    RESTORE INDEX 1           81F12670
0C44 0 1010             CKINB SLA    16        CLEAR MONITOR INDICATOR   81F12680
0C45 0 D400 0133              STO    L  CRCK   *                         81F12690
0C47 1 7401 0C27              MDX    L  CKINT,1 INCR RETURN              81F12700
0C49 0 C022                   LD     TMP       RESTORE A REGISTER        81F12710
0C4A 1 4C80 0C27              BSC    I  CKINT  EXIT ROUTINE              81F12720
                        *                                                 81F12730
                        *                SPECIAL MESSAGE CONSTANTS        81F12740
                        *                                                 81F12750
0C4C 1 0C4E             RTRNA DC     RTRN      SPECIAL PRINT RETURN      81F12760
0C4D 1 0C54             MSAD1 DC     SPMSG     ADDRESS OF SPECIAL MESSAGE 81F12770
0C4E 0 E005             RTRN  DC     /E005     SPECIAL MESSAGE ID        81F12780
0C4F 1 0C57                   DC     MOD01     MODIFIER ADDRESS          81F12790
0C50 0 0003                   DC     3         WORD COUNT                81F12800
0C51 0 0000             RTRN1 DC     *-*       LOCK RETURN               81F12810
0C52 1 4C00 0C42              BSC    L  CKINA  RETURN TO CKINT ROUTINE   81F12820
0C54 0 0000             SPMSG DC     *-*       WORD COUNT                81F12830
0C55 0 0000                   DC     0         MSG LINE CONTROL          81F12840
0C56 0 0000                   DC     *-*       MESSAGE ID                81F12850
0C57 0 0000             MOD01 DC     *-*       MESSAGE MODIFIERS         81F12860
0C58 0 0000             MOD02 DC     *-*       *                         81F12870
0C59 0 0000             MOD03 DC     *-*       *                         81F12880
0C5A    0000                  BSS    E  0                                81F12890
0C5A 0 0000             CMN   DC     0         RESERVED                  81F12900
0C5B 0 0000             MAXAD DC     *-*       MAX AUX CORE ADRS         81F12910
0C5C 0 0000             ADRS  DC     *-*       AUX ADRS TO TEST          81F12920
0C5D 0 0000             ADRS1 DC     *-*       AUX ADRS TO TEST          81F12930
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0C5E 0 0200             H0200 DC     /0200     HEXADECIMAL CONSTANT      81F12940
0C5F 0 1000             H1000 DC     /1000     HEXADECIMAL CONSTANT      81F12950
0C60 0 5555             H5555 DC     /5555     HEXADECIMAL CONSTANT      81F12960
0C61 0 AAAA             HAAAA DC     /AAAA     HEXADECIMAL CONSTANT      81F12970
0C62 0 E000             HE000 DC     /E000     HEXADECIMAL CONSTANT      81F12980
0C63 0 F1FF             HF1FF DC     /F1FF     HEXADECIMAL CONSTANT      81F12990
0C64 0 FFFF             HFFFF DC     /FFFF     HEXADECIMAL CONSTANT      81F13000
                        *                                               81F13010
0C65 0 0001             K1    DC     1         DECIMAL CONSTANT          81F13020
0C66 0 0002             K2    DC     2         DECIMAL CONSTANT          81F13030
0C67 0 0004             K4    DC     4         DECIMAL CONSTANT          81F13040
                        *                                               81F13050
0C68 0 0000             SNAD  DC     *-*       SINGLE ADDRESS SWITCH     81F13060
0C69 0 0000             SNBK  DC     *-*       SINGLE BLOCK SWITCH       81F13070
0C6A 0 0000             EROC  DC     *-*       ERROR OCCURRED SWITCH     81F13080
0C6B 0 0000             TSTCT DC     *-*       TEMPORARY STORAGE         81F13090
0C6C 0 0000             TMP   DC     *-*       TEMPORARY STORAGE         81F13100
0C6D 1 0C70             MSGAD DC     MSGO      NORMAL MESSAGE ADDRESS    81F13110
0C6E 0 0009             NRTNS DC     9         NUMBER OF TEST ROUTINES   81F13120
                        *                                               81F13130
0C70    0000                 BSS    E  0                                81F13140
0C70 0 0000             MSGO  DC     *-*       MSG WORD COUNT            81F13150
0C71 0 0000                   DC     0         MSG LINE CONTROL          81F13160
0C72 0 0000                   DC     *-*       MSG ID                    81F13170
0C73 0 0000             MOD1  DC     *-*       MSG MODIFIERS             81F13180
0C74 0 0000             MOD2  DC     *-*       *                         81F13190
0C75 0 0000             MOD3  DC     *-*       *                         81F13200
0C76 0 0000             MOD4  DC     *-*       *                         81F13210
0C77 0 0000             MOD5  DC     *-*       *                         81F13220
0C78 0 0000             MOD6  DC     *-*       *                         81F13230
0C79 0 0000             MOD7  DC     *-*       *                         81F13240
                        *                                               81F13250
0C7A 0 E026             HE026 DC     /E026     MESSAGE ID-RTNS 5-6       81F13260
0C7B 0 E027             HE027 DC     /E027     MESSAGE ID-RTN 7          81F13270
0C7C 0 E028             HE028 DC     /E028     MESSAGE ID-RTN 8          81F13280
                        ************************************************** 81F13290
                        *                TABLE OF ROUTINE ADDRESS         81F13300
                        ************************************************** 81F13310
                        *                                               81F13320
0C7D 1 0835                   DC     EDERR     EDIT ENTRY-ILLEGAL ADRS   81F13330
0C7E 1 090A             RTTBL DC     TR1       AUX INSTRUCTION TEST      81F13340
0C7F 1 0B17                   DC     TR2       ADDRESSING TEST           81F13350
0C80 1 0B31                   DC     TR3       FLOATING ONE TEST         81F13360
0C81 1 0B4F                   DC     TR4       FLOATING ZERO TEST        81F13370
0C82 1 0B6D                   DC     TR5       WORST CASE PATTERN TEST   81F13380
0C83 1 0B77                   DC     T5        COMPL WORST CASE PATTERN  81F13390
0C84 1 0B7C                   DC     TR6       ALTERNATE 0/1 TEST        81F13400
0C85 1 0B81                   DC     TR7       ALTERNATE 1/0 TEST        81F13410
0C86 1 0BF5                   DC     TR8       ILLEGAL ADDRESSING TEST   81F13420
                        ************************************************** 81F13430
                        *                FLOATING ONE PATTERN           * 81F13440
                        ************************************************** 81F13450
0C87 0 0001             FLONE DC     /0001     BIT = 15                  81F13460
0C88 0 0002                   DC     /0002          14                   81F13470
0C89 0 0004                   DC     /0004          13                   81F13480
0C8A 0 0008                   DC     /0008          12                   81F13490
0C8B 0 0010                   DC     /0010          11                   81F13500
0C8C 0 0020                   DC     /0020          10                   81F13510
0C8D 0 0040                   DC     /0040           9                   81F13520
0C8E 0 0080                   DC     /0080           8                   81F13530
0C8F 0 0100                   DC     /0100           7                   81F13540
0C90 0 0200                   DC     /0200           6                   81F13550
0C91 0 0400                   DC     /0400           5                   81F13560
0C92 0 0800                   DC     /0800           4                   81F13570
0C93 0 1000                   DC     /1000           3                   81F13580
0C94 0 2000                   DC     /2000           2                   81F13590
0C95 0 4000                   DC     /4000           1                   81F13600
0C96 0 8000                   DC     /8000           0                   81F13610
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0C97 0 0000          DC      /0000             PARITY       81F13620
                ************************************************** 81F13630
                *               FLOATING ZERO PATTERN           * 81F13640
                ************************************************** 81F13650
0C98 0 FFFE     FLZRO DC     /FFFE     ZERO IN BIT PARITY & 15  81F13660
0C99 0 FFFD           DC     /FFFD                         14  81F13670
0C9A 0 FFFB           DC     /FFFB                         13  81F13680
0C9B 0 FFF7           DC     /FFF7                         12  81F13690
0C9C 0 FFEF           DC     /FFEF                         11  81F13700
0C9D 0 FFDF           DC     /FFDF                         10  81F13710
0C9E 0 FFBF           DC     /FFBF                          9  81F13720
0C9F 0 FF7F           DC     /FF7F                          8  81F13730
0CA0 0 FEFF           DC     /FEFF                          7  81F13740
0CA1 0 FDFF           DC     /FDFF                          6  81F13750
0CA2 0 FBFF           DC     /FBFF                          5  81F13760
0CA3 0 F7FF           DC     /F7770                         4  81F13770
0CA4 0 EFFF           DC     /EFFF                          3  81F13780
0CA5 0 DFFF           DC     /DFFF                          2  81F13790
0CA6 0 BFFF           DC     /BFFF                          1  81F13800
0CA7 0 7FFF           DC     /7FFF                          0  81F13810
                *                                              81F13820
0CA8 1 0CAB     WCPT  DC     WCPAT-1    PATTERN ADRS-WORST CASE  81F13830
0CA9 1 0CBB     AL01  DC     ALT01-1    PATTERN ADRS-ALT 0-1     81F13840
                *                                              81F13850
0CAA 1 0CC3     AL10  DC     ALT10-1    PATTERN ADRS-ALT 1-0     81F13860
                *                                              81F13870
0CAB 1 0CB3     CMWC  DC     CMPWC-1    PATTERN ADRS-CMPL WORST CS 81F13880
                ************************************************** 81F13890
                *               WORST CASE PATTERN              * 81F13900
                ************************************************** 81F13910
0CAC 0 FFFF     WCPAT DC     /FFFF      64 WORDS OF EACH PATTERN  81F13920
0CAD 0 0000           DC     /0000      * WORD WILL BE SET        81F13930
0CAE 0 FFFF           DC     /FFFF      *                         81F13940
0CAF 0 0000           DC     /0000      *                         81F13950
0CB0 0 0000           DC     /0000      *                         81F13960
0CB1 0 FFFF           DC     /FFFF      *                         81F13970
0CB2 0 0000           DC     /0000      *                         81F13980
0CB3 0 FFFF           DC     /FFFF      *                         81F13990
                ************************************************** 81F14000
                *           COMPLIMENT WORST CASE PATTERN       * 81F14010
                ************************************************** 81F14020
0CB4 0 0000     CMPWC DC     /0000      64 WORDS OF EACH PATTERN  81F14030
0CB5 0 FFFF           DC     /FFFF      * WORD WILL BE SET        81F14040
0CB6 0 0000           DC     /0000      *                         81F14050
0CB7 0 FFFF           DC     /FFFF      *                         81F14060
0CB8 0 FFFF           DC     /FFFF      *                         81F14070
0CB9 0 0000           DC     /0000      *                         81F14080
0CBA 0 FFFF           DC     /FFFF      *                         81F14090
0CBB 0 0000           DC     /0000      *                         81F14100
                ************************************************** 81F14110
                *            ALTERNATE 0-1 PATTERN              * 81F14120
                *             NOTE-THIS TABLE IS ARRANGED AS    * 81F14130
                *                  AN 8 WORD PATTERN TO         * 81F14140
                *                  ENABLE USE OF A COMMON       * 81F14150
                *                  ROUTINE WITH THIS PATTERN    * 81F14160
                *                  AND THE WORST CASE PATTERN*    81F14170
                ************************************************** 81F14180
0CBC 0 5555     ALT01 DC     /5555      TABLE COMPATABLE WITH     81F14190
0CBD 0 5555           DC     /5555      * WORST CASE PATTERN      81F14200
0CBE 0 5555           DC     /5555      *                         81F14210
0CBF 0 5555           DC     /5555      *                         81F14220
0CC0 0 5555           DC     /5555      *                         81F14230
0CC1 0 5555           DC     /5555      *                         81F14240
0CC2 0 5555           DC     /5555      *                         81F14250
0CC3 0 5555           DC     /5555      *                         81F14260
                ************************************************** 81F14270
                *            ALTERNATE 1-0 PATTERN              * 81F14280
                *             NOTE-THIS TABLE IS ARRANGED AS    * 81F14290
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                *                  AN 8 WORD PATTERN TO         * 81F14300
                *                  ENABLE USE OF A COMMON       * 81F14310
                *                  ROUTINE WITH THIS PATTERN    * 81F14320
                *                  AND THE WORST CASE PATTERN*    81F14330
                ************************************************** 81F14340
0CC4 0 AAAA     ALT10 DC     /AAAA      COMPATABLE WITH WORST     81F14350
0CC5 0 AAAA           DC     /AAAA      * CASE PATTERN            81F14360
0CC6 0 AAAA           DC     /AAAA      *                         81F14370
0CC7 0 AAAA           DC     /AAAA      *                         81F14380
0CC8 0 AAAA           DC     /AAAA      *                         81F14390
0CC9 0 AAAA           DC     /AAAA      *                         81F14400
0CCA 0 AAAA           DC     /AAAA      *                         81F14410
0CCB 0 AAAA           DC     /AAAA      *                         81F14420
                ************************************************** 81F14430
                *            COMMON EXIT TO MONITOR ROUTINE     * 81F14440
                ************************************************** 81F14450
                *                                                81F14460
0CCC 0 0000          MNEX  DC      *-*        ENTRY POINT        81F14470
0CCD 1 C480 0CCC           LD   I  MNEX       GET RETURN ADDRESS 81F14480
0CCF 0 D010                STO     CMEX+1     SAVE               81F14490
0CD0 0 6909                STX   1 CMEX1+1    SAVE INDEXING      81F14500
0CD1 0 6A0A                STX   2 CMEX2+1    *                  81F14510
0CD2 0 6B0B                STX   3 CMEX3+1    *                  81F14520
0CD3 1 6500 0CD9           LDX  L1 CMEX1      SET MONITOR RETURN 81F14530
0CD5 1 6D00 0809           STX  L1 MLSCF      *                  81F14540
0CD7 0 4C80 012D           BSC   I START      EXIT TO MONITOR    81F14550
                     *                                           81F14560
                     *           MONITOR WILL RETURN HERE        81F14570
                     *                                           81F14580
0CD9 0 6500 0000     CMEX1 LDX  L1 *-*        RESTORE INDEXING   81F14590
0CDB 0 6600 0000     CMEX2 LDX  L2 *-*        *                  81F14600
0CDD 0 6700 0000     CMEX3 LDX  L3 *-*        *                  81F14610
0CDF 0 4C00 0000     CMEX  BSC  L  *-*        RETURN TO CALLING ROUTINE 81F14620
                     *                                           81F14630
                ************************************************** 81F14640
                *                 PRINT ROUTINE                 * 81F14650
                ************************************************** 81F14660
                *                                               * 81F14670
                * THIS ROUTINE DETERMINES IF CALL IS TO LOG OR  * 81F14680
                * ERROR MONITOR ROUTINES.                       * 81F14690
                *                                               * 81F14700
                *    1. IF LOG-                                 * 81F14710
                *       A. CHECK LOG BYPASS OPTION AND EXIT     * 81F14720
                *          NORMALLY IF SELECTED.                * 81F14730
                *       B. IF NOT BYPASSED-BUILD A LOG CALL AND * 81F14740
                *          MAKE THE CALL.                         81F14750
                *       C. TAKE THE NORMAL EXIT.                * 81F14760
                *                                               * 81F14770
                *    2. IF ERROR-                                 81F14780
                *       A. CHECK LOCK ON ERROR OPTION, AND SET  * 81F14790
                *          ERROR LOCK OR NORMAL RETURN.         * 81F14800
                *       B. BUILD MONITOR ERROR CALL.            * 81F14810
                *       C. CHECK PRINT ONLY FIRST ERROR OPTION, * 81F14820
                *          AND CONTINUE IF OFF.  IF ON CHECK    * 81F14830
                *          ERROR HAS OCCURRED PROGRAM SWITCH.     81F14840
                *          1. IF ERROR HAS OCCURRED EXIT TO     * 81F14850
                *             PREVIOUSLY SET RETURN.            * 81F14860
                *          2. IF NO ERROR HAS OCCURRED-CONTINUE. * 81F14870
                *                                               * 81F14880
                *       D. CALL MONITOR ERROR ROUTINE.          * 81F14890
                *       E. ON MONITOR RETURN-SET ERROR HAS      * 81F14900
                *          OCCURRED PROGRAM SWITCH.             * 81F14910
                *       F. EXIT TO PREVIOUSLY SET RETURN.       * 81F14920
                *                                               * 81F14930
                * ****NOTE****                                  * 81F14940
                * IF ERROR OR LOG ROUTINES ARE BUSY THE ROUTINE * 81F14950
                * EXITS TO THE MONITOR START ROUTINE AND RE-TRIES * 81F14960
                * THE CALL UPON MONITOR RETURN.                 * 81F14970
```

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                              ****************************************************** 81F14980
                              *                                                      81F14990
OCE1 0 0000                   PRINT DC       *-*       ENTRY POINT                   81F15000
OCE2 1 C400 0C6D                    LD    L  MSGAD     GET MESSAGE ADDRESS           81F15010
OCE4 0 D047                         STO      PRNTP+2   SET IN ROUTINE                81F15020
OCE5 0 D00C                         STO      PRNTI+1   *                             81F15030
OCE6 1 8400 0C66                    A     L  K2        *                             81F15040
OCE8 0 D01F                         STO      PRNTB+1   *                             81F15050
OCE9 1 6D00 0D19              PRNTO STX   L1 PRNTC+1   SAVE INDEXING                 81F15060
OCEB 1 6E00 0D1B                    STX   L2 PRNTD+1   *                             81F15070
OCED 1 6F00 0D1D                    STX   L3 PRNTE+1   *                             81F15080
                              *                                                      81F15090
OCEF 1 6780 0CE1                    LDX   I3 PRINT     IX 3 = CALL ADDRESS           81F15100
OCF1 0 6600 0000              PRNTI LDX   L2 *-*       IX 2 = MSG ADDRESS            81F15110
OCF3 0 C303                         LD     3 3         GET LOCK RETURN               81F15120
OCF4 1 4C20 0CFA                    BSC   L  PRNTA,Z   BRANCH IF ACTIVE              81F15130
OCF6 0 C0EA                         LD       PRINT     GET RETURN                    81F15140
OCF7 1 8400 0C67                    A     L  K4        ADD 4                         81F15150
OCF9 0 7001                         MDX      PRNTH     SET AS LOCK RETURN            81F15160
OCFA 0 C303                   PRNTA LD     3 3         SET LOCK RETURN               81F15170
OCFB 1 D400 0D42              PRNTH STO   L  PRNTF+1   *                             81F15180
                              *                                                      81F15190
OCFD 0 C300                         LD     3 0         SET MESSAGE ID                81F15200
OCFE 0 D202                         STO    2 2         *                             81F15210
                              *                                                      81F15220
OCFF 1 6580 0800                    LDX   I1 RID       IX 1 = ROUTINE NUMBER         81F15230
0D01 1 C500 0C7D                    LD    L1 RTTBL-1   GET ROUTINE ADDRESS           81F15240
0D03 1 D400 0801                    STO   L  RAD       SET FOR MESSAGE               81F15250
                              *                                                      81F15260
0D05 0 C302                         LD     3 2         GET NUMBER OF MODIFIERS       81F15270
0D06 0 D200                         STO    2 0         SET AS MSG WORD COUNT         81F15280
                              *                                                      81F15290
0D07 0 C400 0000              PRNTB LD    L  *-*       GET MESSAGE ID                81F15300
0D09 1 F400 0C62                    EOR   L  HE000     CHECK FOR ERROR CALL          81F15310
0D0B 0 180C                         SRA      12        *                             81F15320
0D0C 1 4C18 0D22                    BSC   L  PRNTG,+-  BRANCH IF ERROR CALL          81F15330
                              *                                                      81F15340
0D0E 1 C400 0802                    LD    L  SWO       CHECK LOG BYPASS OPTION       81F15350
0D10 0 100D                         SLA      13        *                             81F15360
0D11 0 4828                         BSC      +Z        SKIP IF OFF                   81F15370
0D12 0 7005                         MDX      PRNTC     GO EXIT                       81F15380
                              *                                                      81F15390
                              *           CALL MONITOR LOG ROUTINE                   81F15400
                              *                                                      81F15410
0D13 0 4480 012F                    BSI   I  LOG       MONITOR LOG CALL              81F15420
0D15 1 0C70                         DC       MSGO      ADRS OF MESSAGE               81F15430
0D16 1 0D43                         DC       PRBSY     BUSY RETURN                   81F15440
0D17 0 0000                         DC       0         NOT USED                      81F15450
                              *                                                      81F15460
                              *           EXIT ROUTINE                               81F15470
                              *                                                      81F15480
0D18 0 6500 0000              PRNTC LDX   L1 *-*       RESTORE INDEXING              81F15490
0D1A 0 6600 0000              PRNTD LDX   L2 *-*       *                             81F15500
0D1C 0 6700 0000              PRNTE LDX   L3 *-*       *                             81F15510
0D1E 1 7404 0CE1                    MDX   L  PRINT,4   INCR RETURN                   81F15520
0D20 1 4C80 0CE1                    BSC   I  PRINT     EXIT ROUTINE                  81F15530
                              *                                                      81F15540
                              *           CALL MONITOR ERROR ROUTINE                 81F15550
                              *                                                      81F15560
0D22 1 C400 0802              PRNTG LD    L  SWO       CHECK 1ST ERROR ONLY          81F15570
0D24 0 100A                         SLA      10        * OPTION                      81F15580
0D25 1 4C10 0D2A                    BSC   L  PRNTP,-   BRANCH IF OFF                 81F15590
0D27 1 7400 0C6A                    MDX   L  EROC,0    SKIP IF NO ERROR              81F15600
0D29 0 7005                         MDX      PRNTQ     SKIP PRINT                    81F15610
                              *                                                      81F15620
0D2A 0 4480 0130              PRNTP BSI   I  ERROR     MONITOR ERROR CALL            81F15630
0D2C 0 0000                         DC       *-*       ADRS MESSAGE                  81F15640
0D2D 1 0D43                         DC       PRBSY     BUSY RETURN                   81F15650
```



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0D2E 1 0D38                         DC       ZLOOP     LOOP RETURN                   81F15660
0D2F 1 C400 0C64              PRNTQ LD    L  HFFFF     SET ERROR OCCURRED SW         81F15670
0D31 1 D400 0C6A                    STO   L  EROC      *                             81F15680
0D33 1 C400 0802                    LD    L  SWO       CHECK LOCK ON ERROR OPT       81F15690
0D35 0 100C                         SLA      12        *                             81F15700
0D36 0 4810                         BSC      -         SKIP IF ON                    81F15710
0D37 0 70E0                         MDX      PRNTC     NORMAL EXIT                   81F15720
                              *                                                      81F15730
                              *           LOCK ON ERROR OPTION SELECTED              81F15740
                              *                                                      81F15750
0D38 1 4400 0CCC              ZLOOP BSI   L  MNEX      EXIT TO MONITOR               81F15760
0D3A 1 0D3B                         DC       LOOP1     RETURN ADDRESS                81F15770
                              *                                                      81F15780
                              *           RETURN IS TO HERE                          81F15790
                              *                                                      81F15800
0D3B 1 6580 0D19              LOOP1 LDX   I1 PRNTC+1   RESTORE INDEXING              81F15810
0D3D 1 6680 0D1B                    LDX   I2 PRNTD+1   *                             81F15820
0D3F 1 6780 0D1D                    LDX   I3 PRNTE+1   *                             81F15830
0D41 0 4C00 0000              PRNTF BSC   L  *-*       LOCK RETURN                   81F15840
                              *                                                      81F15850
                              *           MONITOR BUSY RETURN                        81F15860
                              *                                                      81F15870
0D43 1 4400 0CCC              PRBSY BSI   L  MNEX      EXIT TO MONITOR               81F15880
0D45 1 0D07                         DC       PRNTB     RETURN ADDRESS                81F15890
                              *                                                      81F15900
0D46   00C8                         BSS      200       PATCH AREA                    81F15910
0E0E 0 0000                   PEND  DC       0         LAST PROGRAM ADDRESS          81F15920
0E10   0844                         END      BEG                                     81F15930
 NO STATEMENTS FLAGGED IN THE ABOVE ASSEMBLY
```

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ADRS    0C5C  C8C7 08C9 08CD 08F3 08FA 08FC 0903 0906 090A 0914 091B 0926 092C
              092E 0933 0935 093F 0945 0947 094C 094E 0959 0961 0963 096F 0979
              0983 0984 098D 0998 09B9 09DC 0A05 0A0C 0A0E 0A17 0A25 0A27 0A2E
              0A30 0A35 0A41 0A43 0A44 0A53 0A59 0A65 0A67 0A68 0A73 0A82 0A84
              0A8B 0A8D 0A92 0A9E 0AA0 0AA2 0AAD 0AB2 0ABE 0AC0 0AC1 0ACC 0ADA
              0ADC 0AE3 0AE5 0AE9 0AF5 0AF7 0AF8 0B04 0B09 0B17 0B1B 0B1D 0B20
              0B22 0B24 0B32 0B39 0B3B 0B3E 0B40 0B50 0B57 0B59 0B5C 0B5E 0B88
              0B8F 0B91 0B99 0BA0 0BA2 0BAF 0BB2 0BB9 0BC0 0BC2 0BC7 0BD6 0BDD
              0BDF 0BEC 0BEF 0BF5
ADRS1   0C5D  C84B 0856 C8C5 09BC 09C4 09C6 09CB 09CD 0BF7 0BFD 0C09
ALT01   0CBC  0CA9
ALT10   0CC4  0CAA
AL01    0CA9  0B7F
AL10    0CAA  0B84
BEG     0844  0E10
BEGIN   012C  0844
CKINA   0C42  0C2D 0C3E 0C52
CKINB   0C44  0C2B
CKINT   0C27  C913 091A 092D 0934 0946 094D 0962 096E 0982 098C 09A3 09AB 09C5
              09CC 09EB 09F2 0A0D 0A16 0A26 0A2F 0A42 0A51 0A66 0A72 0A83 0A8C
              0A9F 0AAC 0ABF 0ACB 0ADB 0AE4 0AF6 0B03 0B1C 0B21 0B3A 0B3F 0B58
              0B5D 0B90 0BC1 0C2E 0C47 0C4A
CMEX    0CDF  0CCF
CMEX1   0CD9  0CD0 0CD3
CMEX2   0CDB  0CD1
CMEX3   0CDD  0CD2
CMN     0C5A  C847 084B 0850 0855 0856 085C 085D 0868 086B 086E 0877 0882 0889
              0893 08AF 08B0 08B3 08B8 08C4 08C5 08C7 08C8 08C8 08C9 08CC 08CD
              08D8 08D9 08F3 08F4 08FA 08FB 08FC 0903 0904 0905 0906 090A 090B
              090E 090F 0910 0913 0916 0917 091A 091C 091D 0926 0927 0929 092A
              092D 092F 0930 0931 0934 0936 093F 0940 0941 0942 0943 0946 0949
              094A 094D 094F 0950 0959 095A 095B 095E 095F 0962 0969 096A 096B
              096E 0970 0979 097A 097C 097D 097F 0982 0984 0985 0988 0989 098C
              098E 098F 0998 099B 099F 09A0 09A3 09A5 09A7 09A8 09AB 09AD 09B9
              09BC 09BD 09BE 09C0 09C1 09C2 09C5 09C8 09C9 09CC 09CE 09CF 09D3
              09DC 09DF 09E0 09E4 09E6 09E7 09E8 09EB 09EE 09EF 09F2 09F4 09F5
              09F9 0A05 0A07 0A08 0A09 0A0A 0A0D 0A10 0A11 0A12 0A13 0A16 0A18
              0A21 0A22 0A23 0A26 0A28 0A29 0A2A 0A2B 0A2C 0A2F 0A31 0A32 0A35
              0A36 0A3D 0A3E 0A3F 0A42 0A44 0A45 0A48 0A49 0A4A 0A56 0A59 0A5A
              0A61 0A62 0A63 0A66 0A68 0A6A 0A6B 0A6C 0A6E 0A6F 0A72 0A74 0A75
              0A7E 0A7F 0A80 0A83 0A85 0A86 0A88 0A89 0A8C 0A8E 0A8F 0A92 0A93
              0A9A 0A9B 0A9C 0A9F 0AA2 0AA3 0AA5 0AA6 0AA8 0AA9 0AAC 0AAE 0AAF
              0AB2 0AB3 0ABA 0ABB 0ABC 0ABF 0AC1 0AC3 0AC5 0AC6 0AC7 0AC8 0ACB
              0ACD 0AD6 0AD7 0AD8 0ADB 0ADE 0ADF 0AE0 0AE1 0AE4 0AE6 0AE9 0AEA
              0AF1 0AF2 0AF3 0AF6 0AF8 0AF9 0AFC 0AFD 0AFF 0B00 0B03 0B05 0B06
              0B09 0B0A 0B17 0B18 0B19 0B1C 0B1E 0B21 0B23 0B24 0B25 0B26 0B32
              0B33 0B36 0B37 0B3A 0B3C 0B3F 0B41 0B42 0B50 0B51 0B54 0B55 0B58
              0B5A 0B5D 0B5F 0B60 0B6D 0B70 0B77 0B7A 0B7C 0B7F 0B81 0B84 0B88
              0B89 0B8D 0B90 0B99 0B9A 0BA0 0BA1 0BA2 0BAF 0BB0 0BB1 0BB2 0BB8
              0BB9 0BBD 0BBE 0BC1 0BC3 0BC4 0BC7 0BC8 0BD6 0BD7 0BDD 0BDE 0BDF
              0BEC 0BED 0BEE 0BEF 0BF5 0BF6 0BF7 0C09 0C0A
CMPWC   0CB4  0CAB
CMWC    0CAB  0B7A
CNTL    0868  085E 0908
CNTLB   088B  086F
CNTLC   0897  0871 0875
CNTLD   089F  088F
CNTLE   08AF  087F
CNTLF   08D0  08B6 08BF 08C3 08CB
CNTLG   08D8  0886
CNTLJ   08B3  08DC
CNTLK   087A  0896
CNTLL   08B1  088A
CNTLM   08C0  08BA
CNTLN   08C4  08BD 08C1
CNTLO   08A7  087C 08F1 0B97 0BD4
CNTLP   08CC  08CA
COMPT   0810
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CRCK    0133  084E 085A 0BFA 0C01 0C07 0C20 0C29 0C45
DDEF    0811  0816 081D 0829 0835
EDERR   0835  0832 0C7D
END     012E  083F 0866 089D 08A5 08AD 08D6
EPA     0808
EROC    0C6A  086B 0D27 0D31
ERROR   0130  0D2A
FLONE   0C87  0B34
FLZRO   0C98  0B52
HAAAA   0C61  09BE 09C0 09CF 09D3 0A08 0A21 0A28 0A32 0A3D 0A61 0A6B 0A75 0A7E
              0A85 0A8F 0A9A 0AA5 0AAF 0ABA 0AC6 0AD6 0ADF 0AF1 0AFC 0B06
HE000   0C62  0D09
HE026   0C7A  0B6D 0B77
HE027   0C7B  0B7C
HE028   0C7C  0B81
HFFFF   0C64  0850 085D 08AF 08D8 090E 092F 0941 0969 097C 09A5 0A2A 0D2F
HF1FF   0C63  0905 0BB1 0BEE
HO200   0C5E  0BF6
H1000   0C5F  0904 0BB0 0BED
H5555   0C60  09E4 09E6 09F5 09F9 0A11 0A49
IPA     0806
K1      0C65  0893 08FB 095B 097A 09E0 0A45 0AA3 0AF9 0BA1 0BDE
K2      0C66  0C3B 0CE6
K4      0C67  0CF7
LOG     012F  0D13
LOOP1   0D3B  0D3A
LPA     0807
MATO    0134
MAXAD   0C5B  082A 08F4 0B9A 0BD7
MLSCF   0809  082E 0CD5
MNEX    0CCC  08F7 0A02 0B9D 0BB4 0BDA 0CCD 0D38 0D43
MOD01   0C57  0C32 0C4F
MOD02   0C58  0C18
MOD03   0C59  0C1A
MOD1    0C73  0817 0837 083C 086E 0877 089A 08B3 08B8 08C4 08CC 08D3 090B 0923
              0927 093C 0940 0956 095A 0976 0985 0995 099B 09B6 09BD 09D9 09DF
              09EC 09F3 09FF 0A07 0A1E 0A36 0A3A 0A5A 0A5E 0A6A 0A7B 0A93 0A97
              0AB3 0AB7 0AC3 0AD3 0AEA 0AEE 0B0A 0B0E 0B18 0B2C 0B33 0B48 0B51
              0B66 0BC8 0BCC 0C0A 0C0E
MOD2    0C74  090F 091D 0929 0942 0950 095E 097D 098F 099F 09C1 09E7 0A09 0A22
              0A3E 0A62 0A7F 0A9B 0ABB 0AD7 0AF2 0B25 0B36 0B42 0B54 0B60 0BBD
              0BC4
MOD3    0C75  0916 0930 0949 096A 0988 0A12 0A2B 0A4A 0A6E 0A88 0AA8 0AC7 0AE0
              0AFF 0B23 0B26 0B41 0B5F 0BC3
MOD4    0C76  091C 0936 094F 0970 098E 09A7 09C8 09EE 0A10 0A29 0A48 0A6C 0A86
              0AA6 0AC5 0ADE 0AFD
MOD5    0C77  0A18 0A31 0A56 0A74 0A8E 0AAE 0ACD 0AE6 0B05
MOD6    0C78  09AD 09CE 09F4
MOD7    0C79
MSAD1   0C4D  0C36
MSGAD   0C6D  0CE2
MSGO    0C70  0C6D 0D15
NRTNS   0C6E  0873 088D
PEND    0E0E  080B
PID     07FF  0846 084C 0BF8 0C1E
PRBSY   0D43  0D16 0D2D
PRINT   0CE1  0839 0860 0897 089F 08A7 08D0 08E4 0920 0939 0953 0973 0992 09B3
              09D6 09FC 0A1B 0A37 0A5B 0A78 0A94 0AB4 0AD0 0AEB 0B0B 0B29 0B45
              0B63 0BC9 0C0B 0C34 0CEF 0CF6 0D1E 0D20
PRNTA   0CFA  0CF4
PRNTB   0D07  0C3C 0CE8 0D45
PRNTC   0D18  0CE9 0D12 0D37 0D3B
PRNTD   0D1A  0CEB 0D3D
PRNTE   0D1C  0CED 0D3F
PRNTF   0D41  0CFB
PRNTG   0D22  0D0C
PRNTH   0CFB  0CF9
PRNTI   0CF1  0C39 0CE5
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PRNTP   0D2A  0C37 0CE4 0D25
PRNTQ   0D2F  0D29
PRNTO   0CE9  0C40
RAD     0801  0815 0D03
RELDV   0132
REQDV   0131
RID     0800  0814 0878 088B 0891 0894 08DD 0CFF
RTRN    0C4E  0C4C
RTRNA   0C4C  0C33
RTRN1   0C51  0C1C
RTTBL   0C7E  08EA 0D01
SNAD    0C68  0882 08B0 08EC 0B92 0BCF
SNBK    0C69  0889 08D9 0900 0BAC 0BE9
SPMSG   0C54  0C4D
START   012D  0CD7
STINA   0C22  0C14
STINT   0C12  0910 0917 092A 0931 0943 094A 095F 096B 097F 0989 09A0 09A8 09C2
              09C9 09E8 09EF 0A0A 0A13 0A23 0A2C 0A3F 0A4D 0A63 0A6F 0A80 0A89
              0A9C 0AA9 0ABC 0AC8 0AD8 0AE1 0AF3 0B00 0B19 0B1E 0B37 0B3C 0B55
              0B5A 0B8D 0BBE 0C15 0C25
SW0     0802  087A 0883 08DF 08EF 0B95 0BD2 0D0E 0D22 0D33
SW1     0803  086C
SW2     0804
SW3     0805  08B1 08DA
TERM    080A
TMP     0C6C  0C13 0C24 0C28 0C49
TR      08DD  08CE
TRA     08EA  08E2 08FF 0907
TRB     08EC  0B15 0B2F 0B4D 0B6B 0C04
TRC     0908  08EE 08F5 0902 0BF3
TRF     08FA  08F9
TR1     090A  0925 0C7E
TR1A    0912  090C
TR1AA   0A3D  0A33 0A60
TR1AB   0A54  0A4B
TR1AC   0A61  0A57 0A7D
TR1AD   0A71  0A69
TR1AE   0A7E  0A76 0A99
TR1AF   0A9A  0A90 0AB9
TR1AG   0AAB  0AA4
TR1AH   0ABA  0AB0 0AD5
TR1AI   0ACA  0AC2
TR1AJ   0AD6  0ACE 0AF0
TR1AK   0AF1  0AE7 0B10
TR1AL   0B02  0AFA
TR1AM   0B11  0964 0B07
TR1AN   0B13  0966
TR1B    0919  090D
TR1BA   0A50  0A46
TR1C    0926  091E 093E
TR1E    093F  0937 0958
TR1F    0959  0951 0978
TR1G    096D  095C
TR1H    0979  0971 0997
TR1HA   0981  097B
TR1I    098B  0986
TR1J    0998  0990 09B8
TR1K    09A2  099C 09A4 09AC
TR1L    09AA  099D
TR1M    09B3  09AE
TR1P    09B9  09B1 09DB
TR1R    09D6  09D0
TR1S    09DC  09D4 0A01
TR1T    09EA  09E1
TR1U    09F1  09E2
TR1W    09FC  09F6
TR1X    0A02  09FA
TR1XA   0A05  0A04 0A20
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TR1Y    0A15  0A06
TR1Z    0A21  0A19 0A3C
TR2     0B17  0B2E 0C7F
TR2A    0B2F  0B27
TR3     0B31  0C80
TR3A    0B34  0B4A 0B4C
TR3B    0B4B  0B43
TR4     0B4F  0C81
TR4A    0B52  0B68 0B6A
TR4B    0B69  0B61
TR5     0B6D  0C82
TR5A    0B8A  0BA9 0BAB
TR5C    0BA6  0BB3
TR5D    0BAC  0BA4
TR5E    0BB4  0B94 0B9B 0BAE
TR5F    0BBA  0BE6 0BE8
TR5H    0BE3  0BF0
TR5J    0BE9  0BE1
TR5K    0BF1  0B87 0BD1 0BD8 0BEB
TR5L    0BA0  0B9F
TR5M    0BCF  0BC5
TR5N    0BB7  0BB6
TR5O    0BDD  0BDC
TR5P    0B8B  0B71 0BA7
TR5PR   0BCB  0B6E 0B78 0B7D 0B82
TR5Q    0BBB  0B73 0BCE 0BE4
TR567   0B86  0B75
TR6     0B7C  0C84
TR67    0B71  0B7B 0B80 0B85
TR7     0B81  0C85
TR8     0BF5  0C86
TR8A    0BF8  0C10
TR8B    0BFF  0C00
TR8C    0C04  0C11
TR8D    0C06  0C03
TR9     0847  082C 0865
TSTCT   0C6B  0855 085C 0B89 0BB8
T5      0B77  0C83
WCPAT   0CAC  0CA8
WCPT    0CA8  0B70
ZEPA    0841  0808 0842
ZIPA    0812  0806 0807 0830
ZIPB    0832  081B 0824 0828
ZIPC    0825  081F
ZIPD    0829  0822 0826
ZIPE    082E  0834
ZLOOP   0D38  0D2E
END OF ASSEMBLY
```

LAST PAGE

```
**************************************************
*                                                *
*                                                *
*  *****  *****  *  *  *****  *  *****  *  *    *
*  *      *   *  *  *    *    *  *      *  **   *
*  *      *****  *  *    *    *  *  **  *  * *  *
*  *      *   *  *  *    *    *  *   *  *  *  * *
*  *****  *   *  *  *****    *  *****  *  *   **
*                                                *
*                                                *
*    THIS DECK MUST BE LOADED LAST WHEN          *
*    RUNNING THIS PROGRAM WITH MORE THAN TWO     *
*    (2) MULTIPLEX ADDRESSES SPECIFIED FOR       *
*    EVALUATION. IF THIS IS NOT DONE 327         *
*    CORE POSITIONS OF THE PROGRAM FOLLOWING     *
*    THIS ONE WILL BE WIPED OUT AND USED         *
*    BY THIS PROGRAM FOR DATA STORAGE.           *
*                                                *
*                                                *
*                                                *
**************************************************
```

TABLE OF CONTENTS

1. PURPOSE

THE ANALOG-INPUT DATA-CHANNEL RANDOM (AIDC RAN) FUNCTION TEST IS DESIGNED TO TEST THE ANALOG INPUT FEATURE UNDER DATA-CHANNEL CONTROL, USING THE TWO-CHANNEL MODE OF OPERATION. A MAXIMUN OF 10 MULTIPLEX ADDRESSES CAN BE ENTERED AND OPERATED ON AT ONE TIME. UP TO FIVE MULTIPLEX ADDRESSES CAN BE SELECTED FOR EVALUATION OF ACCURACY AND REPEATABILITY. ANY OF THE 10 MULTIPLEX ADDRESSES CAN BE LIMIT CHECKED EXCEPT A RELAY ADDRESS WHEN RUNNING IN THE OVERLAP MODE. IN NONOVERLAP MODE ANY ADDRESS CAN BE LIMIT CHECKED INCLUDING A RELAY ADDRESS. TABLES CAN BE CHAINED TOGETHER IN ANY SEQUENCE TO A TOTAL COMBINED LENGTH OF 10 WORDS, INCLUDING THE ADDRESS AND CAR CHECK WORDS. IN THE OVERLAP MODE A RELAY ADDRESS CANNOT BE THE LAST ADDRESS IN ANY TABLE.

2. PREREQUISITES

2.1 PROGRAM PREREQUISITES

THE AIDC RAN FUNCTION TEST MUST RUN UNDER CONTROL OF THE DIAGNOSTIC MONITOR.

2.2 EQUIPMENT PREREQUISITES

A. MONITOR PREREQUISITES
B. ANALOG-INPUT FEATURE

3. OPERATING PROCEDURE

3.1 PROGRAM LOADING

STANDARD LOADING PROCEDURE AS DESCRIBED IN THE DIAGNOSTIC MONITOR USE PROCEDURE.

3.2 PROGRAM OPERATION

STANDARD MONITOR OPERATING PROCEDURES APPLY.
THESE PROCEDURES ARE SUMMARIZED HERE. SEE DM USE PROCEDURE FOR DETAILS.

1. CLEAR STORAGE
2. LOAD DIAGNOSTIC MONITOR
3. SELECT MODE OF EXECUTION
4. SELECT MONITOR CONTROL OPTIONS
5. SELECT PROGRAM OPTIONS FROM TABLE 0 PROGRAM CONTROL FUNCTION.
6. INSTRUCT MONITOR TO EXECUTE (SEE SECTION 3.1.5 IN DIAGNOSTIC MONITOR DOCUMENTATION).

TABLE 0 CONTROL FUNCTION

```
******************  1. SET FUNCTION 00 IN SENSE/PROGRAM SWITCHES 0 AND 1.
*  SENSE/PROGRAM *  2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7.
* 0 1 2 3 4 5 6 7 *  3. SET DESIRED CONTROL OPTIONS IN DATA ENTRY SWITCHES 0-15.
* 0 0 1 0 0 0 0 1 *  4. PRESS CONSOLE INTERRUPT.
******************************************************************************
*          DATA ENTRY SWITCHES          * DESCRIPTION                        *
* 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 *                                    *
* . . . . . . . . . . . . . 1. . .      .BYPASS ANY LOG OUTPUT                *
* . . . . . . . . . . . . 1. . .        .BYPASS OVERLAP CK LOG                *
* . . . . . . . . . . . 1. . . .        .CHECK RELAY-SOLID STATE OVERLAP      *
* . . . . . . . . . . 1. . . . .        .BYPASS BLAST AI                      *
* . . . . . . . . . 1. . . . . .        .BYPASS E0XX OUTPUT                   *
* . . . . . . . . 1. . . . . . .        .BYPASS COMPARATOR INTERRUPT LOG      *
* . . . . . . . 1. . . . . . . .        .BYPASS ALL D001 OUTPUT               *
* . . . . . . 1. . . . . . . . .        .BYPASS D001 DISTRIBUTION TABLE       *
* . . . . . 1. . . . . . . . . .        .BYPASS A001 OUTPUT                   *
* . . . . 1. . . . . . . . . . .        .BYPASS ERROR (E00X HEX) OUTPUT       *
* . . . 1. . . . . . . . . . . .        .BYPASS SETUP ERROR (E01X HEX)        *
* . . 1. . . . . . . . . . . . .        .BYPASS TIMER DSW ERROR (C000 HEX)    *
* . 1. . . . . . . . . . . . . .        .BYPASS DATA VERIFY OUTPUT            *
******************************************************************************
```

3.3 PROGRAM HALTS

A DESCRIPTION OF EACH PROGRAM HALT CONDITION CAN BE FOUND AT THE BEGINNING OF THE PROGRAM LISTING.

3.4 PROGRAM TERMINATION

STANDARD MONITOR TERMINATION

3.5 SETUP OF DATA TABLE

EACH DATA TABLE IS INITIALLY SPECIFIED INTERNALLY WITHIN THE PROGRAM TO ESTABLISH THE PARAMETERS FOR EVALUATING THE BASIC OPERATIONS OF THE CE CALIBRATE POINT. AN EXPLANATION OF THIS INITIAL SETUP IS CONTAINED IN THE APPENDIX SECTION 6.1.
THE DATA TABLES CAN BE CHANGED EITHER BY CHANGING THE EDIT CARDS AND RELOADING OR DIRECTLY IN CORE USING THE DATA ENTRY SELECT FUNCTION.

1. EDIT CARDS.

   THE PROGRAM EDIT FEATURE IS USED TO LOAD THE DATA TABLES WITH THE DESIRED INFORMATION. ANY OR ALL OF THE TABLE DATA CAN BE CHANGED OR MODIFIED BEFORE THE INITIAL LOADING OF THE PROGRAM. SEE FIGURE 1 FOR AN EXPLANATION OF THE DATA TABLE.

2. DATA ENTRY ROUTINE.

   ANY OR ALL OF THE TABLE DATA CAN BE CHANGED BY USING THE DATA ENTRY ROUTINE. THIS IS DONE ANYTIME AFTER THE PROGRAM IS IN CORE AND EXECUTING. FUNCTION 10-11 OF THE MONITOR READ BIT SWITCHES FEATURE IS USED. FUNCTION 10 IS USED TO SET UP THE ADDRESS OF THE WORD OR WORDS TO BE CHANGED. FUNCTION 11 IS USED TO ENTER THE NEW WORD. WORDS CAN BE ENTERED IN SEQUENCE BY SETTING THE DESIRED DATA INTO THE SWITCHES AND PRESSING CONSOLE INTERRUPT FOR EACH WORD TO BE ENTERED. SEE TABLE 2 AND 3 DATA ENTRY SELECT AND DATA ENTRY.

   A WORD COUNT EQUAL TO THE TERMINATOR (127) IS ENTERED AFTER A COMPLETE DATA ENTRY OPERATION (VIA FUNCTION 10). THIS RETURNS THE CONTROL TO THE OPERATING PROGRAM. AN EXPLANATION OF THE DATA TABLES IS CONTAINED IN FIGURE 1.

3. DATA VERIFY ROUTINE

   IF IT IS NECESSARY TO PRINT THE CONTENTS OF AN AI TABLE IN CORE, TABLE 1 (DATA VERIFY) SHOULD BE USED. THE WORD COUNT (SWS. 9-15) INDICATES THE NUMBER OF WORDS TO BE PRINTED, TABLE DISPLACEMENT (SWS. 4-8) WILL SPECIFY THE FIRST WORD TO BE PRINTED FROM THE TABLE, AND TABLE NO. (SWS. 0-3) REFERS TO THE DESIRED TABLE (SEE THE DATA ENTRY ADDRESS TABLE LIST FOLLOWING TABLE 3).

   FOR EXAMPLE, THERE IS AN AI TABLE IN STORAGE THAT HAS THE CONVERTED VALUES OF ALL THE ADDRESSES THAT ARE SPECIFIED IN THE AIIAT TABLE. (MAXIMUM OF 10 ADDRESSES) IF THE CE WISHES TO PRINT OUT THE CONVERTED VALUES, THE FOLLOWING ENTRY SHOULD BE MADE USING TABLE 1. TABLE NO. IS E (SWS. 0-3), TABLE DISPLACEMENT IS 0 (SWS. 4-8) AND WORD COUNT IS 11 (SWS. 9-15).

Setup 41 in Sense Program Switches and (7 [redacted] 11 + 15 (Pid #) Hit Interrupt (Program will loop)

TABLE 1 DATA VERIFY ROUTINE SELECT

1. SET FUNCTION 01 IN SENSE/PROGRAM SWITCHES 0 AND 1.
2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7.
3. SET DATA TABLE IDENTIFICATION IN DATA ENTRY SWITCHES 0-15.
4. PRESS CONSOLE INTERRUPT.

SENSE/PROGRAM: 0 1 2 3 4 5 6 7 = 0 1 1 0 0 0 0 1

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
X X X X X X X	WORD COUNT. 1-127 (1-7F HEX)
X X X X X	TABLE DISPLACEMENT. 0-31 BIT SWITCHES 4 THRU 8 ARE USED TO ALLOW ENTERING THE SELECTED TABLE AT ANY OF THE FIRST 32 WORDS.
X X X X	TABLE NUMBER. 0-F SEE THE DATA ENTRY ADDRESS TABLE LIST

TABLE 2 DATA ENTRY ROUTINE SELECT

1. SET FUNCTION 10 IN SENSE/PROGRAM SWITCHES 0 AND 1.
2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7.
3. SET DATA TABLE IDENTIFICATION IN DATA ENTRY SWITCHES 0-15.
4. PRESS CONSOLE INTERRUPT.
   NOTE PROGRAM MUST BE EXECUTING.

SENSE/PROGRAM: 0 1 2 3 4 5 6 7 = 1 0 1 0 0 0 0 1

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
X X X X X X X	WORD COUNT OR TERMINATOR. 1-127 TERMINATOR = 127. (7F HEX)
X X X X X	TABLE DISPLACEMENT. 0-31 BIT SWITCHES 4 THRU 8 ARE USED TO ALLOW ENTERING THE SELECTED TABLE AT ANY OF THE FIRST 32 WORDS.
X X X X	TABLE NUMBER. 0-F HEX SEE THE DATA ENTRY ADDRESS TABLE LIST

A WORD COUNT EQUAL TO THE TERMINATOR (127) IS ENTERED AFTER A COMPLETE DATA ENTRY OPERATION. THIS RETURNS CONTROL TO THE OPERATING PROGRAM.

TABLE 3 DATA ENTRY FUNCTION

1. SET FUNCTION 11 IN SENSE/PROGRAM SWITCHES 0 AND 1.
2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7.
3. SET DATA WORD INTO DATA ENTRY SWITCHES 0-15.
4. PRESS CONSOLE INTERRUPT.
   NOTE- PROGRAM MUST BE EXECUTING.

SENSE/PROGRAM: 0 1 2 3 4 5 6 7 = 1 1 1 0 0 0 0 1

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
X X X X X X X X X X X X X X X X	DATA WORD TO BE ENTERED INTO TABLE POSITION SELECTED BY FUNCTION 10. SEE TABLE 2.

DATA ENTRY ADDRESS TABLE LIST

FOR USE WITH THE DATA ENTRY AND THE VERIFY DATA ROUTINES.
THE TABLE NUMBER IS ENTERED IN 80-83 OF THE DATA ENTRY SWITCHES.
SEE DATA VERIFY ROUTINE SELECT AND DATA ENTRY ROUTINE SELECT, TABLES 1 AND 2.

CORE TABLE NO.	TABLE SYMBOLIC ADDRESS	CORE TABLE NAME	TABLE LENGTH
0	TIBTI	TIMER A SPEED CONSTANT	1
1	AICYC	CYCLE COUNT	1
2	AIMPX	MULTIPLEX ADDRESS TABLE	6
3	AIPRC	PRECISION READING TABLE	6
4	AIFRS	RESOLUTION TABLE	1
5	RANGE	RANGE TABLE	5
6	AIHXS	HEX-DEC/(A001 HEX) SWITCH	1
7	AIADT+8	THIS WORD CONTAINS THE ADDRESS OF THE FOLLOWING WORD. BY SELECTING TABLE ADDRESS 7 IN DATA ENTRY FUNCTION 10 ANY CORE ADDRESS CAN BE ENTERED INTO TABLE ADDRESS 8 USING FUNCTION 11. THIS ADDRESS ENTERED DETERMINES THE STARTING POSITION OF THE CORE TABLE ADDRESSED BY POSITION 8 OF THE ADDRESS TABLE. BY SELECTING TABLE ADDRESS 8 FUNCTION 10, DATA CAN BE ENTERED INTO THIS CORE TABLE USING FUNCTION 11. THIS ALLOWS ANY 1-126 WORD TABLE IN CORE TO BE MODIFIED.	1
8	AICYR	CYCLE COUNTER - ANY ADDRESS CAN BE ENTERED HERE	1-159
9	AIIAT	INPUT ADDRESS TABLE	10
A	AIXSS	EXTERNAL SYNC SWITCH	1
B	AIWC	NUMBER OF POINTS	1
C	AIOLS	OVERLAP SWITCH	1
D	AILWT	LIMIT WORD TABLE	10
E	AIDRT-1	INPUT DATA TABLE	11
F	AITOA	WRITE TABLE ADDR	20

3.6 DATA TABLE EXPLANATION

FIGURE 1.

DATA TABLE EXPLANATION

NAME	EXPLANATION
TIBTI	ONE-WORD TABLE. A CONSTANT TO ESTABLISH THE INTERRUPT RATE OF TIMER A IS ENTERED IN THIS WORD. SEE TABLE IN LISTING.
AICYC	ONE-WORD TABLE. THIS COUNT DETERMINES THE NUMBER OF TIMES EACH SPECIFIED MULTIPLEX ADDRESS IS READ AND CONVERTED. THE COUNT MAY BE ANY NUMBER FROM 1 TO 32,000 (7D00 HEX) CYCLE COUNTS.
AIMPX	SIX-WORD (MAXIMUM) TABLE. THE MULTIPLEX ADDRESSES TO BE READ AND EVALUATED FOR ACCURACY AND REPEATABILITY ARE ENTERED IN THIS TABLE. THE LAST WORD MUST BE AN FFFF. SEE EXAMPLE 1.
AIPRC	FIVE-WORD TABLE. THE PRECISION DIGIT VALUE CORRESPONDING TO EACH MULTIPLEX ADDRESS IN THE AIMPX TABLE IS ENTERED IN THIS TABLE.
AIAPR	ONE-WORD SWITCH. A ONE BIT IN THIS WORD WILL CAUSE THE FIRST VALUE READ FOR EACH SELECTED MULTIPLEX ADDRESS TO BE ENTERED IN THE AIPRC TABLE. A ZERO WILL CAUSE THE AIPRC TABLE ENTRIES TO BE USED AS THEY ARE SPECIFIED. THIS SWITCH IS THE 6TH ENTRY OF THE AIPRC TABLE.
AIFRS	ONE-WORD TABLE. THE RESOLUTION FOR THE ADDRESSES IN THE AIMPX TABLE IS ENTERED IN THIS TABLE. 000E HEX 14-BIT RESOLUTION, 000B 11-BIT RESOLUTION, AND 0008 HEX, 8-BIT RESOLUTION.

RANGE	FIVE-WORD TABLE. THE RANGE CONSTANT CORRESPONDING TO EACH OF THE MULTIPLEX ADDRESSES IN THE AIMPX TABLE IS ENTERED IN THE CORRESPONDING LOCATION OF THIS TABLE. THE VARIOUS RANGES AND RANGE CONSTANTS ARE LISTED BELOW.

RANGE	HEX CONSTANT
500 MV	01F4
200 MV	00C8
100 MV	0064
50 MV	0032
20 MV	0014
10 MV	000A
5 VOLTS	0005

AIWC	ONE-WORD TABLE. A VALUE (1-10) EQUAL TO THE NUMBER OF MULTIPLEX ADDRESS TO BE USED FROM THE AIIAT TABLE IS ENTERED HERE. WHEN SPECIFYING CHAINING, THE TERMINATORS (FFFF HEX) USED ARE INCLUDED IN THIS COUNT. (SEE EXAMPLE 2, WORD COUNT WOULD BE 9 TO INCLUDE BOTH TABLES)
AIIAT	TEN-WORD TABLE. EACH MULTIPLEX ADDRESS TO BE READ IS ENTERED INTO THIS TABLE. SOLID STATE ADDRESSES CAN APPEAR IN ANY ORDER OR BE REPEATED AS DESIRED. SEE NOTE 1 CONCERNING RELAY ADDRESSES. EXAMPLES 1, 2, AND 3 SHOW THE ARRANGEMENT OF THE TABLES FOR VARIOUS CONFIGURATIONS.
AILWT	TEN-WORD TABLE. THIS TABLE MUST CONTAIN EITHER ALL ZEROS FOR NO LIMIT CHECKING OR A LIMIT WORD IN THE POSITIONS CORRESPONDING TO THE ADDRESSES IN THE AIIAT TABLE TO BE LIMIT CHECKED. SEE EXAMPLE 1 , 2, AND 3 FOR THE VARIOUS CONFIGURATIONS.
AIOLS	ONE-WORD SWITCH. A ZERO IN THIS WORD WILL SELECT OVERLAP OPERATION. THE HARDWARE OVERLAP MUST BE DISABLED BY REMOVING THE OVERLAP CARD AND A ONE SET INTO THIS SWITCH TO RUN NONOVERLAP OPERATION. WITH THE AIOLS SWITCH SET FOR OVERLAP OPERATION, CONTROL FUNCTION 0 WITH BIT SWITCH 10 ON WILL INSTRUCT THE PROGRAM TO PERFORM A CHECK OF RELAY, SOLID STATE OVERLAP, PROVIDING THE AIIAT TABLE IS SPECIFIED CONTAINING ONE RELAY ADDRESS. THE RELAY ADDRESS MUST BE THE FIRST ADDRESS AND THE ONLY RELAY ADDRESS IN THE AIIAT TABLE. THE RELAY ADDRESS AND ANY OF THE SOLID STATE ADDRESSES IN THE AIIAT TABLE MAY ALSO BE SPECIFIED IN THE AIMPX TABLE FOR EVALUATION.
NOTE.	IT IS POSSIBLE FOR E00X MESSAGES TO OCCUR WHEN RUNNING THE RELAY-SOLID STATE OVERLAP TEST EXPLAINED ABOVE, IF THE AIDCR PROGRAM IS NOT THE ONLY PROGRAM RUNNING.
AIXSS	ONE-WORD SWITCH. A ZERO IN THIS WORD SELECTS NORMAL MODE OF OPERATION. A ONE SELECTS EXTERNAL SYNC MODE. (NOTE A PULSE SOURCE MUST BE CONNECTED TO EXTERNAL SYNC INPUT IF EXTERNAL SYNC MODE IS SELECTED).
LMTCK	ONE-WORD SWITCH. A ONE IN THIS WORD WILL ALLOW THE LIMIT WORDS SPECIFIED TO BE SETUP IN THE TABLE BUT THE EXECUTE BIT IN THE ADDRESS WORD IS TURNED OFF. NO LIMIT CHECKING WILL OCCUR. A ZERO IN THIS WORD ALLOWS LIMIT CHECKING. THIS SWITCH IS THE SECOND ENTRY IN THE AIOLS TABLE, TABLE C.

EXAMPLE 1

AIMPX TABLE	AIIAT TABLE		
1000	1000	*	
1002	1001		
1003	1002	*	
1004	1003	*	* ORDER OF SELECTED
1006	1004	*	POINTS MUST AGREE
FFFF	1005		WITH AIMPX TABLE.
	1006	*	
	1007		
	1008		
	1009		

SEE NOTE 1

EXAMPLE 2
(EXAMPLE OF A TYPICAL AIIAT TABLE)

AIIAT TABLE	AILWT TABLE		DESCRIPTION
1000	XXXX	*	LIMIT CHECK MULTIPLEX 1000
1001	0000		NO LIMIT CHECK
1003	XXXX	*	LIMIT CHECK MULTIPLEX 1003.
1002	0000		NO LIMIT CHECK.
1006	XXXX	*	LIMIT CHECK MULTIPLEX 1006.
1004	0000		NO LIMIT CHECK.
FFFF	0000		POSITION IGNORED.
0009	0000		POSITION IGNORED UNLESS NONOVERLAP.
1004	XXXX	*	LIMIT CHECK MULTIPLEX 1004.

SEE NOTE 1

* XXXX MAY BE ANY LEGITIMATE LIMIT WORD.

EXAMPLE 3
(EXAMPLE OF CHAINING THREE TABLES)

	AIIAT TABLE	AILWT TABLE		
NO. 1	1001	XXXX	*	
	1002	XXXX	*	
	FFFF	0000		POSITION IGNORED
NO. 2	1003	XXXX	*	
	1004	XXXX	*	
	1005	XXXX	*	
	1006	XXXX	*	
	FFFF	0000		POSITION IGNORED
NO 3.	1007	XXXX	*	

SEE NOTE 1

* XXXX MAY BE ANY LEGITIMATE LIMIT WORD.

NOTE 1

RELAY MULTIPLEX ADDRESSES MUST BE SPACED IN THE TABLE TO INSURE 10 MS MINIMUM DELAY BETWEEN THEM. THEY CANNOT BE THE LAST ADDRESS IN THE TABLE UNLESS THE OVERLAP CARD IS REMOVED AND 000_4 IS ENTERED INTO LOCATION AIOLS. THEN ANY COMBINATION OF RELAY AND SOLID-STATE MULTIPLEX ADDRESSES CAN BE ENTERED, BUT NO RELAY ADDRESS MAY BE REPEATED IN THE TABLE.

4.0 PRINTOUTS

ALL OF THE MESSAGES PRINTED BY THIS PROGRAM ARE IN THE STANDARD MONITOR FORMAT. THE FIRST FOUR WORDS OF THE MESSAGE ARE ALWAYS IN HEX AND ARE USED FOR IDENTIFICATION ONLY. THE MESSAGE EXPLANATIONS GIVEN BELOW DO NOT SHOW THE PROGRAM ID (PID).

THE REMAINDER OF THE MESSAGE CAN BE EITHER IN HEX OR DECIMAL. IN THE WORDS WHERE FRACTIONAL VALUES CAN APPEAR THE DECIMAL POINT POSITION IS INDICATED IN THE EXAMPLE. NO DECIMAL POINTS ARE LOGGED. A MINUS SIGN IS LOGGED PRECEEDING THE NEGATIVE DECIMAL VALUES.

MID	RID	RAD	MULTIPLEX ADDRESS	PRECISION DIGIT VALUE	DIGIT VALUE READ	VOLTAGE* VALUE READ	CYCLE COUNT
A001	000X	XXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXX.XXXXX	XXXXXXXX

THIS DECIMAL MESSAGE IS USED TO PRINT ANY DATA READ THAT IS OUT OF THE SAVE TABLE LIMITS, OVERLOADS EXCEPTED. THE SAVE TABLE INCLUDES THE PRECISION READING PLUS AND MINUS 54 DIGITS.

	COMP ERR DSW	CYCLE CNT	CNT
A002 000X	XXXX	XXXX	XXXX

THIS HEX MESSAGE IS USED TO PRINT ANY LIMIT ERRORS DETECTED DURING COMPARATOR OPERATION) THE MULTIPLEXE ADDRESS IS CONTAINED IN THE DSW WORD BIT 4 THRU 15.
MULTIPLEX ADDRESS IS CONTAINED IN THE DSW WORD BITS 4 THRU 15.

	ADDR WORD OF WORD		
AAAA 000X	XXXX	XXXX	XXXX

THIS HEX MESSAGE IS USED TO PRINT PROGRAM DATA TABLES AND SWITCHES TO VERIFY CONTENTS. SEE TABLE 1. THE MESSAGE MAY BE FROM 1-127 LINES.

	OVLP CNT
BBBB 000X	XXXX XXXXXXXX

THIS MESSAGE IS PRINTED AUTOMATICALLY AFTER THE COUNT IS DETERMINED IF OVERLAP CHECKING IS SPECIFIED AND EDITED FOR. (SEE FUNCTION 00 CONTROL).

	TIMR ERROR DSW	COUNT
C000 000X	XXXX	XXXX

THIS HEX MESSAGE IS USED TO LOG TIMER DSW ERRORS. AFTER THIS ERROR IS LOGGED THE PROGRAM IS ENDED. THE ERROR COUNT INDICATES THE NUMBER OF ERRORS COUNTED SINCE THE LAST LOG.

LINE 0

	MULTIPLEX RANGE ADDRESS		PRECISION DIGIT VALUE	PRECISION* VOLTAGE VALUE
D001 000X	XXXX XXXXXXXX	XXXXXXXX	XXXXXXXX	XXX.XXXXX

THIS DECIMAL MESSAGE IS USED TO LOG THE EVALUATION DATA FOR THE MULTIPLEX ADDRESSES SELECTED. THE SUMMARY DATA IS GIVEN IN THE FIRST THREE LINES AND THE DISTRIBUTION TABLE IS CONTAINED IN THE FOLLOWING 1-109 LINES.

LINE 1

PERCENT ACCURACY	PERCENT REPEAT-ABILITY	MEAN DIGITS	MEAN* VOLTAGE
XXXX.XXXX	XXXX.XXXX	XXXXXXX.X	XXX.XXXXX

LINE 2

ACCURACY DEVIATION	REPEAT-ABILITY DEVIATION	RESOLUTION CYCLES	OVERLOAD COUNTER	OUT OF TABLE COUNTER
XXXXXXX.X	XXXXXXX.X	XXXXXXX	XXXXXXXX	XXXXXXXX

LINE 3 THROUGH LINE 112

VOLTAGE* VALUE	DIGIT VALUE	COUNT
XXX.XXXX	XXXXXXXX	XXXXXXXX

* VOLTAGE VALUES ARE GIVEN IN TERMS OF THE RANGE. SEE THE RANGE TABLE IN SECTION 3.1.

MID	RID	RAD	ERR ID SNS	DSW LAST INT	DSW LAST CNT	ERR CNT	CYCLE CNT
E00X	000X	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX

THIS HEX MESSAGE IS USED TO PRINT ERRORS OCCURRING DURING PROGRAM OPERATION.

E000 ERROR DETECTED DURING INTERRUPT.

E003 END OF TABLE INTERRUPT DIDN'T OCCUR.

E004 RELAY INTERRUPT DIDN'T OCCUR.

E007 BUSY STAYS ON OVER 100 MS. THE SENSED DSW WORD IN THE MESSAGE CONTAINS ONLY BITS 8 AND 9. THE OTHER BITS IF ANY, ARE ANDED OUT.

E008 THE DSW IS NOT RESET TO ZERO AFTER EXECUTING A BLAST AI OPERATION.

	EVAL	TOTL
	ADD	WRI
	CNT	CNT
E010 000X	XXXX	XXXX

SET UP ERROR

THIS ERROR WILL OCCUR IF NO MULTIPLEX ADDRESSES ARE SELECTED TO BE READ AND EVALUATED. AFTER LOGGING IS COMPLETED THE PROGRAM CONTROL IS TRANSFERRED TO THE DATA ENTRY ROUTINE.

5. COMMENTS

5.1 THE AIDC RANDOM FUNCTION TEST IS DESIGNED TO ALLOW THE CUSTOMER ENGINEER TO VERIFY THE OPERATION OF EACH FUNCTION OF THE ANALOG INPUT FEATURE USING THE TWO-TABLE (RANDOM) MODE OF OPERATION.

5.2 TO ENABLE THE CE TO ENTER THE DESIRED MULTIPLEX ADDRESSES AND LIMIT WORDS WITHOUT HAVING TO ASSEMBLE THE ENTIRE TABLE, TWO SEPARATE 10-WORD TABLES ARE USED. ALL MULTIPLEX ADDRESSES ARE ENTERED IN THE SEQUENCE DESIRED. WHEN AN ADDRESS IS TO BE LIMIT CHECKED, THE LIMIT WORD IS ENTERED INTO THE LIMIT-WORD TABLE IN THE POSITION CORRESPONDING TO THE POSITION OF THE MULTIPLEX ADDRESS TO BE CHECKED. A PROGRAM SWITCH (LMTCK) IS USED IN CONJUNCTION WITH THE TWO TABLES TO ALLOW OPERATION WITH THE LIMIT WORDS SET UP IN THE TABLE BUT SUPPRESSING THE LIMIT CHECKING. A THIRD TABLE IS USED TO SPECIFY THE THE FIVE MULTIPLEX ADDRESSES TO BE EVALUATED.

5.3 DURING INITIALIZATION, THE SETUP ROUTINE WILL ASSEMBLE THE MULTIPLEX-ADDRESS TABLE USING THE DATA ENTERED INTO THE THREE TABLES USING A SEPARATE AREA OF CODE. THIS BECOMES THE TABLE ADDRESSED BY THE INITIALIZE WRITE IOCC WORDS. THE ORIGINAL TABLES ENTERED ARE SAVED. TABLES CAN BE CHAINED TOGETHER TO A MAXIMUM LENGTH OF 10 WORDS, INCLUDING THE CHAINING ADDRESSES AND CAR CHECK WORDS.

5.4 THE AIPRC TABLE IS USED TO PROVIDE A PRECISION DIGIT VALUE WHICH POSITIONS THE CENTER OF THE DISTRIBUTION TABLE. THIS ENABLES THE TABLE TO BE POSITIONED TO INCLUDE AN INCOMING DATA SPREAD OF 54 DIGITS ON EITHER SIDE OF THE PRECISION DIGIT VALUE ENTERED.

THE PRECISION DIGIT VALUES CAN BE AUTOMATICALLY SPECIFIED EQUAL TO THE FIRST VALUE READ FOR EACH SELECTED MULTIPLEX ADDRESS BY ENTERING A 1 IN THE AIAPR SWITCH, THE 6TH ENTRY IN THE AIPRC TABLE. THIS SWITCH IS RESET TO ZERO AFTER THE AIPRC TABLE IS INITIALLY SET UP.

5.5 DURING OPERATION, THE OUT-OF-LIMIT ERRORS AND OUT-OF-TABLE READINGS FOR ANY OF THE FIVE SELECTED POINTS WILL BE TYPED OUT ALONG WITH THE CYCLE NUMBER. THESE TYPEOUTS CAN BE BYPASSED BY USING THE PROGRAM CONTROL OPTIONS. SEE TABLE 1 SECTION 3.3.6.

5.6 AFTER COMPLETING THE SPECIFIED NUMBER OF CYCLES, THE MEAN, ACCURACY AND REPEATABILITY ARE CALCULATED AND PRINTED OUT FOR EACH OF THE FIVE SELECTED MULTIPLEX ADDRESSES. ALL OF THE VARIABLE FACTORS USED TO PERFORM THE CALCULATIONS ARE PRINTED IN TABULAR FORM BELOW THE SELECTED POINT NUMBER TO PROVIDE A COMPLETE HISTORY OF THE DATA READ. THE DISTRIBUTION TABLE OR THE ENTIRE OUTPUT CAN BE OMITTED BY USING THE PROGRAM CONTROL OPTIONS. SEE TABLE 1 SECTION 3.3.6.

5.7 IF THE SYSTEM HAS THE OVERLAP FEATURE INSTALLED AND THE AIOLS SWITCH CONTAINS A ZERO, OVERLAP OF RELAY AND SOLID STATE CAN BE PERFORMED BY INCLUDING ONE RELAY ADDRESS IN THE TABLE OF MULTIPLEX ADDRESSES. THIS WILL ALLOW ALL OF THE SOLID-STATE ADDRESSES FOLLOWING THE RELAY ADDRESS TO BE CONVERTED DURING THE RELAY-BUSY TIME. WHEN THE OVERLAP OPERATION IS SPECIFIED AND ONE RELAY ADDRESS IS PLACED FIRST IN THE AIIAT TABLE, THE PROGRAM WILL CHECK THE NUMBER OF SOLID STATE CONVERSIONS MADE IN OVERLAP WHEN FUNCTION 0 SWITCH 10 IS ON. THE NUMBER WILL BE PRINTED OUT USING MESSAGE ID BBBB.

5.8 ANY COMBINATION OF THE OPERATIONS DESCRIBED ABOVE, WITHIN THE MAXIMUM TABLE LENGTH OF 10 WORDS, IS PERMISSABLE, EXAMPLES OF THE SETUP CONFIGURATIONS ARE GIVEN IN SECTION 3.1.2

5.9 THE NUMBER OF CYCLES CAN BE VARIED BY ENTERING THE NUMBER DESIRED IN THE CYCLE-COUNT WORD (AICYC). THE CYCLE COUNT CAN BE CHANGED DURING OPERATION USING THE DATA ENTRY ROUTINE. SEE SECTION 3.1.

5.10 ERRORS THAT OCCUR DURING THE OPERATIONS ARE LOGGED. SEE SECTION 4 FOR THE POSSIBLE ERROR MESSAGES.

6. APPENDIX

6.1 THE EDIT CARD NUMBER 0 MUST BE IN THE CARD DECK TO ESTABLISH THE DEVIC' ASSIGNMENTS AND THE TIMER A INTERNAL BEFORE LOADING THIS FUNCTION TEST. IF NO OTHER EDIT CARDS ARE INCLUDED, THE PROGRAM WILL PERFORM THE FOLLOWING FUNCTIONS-

A. 1000 CYCLES. THE FIRST CYCLE WILL ESTABLISH THE PRECISION DIGIT VALUES BY PLACING THE VALUES READ IN THE AIPRC TABLE.
B. THE CE MULTIPLEX ADDRESS (13E8) IS READ TWICE IN CHAINED TABLES.
C. THE CE MULTIPLEX ADDRESS IS SPECIFIED TO BE EVALUATED EACH TIME IT IS READ.
D. 14 BIT RESOLUTION.
E. 5 VOLT RANGE
F. NO LIMIT CHECKING
G. NO EXTERNAL SYNC
H. OVERLAP MODE - NO CHECK

THE TERMINATOR (END) EDIT CARD MUST ALWAYS BE THE LAST EDIT CARD.

5.1 EDIT PROCEDURE: THE FOLLOWING EDIT PROCEDURE IS FOR CARD INPUT. THE EDIT PROCEDURE FOR PAPER TAPE INPUT IS LOCATED IN THE PAPER TAPE EDIT UTILITY PROGRAM DOCUMENTATION. THE PROPER EDIT CARDS MUST BE THE LAST CARDS IN THIS PROGRAM DECK. THE FOLLOWING FORMS ARE PROVIDED TO AID IN MANUALLY PREPARING THESE EDIT CARDS OR UPDATING EXISTING EDIT CARDS. IF IT IS NECESSARY TO PREPARE OR MODIFY EDIT CARDS, FILL IN THE NECESSARY DATA IN THE FORMS PRIOR TO PUNCHING THE CARDS. CARD COLUMNS THAT ARE SHADED SHOULD BE LEFT BLANK.

DDEF STANDS FOR DEVICE DEFINITION EDIT FIELD. IT INCLUDES:
1. THE INTERRUPT LEVEL ASSOCIATED WITH THIS DEVICE (USE HEX NOTATION, 0C-17).
2. THE ILSW BIT POSITION ASSOCIATED WITH THIS DEVICE (USE HEX NOTATION, 0-F).
3. THE CHANNEL ASSIGNED TO THIS DEVICE (0-8).

NOTE 1 THE INTERRUPT LEVEL SPECIFIED IN THIS WORD MUST BE THE LEVEL THAT THE AI COMPARATOR INTERRUPTS ON. THE ILSW BIT MUST BE FOR THIS INTERRUPT. THE CHANNEL HAS NOTHING TO DO WITH THE COMPARATOR, BUT IS THE HIGH PRIORITY CHANNEL ASSIGNED FOR AI. THE MONITOR EDIT ENTRIES MUST AGREE WITH THESE ENTRIES AND THE "AREA CODE-MODIFIER" ENTRY FOLLOWING THE DDEF ENTRY FOR AI COMPARATOR MUST CONTAIN A HEX 80 MODIFIER. IF THE AI COMPARATOR FEATURE IS NOT INSTALLED, THE FOLLOWING RULE MUST BE FOLLOWED- AN UNUSED INTERRUPT LEVEL ASSIGNMENT MUST BE ENTERED IN THE DDEF FOR THE COMPARATOR (COLS. 22-24), TOGETHER WITH THE HIGH PRIORITY CHANNEL FOR THE AI. (COL. 25).

TIBT1 TABLE

THE FOLLOWING TABLE LISTS CONSTANTS TO BE ENTERED BY THE OPERATOR FOR TIMER A TIME BASE.

TIME BASE OF TIMER A IN MILLISEC.	CONSTANT ENTERED IN HEX AT LABEL TIBT1
128.000	0001
64.000	0002
32.000	0004
16.000	0007
8.000	000E
4.000	001B
2.000	0036
1.000	006B
.500	00D6
.250	01AB
.125	0356

		PROGRAM I.D.		CARD SEQUENCE NUMBER		NUMBER OF EDIT ENTRIES	DDEF: INTERRUPT LEVEL (HEX)	DDEF: ILSW BIT (HEX)	DDEF: LOW PRIORITY CHAN.	DDEF NOTE 1: COMPARATOR INTR. LEVEL (HEX)	DDEF NOTE 1: ILSW BIT (HEX)	DDEF NOTE 1: HI PRIORITY CHAN.	INTERVAL TIMER DDEF: INTERRUPT LEVEL (HEX)	INTERVAL TIMER DDEF: ILSW BIT (HEX)	INTERVAL TIMER DDEF: CHANNEL (OR F)	TIBT1: INTERVAL TIMER CONSTANT. SEE TIBT1 TABLE FOR CONSTANTS	AI MOD: A.D.C. MOD. MOD 1 = 0000 MOD 2 = 0001
COLUMN		1 2 3	4 5	6 7 8	9 10	11 12 13	14 15 16	17 18	19 20	21 22 23	24 25 26	27 28 29	30 31	32 33 34 35	36 37 38 39	40 41 42 43 44 45	46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75
CARD 0		E 2 1	0 0	E D	0 0	0 0	0 5						F				0 0 0

DATE 28 FEB 66 01 MAY 66 01 JUL 66 15 DEC 66 04 APR 67 13 MAY 67
EC NO. 415120 415120A 415178 421206 421206A 421206B

AI DC RANDOM CARD 1.

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID					CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES					AICYC THE NUMBER OF CYCLES TO BE RUN (HEX) 1-7D00															
CARD 1	E	2	1	0	0		E	D	0	1		0	0	0	1																

SEE SEC. 3.1 FIGURE 1

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID					CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES				AIMPX TABLE									TERMINATOR						
CARD 2	E	2	1	0	0		E	D	0	2		0	0	0	6										F	F	F	F			

THE MULTIPLEX ADDRESSES TO BE EVALUATED ARE ENTERED HERE IN THE DESIRED ORDER. (1 TO 5 ADDRESSES) ORDER MUST BE THE SAME AS THEY APPEAR IN THE AIIAT TABLE. SEE FIGURE 1 IN SECTION 3.6. WHEN LESS THAN 5 ADDRESSES ARE SPECIFIED, FILL THE REMAINDER OF THE TABLE WITH FFFF WORDS.

EDIT PROCEDURE (CONTINUED)

	PROGRAM ID		CARD SEQUENCE NUMBER		NUMBER OF EDIT ENTRIES		AIPRC TABLE	AIAPR
							THE PRECISION DIGIT VALUE FOR EACH MULTIPLEX ADDRESS IN THE AIMPX TABLE IS ENTERED IN THIS TABLE. WHEN LESS THAN 5 ADDRESSES ARE ENTERED, FILL ALL REMAINING TABLE ENTRIES TO 0000. THE PRECISION DIGIT VALUE IS RIGHT JUSTIFIED TO OMIT THE OVERLOAD BIT POSITION. BIT ZERO WILL HAVE THE SAME VALUE AS THE SIGN BIT (BIT ONE).	0000=NORMAL 0001=AIPRC TABLE IS FILLED WITH 1ST VALUE READ FOR EACH ADDRESS
COLUMN	1 2 3	4 5	7 8	9 10	12 13	14 15	17 18 19 20 21	45
CARD 3	E 2	1 0	E D	0 3	0 0	0 6		

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID					CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES					AIFRS RESOLUTION CONSTANT 14 BIT = E 11 BIT = B 8 BIT = 8														
CARD 4	E	2	1	0	0		E	D	0	4		0	0	0	1		0	0	0												

SEE SEC. 3.1 FIG. 1

EDIT PROCEDURE (CONTINUED)

PROGRAM ID	CARD SEQUENCE NUMBER	NUMBER OF EDIT ENTRIES	RANGE TABLE
			A RANGE CONSTANT IS ENTERED FOR EACH MULTIPLEX ADDRESS IN THE AIMPX TABLE. SEE SECTION 3.6 FOR A LIST OF THE RANGE CONSTANTS. WHEN LESS THAN 5 CONSTANTS ARE ENTERED, FILL ALL REMAINING TABLE ENTRIES TO 0000.

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
CARD 5	E	2	1	0	0		E	D	0	5		0	0	0	5		0				0	0	0	0							

EDIT PROCEDURE (CONTINUED)

AIIAT TABLE

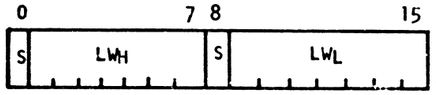
THE MULTIPLEX ADDRESSES ARE ENTERED IN THIS TABLE IN THE DESIRED ORDER OF OPERATION. SOLID STATE ADDRESSES MAY BE REPEATED AS OFTEN AS DESIRED. SEE NOTE 1 IN SECTION 3.6 CONCERNING RELAY POINTS. TO CAUSE CHAINING, PLACE AN FFFF WORD AFTER THE LAST MULTIPLEX ADDRESS OF THE TABLE. SEE EXAMPLES IN SECTION 3 6. A RELAY ADDRESS CANNOT BE THE LAST ADDRESS IN A TABLE UNLESS THE PROGRAM IS RUNNING IN NON-OVERLAP MODE (A HEX 0001 ENTERED IN THE AIOLS SWITCH WORD AND THE HARDWARE OVERLAP DISABLED.)

THIS TABLE MUST CONTAIN A FULL 10 (HEX = A) ENTRIES. IE; THIS EDIT CARD MUST HAVE 10 (HEX=A) WORDS EACH CONTAINING EITHER A VALID MULTIPLEX ADDRESS OR A TERMINATOR (FFFF). THE WORD COUNT ENTERED IN AIWC (EDIT CARD NO. 9) WILL SPECIFY THE NUMBER OF ENTRIES TO BE USED FROM THIS TABLE. ALL OTHER WORDS IN THE TABLE ARE IGNORED.

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID							CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES																		
CARD 6	E	2	1	0	0		E	D	0	6		0	0	0	A																

EDIT PROCEDURE CONTINUED

FORM OF LIMIT WORDS



WHERE:
S IS THE SIGN
LW_L IS THE LOW LIMIT
LW_H IS THE HIGH LIMIT

PROGRAM ID

CARD SEQUENCE NUMBER

NUMBER OF EDIT ENTRIES

AILWT TABLE

THIS TABLE MUST CONTAIN A FULL 10 (HEX = A) ENTRIES. EACH LIMIT WORD ENTRY MUST CORRESPOND TO A SPECIFIC MULTIPLEX ADDRESS ENTRY IN THE AIIAT TABLE. THE WORD COUNT ENTERED IN AIWC (EDIT CARD NUMBER 9) WILL SPECIFY THE NUMBER OF ENTRIES TO BE USED FROM THIS TABLE. ALL OTHER WORDS IN THE TABLE ARE IGNORED. EACH WORD IN THIS TABLE CORRESPONDING TO A RELAY ADDRESS OR TERMINATOR (FFFF) WORD IN THE AIIAT TABLE IS IGNORED. SEE EXAMPLE EXPLAINING VARIOUS SETUP CONFIGURATIONS IN SECTION 3.6. WHEN LESS THAN 10 (HEX=A) LIMIT WORDS ARE ENTERED, FILL ALL REMAINING TABLE ENTRIES TO 0000. THE LIMIT WORD ENTRIES WILL HAVE THE FORM SHOWN ABOVE. THEY ARE ENTERED IN THIS FORM FOR BOTH A MODEL 1 AND A MODEL 2 ADC. THE SIGN RELATIONSHIP OF THE LIMIT WORD TO THE PRECISION DIGIT VALUE IS CONSTANT IRRESPECTIVE OF THE ADC MODEL.

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
CARD 7	E	2	1	0	0	▨	E	D	0	7	▨	0	0	0	A	▨					▨					▨					▨					▨					▨					▨					▨					▨					▨					▨					▨				
						▨					▨					▨					▨					▨					▨					▨					▨					▨					▨					▨					▨					▨					▨				
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DATE	28 FEB 66	1 MAY 66	01 JUL 66	15 DEC 66	04 APR 67	13 MAY 67
EC NO.	415120	415120A	415178	421206	421206A	421206B

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID					CARD SEQUENCE NUMBER				NUMBER OF EDIT ENTRIES						AIXSS EXTERNAL SYNC SWITCH 0001 = EXT. SYNC 0000 = NORMAL														
CARD 8	E	2	1	C	0		E	D	0	8	0	0	0	0	1		0	0	0												

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID					CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES					AIWC THE NUMBER OF WORDS TO BE USED FROM THE AIIAT TABLE (1-A HEX)														
CARD 9		E	2	1	0	0		E	D	0	9		0	0	0	1		0	0	0											

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID					CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES					AIOLS OVERLAP SWITCH 0000 = OVERLAP 0001 = NON-OVRLP														
CARD A	E	2	1	0	0		E	D	0	A		0	0	0	1			0	0												

EDIT PROCEDURE (CONTINUED)

THE LAST EDIT CARD IS THE "END EDIT CARD". THE INFORMATION IN THIS CARD INCLUDES:

1. AN "E" IN COLUMN 1.
2. THE PID FOR THIS PROGRAM (COL. 2-3).
3. A TERMINATOR WORD OF "FFFF" (COL. 7-10).

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID						CARD SEQUENCE NUMBER				NUMBER OF EDIT ENTRIES					LMTCK															
																	LIMIT CHECK SWITCH * 0001 IGNORE LMT. WD 0000 HONOR LMT. WD														
CARD ID	E	2	1	0	0		E	D	0	B		0	0	0	1		0	0	0												
END	E	2	1	0	0		F	F	F	F																					

* THIS SWITCH ALLOWS THE LIMIT WORDS TO BE SET UP IN THE TABLE WITHOUT USING THEM.

```
                *                                                   82100020
                *                                                   82100030
                *                                                   82100040
                *            ***** *** ****  ***** ****             82100050
                *            *   *  *  *   * *     *   *            82100060
                *            *****  *  *   * *     ****             82100070
                *            *   *  *  *   * *     *  *             82100080
                *            *   * *** ****  ***** *   *            82100090
                *                                                   82100100
                *                                                   82100110
                * ***** *   * *   * ***** ***** *** ***** *   *     82100120
                * *     *   * **  * *       *    *  *   * **  *     82100130
                * ***   *   * * * * *       *    *  *   * * * *     82100140
                * *     *   * *  ** *       *    *  *   * *  **     82100150
                * *     ***** *   * *****   *   *** ***** *   *     82100160
                *                                                   82100170
                *                                                   82100180
                *              ***** ***** ***** *****              82100190
                *                *   *     *       *                82100200
                *                *   ***    ***    *                82100210
                *                *   *         *   *                82100220
                *                *   ***** *****   *                82100230
                *                                                   82100240
                *                                                   82100250
                *                                                   82100260
                *                                                   82100270
                *                                                   82100280
                *********************************************       82100290
                *********************************************       82100300
                *         PROGRAM HALT DESCRIPTIONS                 82100310
                *********************************************       82100320
                *********************************************       82100330
                *     THE FOUR POSSIBLE PROGRAM HALTS OR            82100340
                *     TRAPS ARE DESCRIBED IN THE FOLLOWING          82100350
                *     PARAGRAPHS. IN EVERY CASE THESE TRAPS         82100360
                *     ARE IDENTIFYABLE ONLY AFTER THE STOP          82100370
                *     KEY HAS BEEN DEPRESSED AND THE MODE           82100380
                *     SWITCH MOVED OUT OF THE RUN MODE TO           82100390
                *     STOP THE INTERVAL TIMER FROM CYCLE            82100400
                *     STEALING. AFTER THIS IS DONE THE I REG        82100410
                *     CAN BE USED TO IDENTIFY THE SPECIFIC          82100420
                *     TRAP.                                         82100430
                *                                                   82100440
                *                                                   82100450
7001                  ORG     *&/7001                               82100460
                *--------------------------------------------       82100470
                *         TRAP STOPS                                82100480
                *                                                   82100490
                *                                                   82100500
7001 1 0877           DC      TITRP      ERROR TRAP 1               82100510
                *                                                   82100520
                *             THE TIMER INTERRUPT IS ON SOLID       82100530
                *             AND CANNOT BE RESET.                  82100540
                *                                                   82100550
                *                                                   82100560
7002 1 08A8           DC      AITRP      ERROR TRAP 2               82100570
                *                                                   82100580
                *             THE AI RESPONSE INTERRUPT IS ON       82100590
                *             SOLID AND CANNOT BE RESET.            82100600
                *                                                   82100610
7003 1 0A69           DC      BLTRP      ERROR TRAP 3               82100620
7004 1 0A6A           DC      BLTRP&1                               82100630
                *                                                   82100640
                *             IF THE AI BUSY INDICATOR DOES NOT     82100650
                *             COME ON AFTER A START AI OPERATION    82100660
                *             THE PROGRAM WILL HANG UP IN AN        82100670
                *             UNINTERRUPTABLE XIO-BSI LOOP.         82100680
                *                                                   82100690
```

```
                *                                                   82100700
                *                                                   82100710
                *                                                   82100720
                *                                                   82100730
                *                                                   82100740
                *                                                   82100750
7005 1 08CC           DC      CMTRP      ERROR TRAP 4               82100760
                *                                                   82100770
                *             THE COMPARE INTERRUPT IS ON SOLID     82100780
                *             AND CANNOT BE RESET.                  82100790
                *                                                   82100800
07FF                  ORG     *-/6807                               82100810
                *                  PROGRAM EQU TABLES               82100820
                *                                                   82100830
012C 0          BEGIN EQU     300                                   82100840
012D 0          START EQU     BEGIN&1                               82100850
012E 0          END   EQU     START&1                               82100860
012F 0          LOG   EQU     END&1                                 82100870
0130 0          ERROR EQU     LOG&1                                 82100880
0131 0          REQDV EQU     ERROR&1                               82100890
0132 0          RELDV EQU     REQDV&1                               82100900
0133 0          HALT  EQU     RELDV&1                               82100910
0348 0          MASK  EQU     BEGIN-300&/0348                       82100920
034A 0          MASK1 EQU     MASK&2                                82100930
034C 0          UMASK EQU     MASK&4                                82100940
034E 0          UMAS1 EQU     MASK&6                                82100950
                *                                                   82100960
                *                                                   82100970
                *                                                   82100980
                *                                                   82100990
                ************************************************* 82101000
                *                                               * 82101010
                *                                               * 82101020
                *                                               * 82101030
                *  *****  *****  *   * *****  *  *****  *   *   * 82101040
                *  *      *   *  *   *   *    *  *   *  **  *   * 82101050
                *  *      *****  *   *   *    *  *   *  * * *   * 82101060
                *  *      *   *  *   *   *    *  *   *  *  **   * 82101070
                *  *****  *   *  *****   *    *  *****  *   *   * 82101080
                *                                               * 82101090
                *                                               * 82101100
                *                                               * 82101110
                *    THIS DECK MUST BE LOADED LAST WHEN         * 82101120
                *    RUNNING THIS PROGRAM WITH MORE THAN TWO    * 82101130
                *    %2< MULTIPLEX ADDRESSES SPECIFIED FOR      * 82101140
                *    EVALUATION. IF THIS IS NOT DONE 327        * 82101150
                *    CORE POSITIONS OF THE PROGRAM FOLLOWING    * 82101160
                *    THIS ONE WILL BE WIPED OUT AND USED        * 82101170
                *    BY THIS PROGRAM FOR DATA STORAGE.          * 82101180
                *                                               * 82101190
                *                                               * 82101200
                *                                               * 82101210
                ************************************************* 82101220
                *                                                 82101230
                *                                                 82101240
07FF 0 2100     PID   DC      /2100      PROGRAM ID               82101250
0800 0 0000     RID   DC      0          ROUTINE NO               82101260
0801 0 0000     RAD   DC      0          ROUTINE ID               82101270
0802 0 0000     SW0   DC      0          BIT SW WORD 0            82101280
0803 0 0000     SW1   DC      0                      1            82101290
0804 0 0000     SW2   DC      0                      2            82101300
0805 0 0000     SW3   DC      0                      3            82101310
0806 1 08E6     IPA   DC      RSAI       INITIALIZATION ADDR      82101320
0807 1 0881     LPA   DC      LOPAI      LOOP PROGRAM ADDR        82101330
0808 1 0EB8     EPA   DC      AIEND      END PROGRAM ADDR         82101340
0809 0 0000     MLSCF DC      0          MAIN LINE SEQ CNTRL      82101350
080A 0 FFFF     TERM  DC      /FFFF      TERMINATOR               82101360
080B 1 0FFC           DC      PEND                                82101370
```

```
080C 0 0000              DC      0                               *      82101380
080D 0 0000              DC      0           MONITOR STORAGE     *      82101390
080E 0 0000              DC      0            AREA               *      82101400
080F 0 0000              DC      0                               *      82101410
0810 0 0000              DC      0           *****           *****      82101420
                   *                                                    82101430
                   *                                                    82101440
                   *            ** EDIT TABLE **                        82101450
                   *                                                    82101460
                   *         THIS TABLE IS LOADED BY THE                82101470
                   *         OPERATOR WITH EITHER THE EDIT              82101480
                   *         CARDS OR BY THE USE OF THE DATA            82101490
                   *         ENTRY ROUTINE IN THIS PROGRAM.             82101500
                   *                                                    82101510
                   *                                                    82101520
0811 0 0000        EDIT  DC      0           DDEF FOR AI                82101530
0812 0 0000              DC      0           DDEF FOR COMPARATOR        82101540
0813 0 0000              DC      0           DDEF FOR TIMER             82101550
0814 0 0356        TIBT1 DC    0 /356        TIMER CONSTANT             82101560
0815 0 0000        AIMOD DC      0 # MOD1    ADC MOD CONSTANT           82101570
0816 0 03E8        AICYC DC    1 1000        CYCLES TO BE RUN           82101580
0817 0 13E8        AIMPX DC    2 5096            ****                   82101590
0818 0 13E8              DC      5096                                   82101600
0819 0 FFFF              DC      /FFFF       MPX ADDR TABLE             82101610
081A 0 FFFF              DC      /FFFF                                  82101620
081B 0 FFFF              DC      /FFFF                                  82101630
081C 0 FFFF              DC      /FFFF           ****                   82101640
081D 0 0000        AIPRC DC    3 0               ****                   82101650
081E 0 0000              DC      0                                      82101660
081F 0 0000              DC      0           PREC READING TABLE         82101670
0820 0 0000              DC      0                                      82101680
0821 0 0000              DC      0               ****                   82101690
0822 0 0001        AIAPR DC      1           AUTO PREC RDNG SW          82101700
0823 0 000E        AIFRS DC    4 14              ****                   82101710
0824 0 0005        RANGE DC    5 5               ****                   82101720
0825 0 0005              DC      5                                      82101730
0826 0 0005              DC      5           RANGE TABLE                82101740
0827 0 0005              DC      5                                      82101750
0828 0 0005              DC      5               ****                   82101760
0829 0 13E8        AIIAT DC    9 5096            ****                   82101770
082A 0 FFFF              DC      /FFFF                                  82101780
082B 0 13E8              DC      5096                                   82101790
082C 0 13E8              DC      5096                                   82101800
082D 0 13E8              DC      5096                                   82101810
082E 0 13E8              DC      5096                                   82101820
082F 0 13E8              DC      5096                                   82101830
0830 0 13E8              DC      5096                                   82101840
0831 0 13E8              DC      5096                                   82101850
0832 0 13E8              DC      5096                                   82101860
0833 0 0000        AILWT DC    D 0               ****                   82101870
0834 0 0000              DC      0                                      82101880
0835 0 0000              DC      0                                      82101890
0836 0 0000              DC      0                                      82101900
0837 0 0000              DC      0                                      82101910
0838 0 0000              DC      0                                      82101920
0839 0 0000              DC      0                                      82101930
083A 0 0000              DC      0                                      82101940
083B 0 0000              DC      0                                      82101950
083C 0 0000              DC      0                                      82101960
083D 0 0000        AIXSS DC    A 0           EXTERNAL SYNC SWITCH       82101970
083E 0 0003        AIWC  DC    B 3           WORD COUNT WORD            82101980
083F 0 0000        AIOLS DC    C 0           OVERLAP SWITCH             82101990
0840 0 0000        LMTCK DC      0           LIMIT CHECK SWITCH         82102000
                   *                                                    82102010
0841   0014        AITOA BSS   F 20                                     82102020
                   *                                                    82102030
0855 1 0855        AICCA DC      AICCA       ADDR CHAIN LOOP            82102040
0856 0 13E8              DC      /13E8       ADDR                       82102050
```



```
0857 1 0855              DC      AICCA          * *                        82102060
                   *                                                       82102070
                   *                                                       82102080
                   *                                                       82102090
                   *            ** TIMER INTERRUPT ROUTINE **              82102100
                   *                                                       82102110
                   *         THIS ROUTINE IS ENTERED FOR EACH              82102120
                   *         TIMER INTERRUPT. %APROX. EVERY 110            82102130
                   *         MILLISECONDS< EACH DELAY COUNT IS             82102140
                   *         DECREMENTED BY 1. WHEN ANY COUNT              82102150
                   *         GOES TO ZERO, THE PROGRAM SWITCH              82102160
                   *         WORD CORRESPONDING TO THE COUNT               82102170
                   *         IS SET TO ZERO.                               82102180
                   *                                                       82102190
                   *                                                       82102200
0858 0 0000              DC      0          TIMER AC/MOD STORAGE           82102210
0859 0 0000        TIINT DC      0                               IE        82102220
085A 0 0867              XIO     TSNSE      SENSE TIMER DSW                82102230
085B 0 803D              CMP     TICON      CHECK FOR PROPER BIT           82102240
085C 0 1000              SLA     0          SKIP                           82102250
085D 0 7015              MDX     TIERR      ERROR DSW - BRANCH             82102260
085E 0 C063              LD      TSNSE      RESTORE CONSTANT               82102270
085F 0 D400 0004         STO   L 4                                         82102280
0861 0 6305              LDX    3 5                                        82102290
0862 1 C700 087A   TIWRK LD    L3 TIM11    GET TIME COUNT                  82102300
0864 1 4C18 086F         BSC   L TIGOB,&-   CALL NOT USED                  82102310
0866 0 9068              S       AONE                                      82102320
0867 1 D700 087A         STO   L3 TIM11    RESTORE ADJ CNT                 82102330
0869 1 4C20 086F         BSC   L TIGOB,Z                                   82102340
086B 1 D780 0879         STO   I3 TIM11-1   SET PROG SW OFF                82102350
086D 1 D700 0879         STO   L3 TIM11-1  RESET CALL                      82102360
086F 0 73FE        TIGOB MDX    3 -2                                       82102370
0870 0 70F1              MDX     TIWRK      CHECK REST OF CALLS            82102380
0871 1 4C80 0859   TIEXX BSC   I TIINT      EXIT ROUTINE         IX        82102390
0873 0 D004        TIERR STO     TIDSW      SAVE DSW                       82102400
0874 1 7401 0880         MDX   L TIERS,1    ADD ONE TO ERR SW              82102410
0876 0 70FA              MDX     TIEXX      BRANCH TO EXIT                 82102420
0877 0 70FF        TITRP MDX     TITRP      INTR ON SOLID - TRAP           82102430
                   *                                                       82102440
0878 0 0000        TIDSW DC      0          DSW STORAGE                    82102450
087A 0 0000 0000   TIM11 DEC     0          CALL THREE                     82102460
087C 0 0000 0000         DEC     0          CALL TWO                       82102470
087E 0 0000 0000         DEC     0          CALL ONE                       82102480
0880 0 0000        TIERS DC      0          TIMER DSW ERROR SW             82102490
                   *                                                       82102500
                   *                                                       82102510
                   *             ** LOOP PROGRAM ROUTINE **                82102520
                   *                                                       82102530
                   *         THIS ROUTINE IS ENTERED ONLY FROM             82102540
                   *         MONITOR WHEN THE LOOP PROGRAM BIT             82102550
                   *         IS SET ON IN MONITOR.                         82102560
                   *                                                       82102570
                   *                                                       82102580
0881 0 0000        LOPAI DC      0                                         82102590
0882 0 4063              BSI     RSAI       INITIALIZE PROGRAM             82102600
0883 1 6700 0967         LDX   L3 AIRAC     LOAD ENTRY ADDRESS             82102610
0885 1 6F00 0809         STX   L3 MLSCF     SET RETURN ENTRY               82102620
0887 1 4C80 0881         BSC   I LOPAI      EXIT TO MONITOR                82102630
                   *                                                       82102640
                   *                   DSW XFER VECTOR                     82102650
0889 0 0000        AIIBT DC      0          NOT USED                       82102660
088A 1 08A1              DC      AIERR      ERROR ENTRY                    82102670
088B 1 08A1              DC      AIERR      ERROR ENTRY                    82102680
088C 1 08A1              DC      AIERR      ERROR ENTRY                    82102690
088D 1 08A1              DC      AIERR      ERROR ENTRY                    82102700
088E 1 08A1              DC      AIERR      ERROR ENTRY                    82102710
088F 0 0000              DC      0          NOT USED                       82102720
0890 0 0000              DC      0          NOT USED                       82102730
```

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0891 1 08A1                DC      AIERR      ERROR ENTRY                   82102740
0892 1 08A1                DC      AIERR      ERROR ENTRY                   82102750
0893 1 08A1                DC      AIERR      ERROR ENTRY                   82102760
0894 1 08A1                DC      AIERR      ERROR ENTRY                   82102770
0895 1 08A1                DC      AIERR      ERROR ENTRY                   82102780
0896 1 08AB                DC      AIIRY      RELAY ENTRY                   82102790
0897 1 089C                DC      AISSE      DPC SOLID STATE ENTRY         82102800
0898 1 08B9                DC      AIEOT      END OF TABLE ENTRY            82102810
                    *                                                       82102820
                    *                                                       82102830
                    *                ** AI INTERRUPT ROUTINE **             82102840
                    *                                                       82102850
                    *          THE MONITOR ENTERS THIS ROUTINE              82102860
                    *          AFTER DETECTING AN AI INTERRUPT.             82102870
                    *          THE ROUTINE SENSES AND EVALUATES             82102880
                    *          BOTH AI AND COMPARATOR DSWS, AND             82102890
                    *          TRANSFERS TO THE SUBROUTINE TO               82102900
                    *          PERFORM THE REQUIRED SERVI3E.                82102910
                    *          MISSING OR EXTRA DSW BITS AND                82102920
                    *          EXTRA INTERRUPTS WILL BE OUTPUTTED           82102930
                    *          IN AN ERROR MESSAGE FROM MAINLINE.           82102940
                    *          COMPARATOR INTERRUPTS WILL BE OUT-           82102950
                    *          PUTTED IN A LOG MESSAGE FROM MAIN-           82102960
                    *          LINE. %E000, A002<                           82102970
                    *                                                       82102980
0899 0 8000         TICON DC       /8000      TIMER CONSTANT                82102990
089A 0 0000         AIIST DC       0          TEMPORY STORAGE               82103000
089B 0 0000         AIDSW DC       0          DSW STORAGE AREA              82103010
                    *                                                       82103020
                    *                                                       82103030
089C 0 0000         AISSE DC       0                                 IE     82103040
089D 0 4003               BSI      AIERR      GO SET UP ERROR               82103050
089E 0 0845               XIO      AISRD      READ INTO DUMMY               82103060
089F 1 4C80 089C          BSC  I   AISSE      EXIT ROUTINE           IX     82103070
                    *                                                       82103080
                    *                                                       82103090
                    *          THIS SEQUENCE SETS UP TO ENABLE              82103100
                    *          LOGGING OF AN ERROR INTERRUPT.               82103110
                    *                                                       82103120
08A1 0 0000         AIERR DC       0                                 IE     82103130
08A2 0 C0F8               LD       AIDSW                                    82103140
08A3 1 D400 0920          STO  L   LMDSW      STORE FOR LOG                 82103150
08A5 1 7401 0A2B          MDX  L   AIERS,1    SET ERR SW ON                 82103160
08A7 0 7001               MDX      *&1                                      82103170
08A8 0 70FF         AITRP MDX      AITRP      INTR ON SOLID - TRAP          82103180
08A9 1 4C80 08A1          BSC  I   AIERR      EXIT ROUTINE           IX     82103190
                    *                                                       82103200
                    *                                                       82103210
                    *                                                       82103220
                    *                                                       82103230
                    *                RELAY INTERRUPT ENTRY                  82103240
                    *                                                       82103250
08AB 0 0000         AIIRY DC       0                                 IE     82103260
08AC 0 0835               XIO      AIRCC      READ RLY DATA                 82103270
08AD 1 7400 0973          MDX  L   AIRCT,0    CHECK FOR ERROR               82103280
08AF 0 7002               MDX      *&2        SKIP IF OK                    82103290
08B0 0 40F0               BSI      AIERR                                    82103300
08B1 0 7005               MDX      *&5        BRANCH TO EXIT                82103310
08B2 1 74FF 08E2          MDX  L   AIRCC,-1   SET UP FOR NXT RLY            82103320
08B4 1 74FF 0973          MDX  L   AIRCT,-1   REDUCE RELAY CNT 1            82103330
08B6 0 1000               SLA      0          MDX MAY SKIP                  82103340
08B7 1 4C80 08AB          BSC  I   AIIRY      EXIT SUBROUTINE        IX     82103350
                    *                                                       82103360
                    *                                                       82103370
                    *                END OF TBL INTER ENTRY                 82103380
                    *                                                       82103390
                    *                                                       82103400
08B9 0 0000         AIEOT DC       0                                 IE     82103410
```



```
08BA 0 C056               LD       INTSW      LOAD INTERRUPT SW             82103420
08BB 0 4818               BSC      -&                                       82103430
08BC 0 40E4               BSI      AIERR      ERROR IF OFF                  82103440
08BD 0 1010               SLA      16                                       82103450
08BE 0 D052               STO      INTSW      RESET INTERRUPT SW            82103460
08BF 1 4C80 08B9          BSC  I   AIEOT      EXIT SUBROUTINE        IX     82103470
                    *                                                       82103480
                    *                                                       82103490
08C1 0 FF3E         AIPAS DC       /FF3E      INTERRUPT BITS                82103500
                    *                                                       82103510
08C2   0000               BSS  E   0                                        82103520
08C2 0 0000         TSNSE DC       0          TIMER SENSE IOCC              82103530
08C3 0 0721               DC       /0721                                    82103540
                    *                                                       82103550
                    *                                                       82103560
                    *          THIS SEQUENCE SETS UP TO ENABLE              82103570
                    *          LOGGING OF A COMPARE INTERRUPT,              82103580
                    *          EITHER HI LIMIT, LO LIMIT OR                 82103590
                    *          OVERLOAD.                                    82103600
                    *                                                       82103610
                    *                                                       82103620
                    *                COMPARE ENTRY                          82103630
                    *                                                       82103640
08C4 0 0000         LGDSW DC       0          DSW STORAGE FOR LOG           82103650
08C5 0 0000         ACCMP DC       0          AREA CODE - COMPARE           82103660
08C6 0 0000         AICMR DC       0                                 IE     82103670
08C7 0 0858               XIO      LMDSW      READ DSW - RESET              82103680
08C8 0 D0FB               STO      LGDSW      SAVE DSW                      82103690
08C9 1 7401 0E3C          MDX  L   AILGS,1    SET LOG REQ SW ON             82103700
08CB 0 7001               MDX      *&1                                      82103710
08CC 0 70FF         CMTRP MDX      CMTRP      INTR ON SOLID - TRAP          82103720
08CD 1 4C80 08C6          BSC  I   AICMR      EXIT ROUTINE           IX     82103730
                    *                                                       82103740
                    *                                                       82103750
                    *                RESPONSE ENTRY                         82103760
                    *                                                       82103770
08CF 0 0001         AONE  DC       1          CONSTANT ONE                  82103780
08D0 0 0000         ACAI  DC       0          AREA CODE - AI                82103790
08D1 0 0000         AINTR DC       0                                 IE     82103800
08D2 0 084F               XIO      CKDSW      READ DSW - RESET              82103810
08D3 0 D0C7               STO      AIDSW      SAVE DSW                      82103820
08D4 0 E0EC               AND      AIPAS      TURN OFF PASS BITS            82103830
08D5 0 D0C4               STO      AIIST      STORE DSW                     82103840
08D6 0 630F               LDX   3  15                                       82103850
08D7 1 4418 08A1          BSI  L   AIERR,&-   ERROR IF DSW ZERO             82103860
08D9 0 C0C0         AIIBR LD       AIIST                                    82103870
08DA 0 1340               SLCA  3  0          FIND DSW BIT                  82103880
08DB 1 4C98 08D1          BSC  I   AINTR,&-   EXIT IF DONE           IX     82103890
08DD 0 F0BB               EOR      TICON      TURN OFF BIT                  82103900
08DE 0 D0BB               STO      AIIST                                    82103910
08DF 1 4780 0889          BSI  I3  AIIBT                                    82103920
08E1 0 70F7               MDX      AIIBR      BRANCH                        82103930
                    *                                                       82103940
                    *                                                       82103950
                    *                                                       82103960
                    *          ** INITIALIZATION ROUTINE **                 82103970
                    *                                                       82103980
                    *          THIS ROUTINE PERFORMS THE REQUIRED           82103990
                    *          INITIALIZATION FOR RESTART OF THE            82104000
                    *          PROGRAM, AND LOADS THE INITIAL               82104010
                    *          ENTRY ADDRESS INTO THE MAIN LINE             82104020
                    *          SEQUENCE CONTROL FIELD.                      82104030
                    *                                                       82104040
                    *                                                       82104050
08E2   0000               BSS  E   0                                        82104060
08E2 1 0EEE         AIRCC DC       AIDRT&10   IOCC WORD RD RLY              82104070
08E3 0 0000               DC       0          IOCC WORD RD RLY              82104080
08E4 1 0922         AISRD DC       CKDSW      SOLID STATE IOCC              82104090
```

```
08E5 0 0000            DC      0
                *
                *
08E6 0 0000     RSAI   DC      0
08E7 1 C400 0E85       LD   L  AIAAS        LOAD TERMINATOR
08E9 1 D400 0805       STO  L  SW3          INITIALIZE BIT SW 3
08EB 0 C830            LDD     RT01         LOAD ROUTINE 1
08EC 1 DC00 0800       STD  L  RID          STO RT ID & ADDR
08EE 0 1090            SLT     16           SHIFT ENTRY ADDR
08EF 1 D400 0809       STO  L  MLSCF        STORE ENTRY
08F1 0 1010            SLA     16
08F2 1 D400 0973       STO  L  AIRCT
08F4 1 D400 0A2B       STO  L  AIERS
08F6 1 4400 0CC8       BSI  L  AISTP        GO TO SET UP RT
08F8 0 6600 0019       LDX  L2 AIOVC&5-AISUX     ****
08FA 1 6500 0EF3       LDX  L1 AISUX-1
08FC 0 4015            BSI     CLEAR
08FD 1 6580 0C9B       LDX  I1 AIWC1                          *
08FF 0 726D            MDX   2 109                            *
0900 0 71FF            MDX   1 -1                             *
0901 0 70FD            MDX     *-3          ZERO WORK AREAS   *
0902 1 6500 0F21       LDX  L1 AISTB-1
0904 0 400D            BSI     CLEAR
0905 1 D400 0B4B       STO  L  AICYR          INITIALIZE      *
0907 1 D400 09F0       STO  L  TMCNT           SWITCHES       *
0909 1 6580 09A5       LDX  I1 AIRSY        LOAD RELAY COUNT
090B 1 7401 09F0       MDX  L  TMCNT,1      SET DELAY TIME
090D 0 71F7            MDX   1 -9
090E 0 70FC            MDX     *-4
090F 1 4C80 08E6       BSC  I  RSAI         EXIT ROUTINE
                *
                *
0911 0 0000     INTSW  DC      0            INTERRUPT SWITCH
                *
                *
0912 0 0000     CLEAR  DC      0
0913 0 6902            STX   1 CLRCR&1
0914 0 1010            SLA     16
0915 0 D600 0000 CLRCR STO  L2 0
0917 0 72FF            MDX   2 -1
0918 0 70FC            MDX     CLRCR
0919 1 4C80 0912       BSC  I  CLEAR
                *
                *
                *              CONTROL SEQUENCE NUMBER 1
                *
                *              THIS SEQUENCE REQUESTS THE USE OF
                *              THE DEVICES USED IN THIS PROGRAM
                *              FROM MONITOR. THE FIRST PART
                *              REQUESTS THE TIMERS AND IS ENTERED
                *              ONLY FROM THE INITIALITION. THE
                *              SECOND PART %RT01A< REQUESTS THE
                *              AI AND IS ENTERED PRIOR TO EACH
                *              CYCLE. ANY SETUP ERROR IS OUTPUTTED
                *              FROM THIS SEQUENCE. %E006<
                *
                *
091C   0000            BSS  E  0
091C 0 0001     RT01   DC      1            RT 01 - REQ DEVICES
091D 1 0924            DC      TMREQ        ENTRY ADDRESS
                *
091E 0 0001     RT01A  DC      1            RT 01A - REQ AI
091F 1 095B            DC      AIACC        ENTRY ADDRESS
                *
                *
0920 0 0000 0000 LMDSW DEC     0            IOCC TO RESET CMP DSW
0922 0 0000 0000 CKDSW DEC     0            IOCC TO RESET AI DSW
                *
```



```
                ***********************************************
                *               ** REQUEST TIMERS **          *
0924 0 4480 0131 TMREQ BSI  I  REQDV        GO REQUEST TIMERS *
0926 1 0965            DC      TMBSY        ADDR OF BSY RTRN  *
0927 1 0813            DC      EDIT&2       ADDR OF TM DEV DEF *
0928 1 0858            DC      TIINT-1      ADDR OF AC STORAGE *
0929 1 080A            DC      TERM         ADDR OF TERMINATOR *
                *                                             *
                ***********************************************
092A 1 C400 0814       LD   L  TIBT1        LOAD TIMER 1 CONS
092C 0 404C            BSI     MKPOS        CHANGE SIGN
092D 0 D094            STO     TSNSE        STORE CONSTANT
092E 0 D400 0004       STO  L  4           INITIALIZE TIMER 1
0930 0 4026     AIREQ  BSI     REQAI        REQUEST AI
0931 0 C09E            LD      ACAI         LOAD AREA CODE & MOD
0932 0 E83D            OR      CONTL        OR CONTROL FUNTION
0933 0 D065            STO     AIBST&1      SET IN IOCC WORD
0934 0 E83D            OR      IWT          OR INITIATE WRITE
0935 0 D069            STO     AIWRT&1      STO IN IOCC WORD
0936 0 C099            LD      ACAI         LOAD AREA CODE
0937 0 E837            OR      RD           OR READ FUNTION
0938 0 D0AA            STO     AIRCC&1      STO IN IOCC WORD
0939 0 D0AA            STO     AISRD        SET IN IOCC WORD
093A 0 E839            OR      SDSW         OR SENSE FUNTION
093B 0 D05F            STO     RDDSW&1      STO IN READ DSW IOCC
093C 0 E892            OR      AONE         OR BIT 15
093D 0 D0E5            STO     CKDSW&1      STO IN RESET DSW IOCC
093E 0 E863            OR      AIB08        OR COMPARATOR MODIFIER
093F 0 D0E1            STO     LMDSW&1      STO IN IOCC WORD
0940 1 C400 0823       LD   L  AIFRS           ****
0942 0 100E            SLA     14                             *
0943 0 180E            SRA     14                             *
0944 0 B05C            CMP     AIB14                          *
0945 0 7003            MDX     AIRG         RESOLUTION ADJUST *
0946 0 7004            MDX     AIRL            SEQUENCE       *
0947 0 1002            SLA     2                              *
0948 0 7003            MDX     AIRDD        CAN BE EITHER     *
0949 0 1010     AIRG   SLA     16              14 BIT         *
094A 0 7001            MDX     AIRDD           11 BIT         *
094B 0 C057     AIRL   LD      AIB11           08 BIT         *
094C 0 E883     AIRDD  OR      ACAI         OR AREA CODE      *
094D 0 E823            OR      IRD          OR READ FUNTION   *
094E 1 7400 083D       MDX  L  AIXSS,0      CHECK FOR EXT SYNC *
0950 0 E851            OR      AIB08        OR EXT SYNC BIT   *
0951 0 D04B            STO     AIIRD&1      SET IN IOCC       *
0952 1 C400 0A2B       LD   L  AIERS        LOAD SETUP ERROR SW
0954 1 4C20 0AA9       BSC  L  LSUER,Z      LOG ERROR IF ON
0956 0 7011            MDX     AIRAC&1      BRANCH
                *
                *
0957 0 0000     REQAI  DC      0                               SE
0958 0 C8C5     AIBSY  LDD     RT01A        LOAD ROUTINE 1A
0959 1 6400 09FC       LDX  L  AIEXX        BR TO EXIT
                ***********************************************
                *               ** REQUEST AI **              *
095B 0 4480 0131 AIACC BSI  I  REQDV        GO REQUEST AI     *
095D 1 0958            DC      AIBSY        ADDR OF BSY RTRN  *
095E 1 0811            DC      EDIT         ADDR OF AI DEV DEF *
095F 1 08D0            DC      ACAI         ADDR OF AC STORAGE *
0960 1 0812            DC      EDIT&1       ADDR OF CMP DEV DEF*
0961 1 08C5            DC      ACCMP        ADDR OF CMP AC STO *
0962 1 080A            DC      TERM         ADDR OF TERMINATOR *
                ***********************************************
0963 1 4C80 0957       BSC  I  REQAI        EXIT ROUTINE       SX
                *
                *
0965 0 C886     TMBSY  LDD     RT01         LOAD ROUTINE 1
0966 0 7044            MDX     AIINX&1      BRANCH TO EXIT
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                    *                                                   82105460
                    *                                                   82105470
0967 0 40EF         AIRAC BSI     REQAI      GO REQUEST AI              82105480
0968 1 7401 0B4B          MDX  L  AICYR,1    ADD 1 TO CYCLE CNTR        82105490
096A 1 6700 0EEE          LDX  L3 AIDRT&10   LOAD RLY ADDR              82105500
096C 1 6F00 08E2          STX  L3 AIRCC      STORE IN IOCC              82105510
096E 0 7043               MDX     AIINP      BRANCH TO RT03             82105520
                    *                                                   82105530
                    *                                                   82105540
096F 0 0200         RD    DC      /0200      READ FUNTION               82105550
0970 0 0400         CONTL DC      /400       CONTROL FUNTION            82105560
0971 0 0620         IRD   DC      /0620      INITIATE READ FUNTION      82105570
0972 0 0500         IWT   DC      /0500  .   INITIATE WRITE FUNTION     82105580
0973 0 0000         AIRCT DC      0          RELAY CNT STORAGE          82105590
0974 0 0700         SDSW  DC      /0700                                 82105600
0976 0 0000 0000    POSWK DEC     0          WORK AREA                  82105610
                    *                                                   82105620
0978 1 0B58               DC      AIWKH      MPX ADDRESS         *      82105630
                    *        ** CHANGE SIGN SUBROUTINE **               82105640
                    *                                                   82105650
                    *        THIS SUBROUTINE CHANGES THE SIGN           82105660
                    *        OF THE VALUE IN A&Q, AND RETURNS           82105670
                    *        WITH THE NEW VALUE IN A&Q. THE             82105680
                    *        VALUE CAN BE A ONE WORD VALUE IN           82105690
                    *        A BUT Q MUST # ZERO.                       82105700
                    *                                                   82105710
                    *                                                   82105720
0979 0 0000         MKPOS DC      0                              SE     82105730
097A 0 D8FB               STD     POSWK                                 82105740
097B 0 10A0               SLT     32                                    82105750
097C 0 98F9               SD      POSWK                                 82105760
097D 1 4C80 0979          BSC  I  MKPOS                          SX     82105770
                    *                                                   82105780
                    *                                                   82105790
                    *              CONTROL SEQUENCE NUMBER 2            82105800
                    *                                                   82105810
                    *        THIS SEQUENCE SENSES AND RESETS            82105820
                    *        THE AI DSW. NONZERO DSW WILL OUT-          82105830
                    *        PUT AN ERROR. %E001<                       82105840
                    *                                                   82105850
097F 1 6E00 0A2B    AIERL STX  L2 AIERS      RESET ERROR SW             82105860
0981 0 400F         AISRT BSI     BLAST      GO TO BLAST ROUTINE        82105870
0982 0 0817               XIO     RDDSW      SENSE DSW                  82105880
0983 1 4C18 09B2          BSC  L  AIINP,&-   TO RT03 IF DSW # 0         82105890
0985 1 D400 0A2C          STO  L  ERDSW      STORE DSW FOR PRINT        82105900
0987 1 4400 0A90          BSI  L  AIERC                                 82105910
0989 0 E001               AND     *&1        MID FOR DSW NOT RESET      82105920
                    ********************************************        82105930
                    *              ** RELEASE AI **            *        82105940
098A 0 4480 0132    ENDAI BSI  I  RELDV      GO TO RELEASE AI    *      82105950
098C 1 0811               DC      EDIT       ADDR OF AI DEV DEF *       82105960
098D 1 0812               DC      EDIT&1     ADDR OF CMP DEV DEF*       82105970
098E 1 080A               DC      TERM       ADDR OF TERMINATOR *       82105980
                    ********************************************        82105990
098F 0 4C80 012E          BSC  I  END        END PROGRAM                82106000
                    *                                                   82106010
                    *                                                   82106020
0991 0 0000         BLAST DC      0                              SE     82106030
0992 0 0805               XIO     AIBST      RESET AI CHAN              82106040
0993 0 088C               XIO     LMDSW      RESET PENDING INTER        82106050
0994 0 088D               XIO     CKDSW      RESET PENDING INTER        82106060
0995 1 4C80 0991          BSC  I  BLAST      EXIT ROUTINE        SX     82106070
                    *                                                   82106080
                    *                                                   82106090
0998 0 0000 0000    AIBST DEC     0          BLAST IOCC                 82106100
099A 0 0000 0000    RDDSW DEC     0          IOCC TO RD AI DSW          82106110
099C 1 0EE3         AIIRD DC      AIDRT-1    IOCC TO INITIATE READ      82106120
099D 0 0000               DC      0                                     82106130
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099E 1 0841         AIWRT DC      AITOA      IOCC TO INITIATE WR        82106140
099F 0 0000               DC      0                                     82106150
09A0 0 0000         AITMS DC      0          TIMER SWITCH               82106160
09A1 0 0002         AIB14 DC      /0002      BIT 14 CONSTANT            82106170
09A2 0 0080         AIB08 DC      /0080      BIT 08 CONSTANT            82106180
09A3 0 0010         AIB11 DC      /10        BIT 11 CONSTANT            82106190
09A4 0 0000         TMSSW DC      0          TIME SWITCH                82106200
09A5 0 0000         AIRSY DC      0          RELAY SWITCH               82106210
09A6 0 0000         AIOSP DC      0          OVERLAP CNTR               82106220
                    *                                                   82106230
                    *                                                   82106240
                    *              CONTROL SEQUENCE NUMBER 3            82106250
                    *                                                   82106260
                    *        THIS SEQUENCE INITIATES THE READ           82106270
                    *        AND WRITE AI COMMANDS. IT ALSO             82106280
                    *        STARTS THE TIME DELAY USING TIMER          82106290
                    *        NUMBER 1. ENTRY TO THE DATA ENTRY          82106300
                    *        AND EVALUATE ENTERED DATA ROUTINES         82106310
                    *        IS MADE FROM THIS SEQUENCE.                82106320
                    *                                                   82106330
09A8   0000               BSS  E  0                                     82106340
09A8 0 0003         RT03  DC      3          ROUTINE 3                  82106350
09A9 1 09B2               DC      AIINP      ENTRY ADDRESS              82106360
                    *                                                   82106370
                    *                                                   82106380
09AA 0 C8FD         AIINX LDD     RT03       LOAD RT03 RETURN           82106390
09AB 0 7050               MDX     AIEXX      BRANCH TO EXIT             82106400
                    *                                                   82106410
                    *                                                   82106420
09AC 0 1010         NOTVC SLA     16                                    82106430
09AD 1 D400 0A2D          STO  L  AIOCS                                 82106440
09AF 1 4400 0CC8          BSI  L  AISTP                                 82106450
09B1 0 702E               MDX     AIPLT                                 82106460
                    *                                                   82106470
09B2 0 10A0         AIINP SLT     32         CLEAR A & Q                82106480
09B3 1 C400 0804          LD   L  SW2        LD BIT SW WORD 2           82106490
09B5 1 4C20 0E4D          BSC  L  AIDER,Z    GO TO ADD DATA             82106500
09B7 1 C400 0803          LD   L  SW1        LD BIT SW WORD 1           82106510
09B9 1 4420 0E7E          BSI  L  AIVED,Z    GO TO VERIFY DATA          82106520
09BB 1 C400 0C[illegible]0          LD   L  TIERS      LD TMR ERROR SW            82106530
09BD 1 4C20 0A87          BSC  L  LGTER,Z    BR TO LOG ERROR            82106540
09BF 0 C0E5               LD      AIRSY      LO RLY SW                  82106550
09C0 1 4C18 09EC          BSC  L  AIIZZ,&-   BR TO RD IF NOT RLY        82106560
09C2 1 7400 09A0          MDX  L  AITMS,0    SKIP IF TMR SW OFF         82106570
09C4 0 70E5               MDX     AIINX      BRANCH TO EXIT             82106580
09C5 0 D0AD               STO     AIRCT      STO NO RLY POINTS          82106590
09C6 1 C400 083F          LD   L  AIOLS                                 82106600
09C8 1 4C30 09E0          BSC  L  AIPLT,Z-                              82106610
09CA 1 C400 0802          LD   L  SW0                                   82106620
09CC 0 100A               SLA     10                                    82106630
09CD 1 4C10 09AC          BSC  L  NOTVC,-                               82106640
09CF 1 C400 0A2D          LD   L  AIOCS                                 82106650
09D1 1 4C30 09D7          BSC  L  OVLPC,-Z                              82106660
09D3 1 7401 0A2D          MDX  L  AIOCS,1                               82106670
09D5 1 4400 0CC8          BSI  L  AISTP                                 82106680
09D7 0 COCE         OVLPC LD      AIOSP      LOAD OVERLAP COUNT         82106690
09D8 0 9051               S       AIOSB      SUBT CONSTANT              82106700
09D9 0 1801               SRA     1                                     82106710
09DA 1 4C30 0EC9    AITOO BSC  L  AIOLT,Z-   BR TO PRINT OVLP CNTR      82106720
09DC 1 C400 0D66          LD   L  C001       LO CHAIN-INT CONSTANT      82106730
09DE 1 D400 0EF0          STO  L  LOOP       RESET CONTROL BITS         82106740
09E0 1 C400 083F    AIPLT LD   L  AIOLS                                 82106750
09E2 1 4C18 09E6          BSC  L  AITRT,&-   BR IF OVERLAP              82106760
09E4 0 1010               SLA     16                                    82106770
09E5 0 D08D               STO     AIRCT                                 82106780
                    ********************************************        82106790
                    *              ** TIMER CALL **            *        82106800
09E6 1 4400 0DB7    AITRT BSI  L  TIMER      GO TO TIMER         *      82106810
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09E8 0 0003              DC      3           TIME # 320 M SEC   *     82106820
09E9 1 09A0              DC      AITMS       ADDR OF TIME SW    *     82106830
                     *                                           *     82106840
                     *********************************************     82106850
09EA 0 C03F              LD      AIOSB                                 82106860
09EB 0 D0BA              STO     AIOSP       RESET OVERLAP CNTR        82106870
09EC 1 7401 0911    AIIZZ MDX  L  INTSW,1     TURN INT SW ON            82106880
                     *********************************************     82106890
                     *                ** TIMER CALL **           *     82106900
09EE 1 4400 0DB7         BSI  L  TIMER       GO TO TIMER        *     82106910
09F0 0 0000         TMCNT DC     0           TM # 107 MSEC/9 PTS*     82106920
09F1 1 09A4              DC      TMSSW       ADDR OF TIME SW    *     82106930
                     *                                           *     82106940
                     *********************************************     82106950
09F2 0 08A9              XIO     AIIRD       INITIATE READ             82106960
09F3 0 08AA              XIO     AIWRT       INITIATE WRITE            82106970
09F4 1 C400 0A2D         LD   L  AIOCS                                 82106980
09F6 1 4420 0A03         BSI  L  AIOCK,Z     BR IF OVRL CK             82106990
09F8 1 7400 083D         MDX  L  AIXSS,0     CHECK FOR EXT SYNC        82107000
09FA 0 7034              MDX     XTSNC       BR FOR EXT SYNC           82107010
09FB 0 C83C         AIEXB LDD    RT04        LOAD ROUTINE 4            82107020
09FC 1 DC00 0800    AIEXX STD  L  RID         STO RT ID & ADDR          82107030
09FE 0 1090              SLT     16          SHIFT ENTRY ADDR          82107040
09FF 1 D400 0809         STO  L  MLSCF       STORE ENTRY ADDR          82107050
0A01 0 4C80 012D    AIRTM BSC  I  START       RETURN TO MONITOR         82107060
                     *                                                 82107070
0A03 0 0000         AIOCK DC     0                                     82107080
0A04 1 6780 09A6         LDX  I3 AIOSP       INITIALIZE EOT COUNT      82107090
0A06 0 0C00 0348         XIO  L  MASK                                  82107100
0A08 0 0C00 034A         XIO  L  MASK1                                 82107110
0A0A 1 0C00 0922    AISSS XIO  L  CKDSW                                82107120
0A0C 0 4828              BSC     &Z          SKIP IF NOT COUNT         82107130
0A0D 0 7301              MDX   3 1           COUNT EOT BITS            82107140
0A0E 0 1002              SLA     2                                     82107150
0A0F 1 4C10 0A18         BSC  L  SPRLY,-     BR IF RLY DATA NOT RDY    82107160
0A11 0 18D0              RTE     16          SAVE A                    82107170
0A12 1 0C00 08E2         XIO  L  AIRCC       READ RLY DATA             82107180
0A14 1 74FF 0973         MDX  L  AIRCT,-1    REDUCE RLY COUNT          82107190
0A16 0 1000              SLA     0                                     82107200
0A17 0 18D0              RTE     16          GET  A                    82107210
0A18 0 1007         SPRLY SLA    7           SET UP RLY BUSY CK        82107220
0A19 1 4C28 0A0A         BSC  L  AISSS,&Z    BR IF STILL BUSY          82107230
0A1B 0 6B8A              STX   3 AIOSP       STO EOT COUNT             82107240
0A1C 1 4400 08B9         BSI  L  AIEOT                                 82107250
0A1E 1 4400 0991         BSI  L  BLAST                                 82107260
0A20 0 0C00 034C         XIO  L  UMASK                                 82107270
0A22 0 0C00 034E         XIO  L  UMAS1                                 82107280
0A24 1 C400 091E         LD   L  RT01A                                 82107290
0A26 1 D400 0EF0         STO  L  LOOP                                  82107300
0A28 1 4C80 0A03         BSC  I  AIOCK       BRANCH                    82107310
                     *                                                 82107320
0A2A 0 0000         AIOSB DC     0           OVLP CK SW                82107330
0A2B 0 0000         AIERS DC     0           ERROR SWITCH              82107340
0A2C 0 0000         ERDSW DC     0           ERROR DSW STORAGE         82107350
0A2D 0 0000         AIOCS DC     0           CK OVLP SW                82107360
0A2E 0 00C0         BSYBT DC     /00C0       BSY BITS 8 & 9            82107370
                     *                                                 82107380
0A2F 1 0C00 099A    XTSNC XIO  L  RDDSW       READ DSW                  82107390
0A31 1 4C20 09FB         BSC  L  AIEXB,Z     CHECK FOR BUSY ON         82107400
0A33 1 7400 0911         MDX  L  INTSW,0     CHECK FOR INTER           82107410
0A35 0 70F9              MDX     XTSNC       LOOP FOR BUSY             82107420
0A36 0 70C4              MDX     AIEXB       EXIT FOR INTR OFF         82107430
                     *                                                 82107440
                     *                                                 82107450
                     *              CONTROL SEQUENCE NUMBER 4          82107460
                     *                                                 82107470
                     *         THIS SEQUENCE IS ENTERED FROM           82107480
                     *         MONITOR AS LONG AS THE AI IS            82107490
```



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                     *         BUSY. IT CHECKS FOR LOST RELAY          82107500
                     *         AND LOST END OF TABLE INTERRUPTS.       82107510
                     *         IT ALSO CHECKS FOR PROPER OPERATION     82107520
                     *         OF THE BUSY BITS AND THE BLAST          82107530
                     *         INSTRUCTION. IT INITIATES THE           82107540
                     *         OUTPUT OF AN ERROR WHEN ONE IS          82107550
                     *         DETECTED. %E004, E003, E007, E008<      82107560
                     *                                                 82107570
0A38    0000             BSS  E  0                                     82107580
0A38 0 0004         RT04 DC      4           RT 04 - INTER/BSY CK      82107590
0A39 1 0A3A              DC      AIENB       ENTRY ADDRESS             82107600
                     *                                                 82107610
                     *                                                 82107620
0A3A 1 C400 0E3C    AIENB LD   L  AILGS       TEST FOR COMP INTR        82107630
0A3C 1 4C18 0A48         BSC  L  AILCL,&-     LOG COMP INTR IF ON       82107640
                     *                                                 82107650
                     *                                                 82107660
                     *              COMPARE LOG CALL                   82107670
                     *                                                 82107680
                     *         THIS CALL IS ENTERED FROM MAIN-         82107690
                     *         LINE WHENEVER A COMPARATOR INTERRUPT    82107700
                     *         HAS BEEN SERVICED. THE INFORMATION      82107710
                     *         FOR THE LAST INTERRUPT DETECTED IS      82107720
                     *         LOGGED. %A002<                          82107730
                     *                                                 82107740
                     *                                                 82107750
                     *********************************************     82107760
                     *                ** LOG CALL **             *     82107770
0A3E 1 4400 0DE4         BSI  L  LOGCL       GO LOG COMPARE INTR*     82107780
0A40 0 0003              DC      3           WORD COUNT         *     82107790
0A41 0 0000              DC      0           HEX-DEC SW %HEX<   *     82107800
0A42 1 0A3A              DC      AIENB       RTRN.ADDR          *  $  82107810
0A43 0 A042              DC      /A042       MSG.I.D.           *  $  82107820
0A44 0 0104              DC      /0104       BYPASS BITS        *     82107830
0A45 1 08C4              DC      LGDSW       ADDR OF CMP DSW    *     82107840
0A46 1 0E3C              DC      AILGS       ADDR OF LOG REQST  *     82107850
                         DC      AICYR       ADDR OF CYCLE CNTR *     82107860
                     *********************************************     82107870
                     *                                                 82107880
0A48 1 0C00 099A    AILCL XIO  L  RDDSW       READ DSW                  82107890
0A4A 1 D400 099A         STO  L  RDDSW       STORE DSW                 82107900
0A4C 1 7400 0973         MDX  L  AIRCT,0     CHECK FOR RLY INTR        82107910
0A4E 0 7028              MDX     AICRY       GO CHECK TIME             82107920
0A4F 1 7400 0911    AICKB MDX  L  INTSW,0     CHECK FOR EOT INTR        82107930
0A51 0 702D              MDX     AICKT       GO CHECK TIME             82107940
0A52 0 E0DB         AICKC AND    BSYBT       BUSY BITS 8 & 9           82107950
0A53 1 4C18 0A5B         BSC  L  AIENX,&-     GO EVALUATE IF BSY OFF    82107960
0A55 1 7400 09A4         MDX  L  TMSSW,0     CHECK FOR TIMEOUT         82107970
0A57 0 70A3              MDX     AIEXB       BRANCH TO EXIT            82107980
0A58 0 D0D3              STO     ERDSW       STORE BITS FOR PRINT      82107990
0A59 0 4036              BSI     AIERC       GO LOG ERROR              82108000
0A5A 0 E007              AND     *&7         MID FOR BSY ON            82108010
0A5B 1 C400 0802    AIENX LD   L  SW0                                  82108020
0A5D 0 1009              SLA     9                                     82108030
0A5E 1 4C28 0AB3         BSC  L  AIEVL,&Z    BYPASS BLAST AI           82108040
0A60 0 1001              SLA     1                                     82108050
0A61 1 4C28 0AB3         BSC  L  AIEVL,&Z    BYPASS BLAST OVLP CK      82108060
0A63 1 0C00 099C         XIO  L  AIIRD       INITIATE READ             82108070
0A65 1 0C00 099E         XIO  L  AIWRT       INITIATE WRITE            82108080
0A67 0 4000              BSI     AICBL       PREVENT INTERRUPT         82108090
                     *                                                 82108100
0A68 0 0000         AICBL DC     0                                     82108110
0A69 1 0C00 099A    BLTRP XIO  L  RDDSW       SENSE DSW                 82108120
0A6B 1 4418 0A68         BSI  L  AICBL,&-     BRANCH IF ZERO            82108130
0A6D 1 4400 0991         BSI  L  BLAST       BLAST AI                  82108140
0A6F 1 0C00 099A         XIO  L  RDDSW       READ DSW                  82108150
0A71 0 4818              BSC     &-          ERROR IF NOT ZERO         82108160
0A72 0 7040         AIEXT MDX    AIEVL       BRANCH TO EVAL            82108170
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0A73 0 D088                STO     ERDSW       SAVE ERROR DSW                82108180
0A74 0 4018                BSI     AIERC       GO LOG ERROR                  82108190
0A75 0 E008                AND     *&8         MID FOR BLAST FAILING         82108200
0A76 0 70FB                MDX     AIEXT       BRANCH TO EXIT                82108210
                      *                                                        82108220
                      *                                                        82108230
0A77 1 7400 09A4    AICRY MDX   L  TMSSW,0     CHECK FOR TIMEOUT             82108240
0A79 0 7081         T      MDX     AIEXB       BRANCH TO EXIT                82108250
0A7A 0 D0B1                STO     ERDSW       STORE BITS FOR PRINT          82108260
0A7B 0 4014                BSI     AIERC       GO LOG ERROR                  82108270
0A7C 0 E004                AND     *&4         MID FOR LOST RLY INTR         82108280
0A7D 0 C0AE                LD      ERDSW       RELOAD DSW                    82108290
0A7E 0 70D0                MDX     AICKB                                     82108300
                      *                                                        82108310
0A7F 1 7400 09A4    AICKT MDX   L  TMSSW,0     CHECK FOR TIMEOUT             82108320
0A81 0 70F7                MDX     T           BR TO BR TO EXIT              82108330
0A82 0 D0A9                STO     ERDSW       STORE BITS FOR PRINT          82108340
0A83 0 400C                BSI     AIERC       GO LOG ERROR                  82108350
0A84 0 E003                AND     *&3         MID FOR LOST EOT              82108360
0A85 0 C0A6                LD      ERDSW       RELOAD DSW                    82108370
0A86 0 70CB                MDX     AICKC                                     82108380
                      *                                                        82108390
                      *                                                        82108400
                      *                TIMER DSW ERROR CALL                    82108410
                      *                                                        82108420
                      *           TIMER DSW ERRORS ARE LOGGED BY               82108430
                      *           THIS CALL, AFTER LOGGING THE PROGRAM         82108440
                      *           IS ENDED AND CONTROL RETURNED TO             82108450
                      *           MONITOR. %C000<                              82108460
                      *                                                        82108470
                      *                                                        82108480
                      ************************************************       82108490
                      *                  ** LOG CALL **              *       82108500
0A87 1 4400 0DE4    LGTER BSI   L  LOGCL       GO LOG ERROR          *       82108510
0A89 0 0002                DC      2           WORD COUNT            *       82108520
0A8A 0 0000                DC      0           HEX-DEC SW %HEX<      *       82108530
0A8B 1 098A                DC      ENDAI       RTRN.ADDR             *    $  82108540
0A8C 0 C040                DC      /C040       MSG.I.D.              *    $  82108550
0A8D 0 4004                DC      /4004       BYPASS BITS           *       82108560
0A8E 1 0878                DC      TIDSW       ADDR OF DSW           *       82108570
0A8F 1 0880                DC      TIERS       ADDR OF ERROR SW      *       82108580
                      ************************************************       82108590
                      *                                                        82108600
                      *                                                        82108610
                      *              ** ERROR LOG ROUTINE **                   82108620
                      *                                                        82108630
                      *           THIS ROUTINE IS ENTERED WHEN EVER            82108640
                      *           AN AI ERROR IS DETECTED. ALL ERRORS          82108650
                      *           WHICH OCCUR DURING MAINLINE                  82108660
                      *           OPERATION HAVE AN UNIQUE ID NUMBER,          82108670
                      *           AND EACH ONE IS OUTPUTTED UNLESS             82108680
                      *           BYPASSED.                                    82108690
                      *           ERRORS DETECTED IN INTERRUPT WILL            82108700
                      *           BE COUNTED AND THE INFORMATION FOR           82108710
                      *           THE LAST ONE DETECTED WILL BE OUT-           82108720
                      *           PUTTED AFTER RETURN TO MAINLINE.             82108730
                      *           THE @AND@ FOLLOWING THE BSI TO               82108740
                      *           AIERC IS THE MESSAGE ID FOR THAT             82108750
                      *           CALL AND IS EXECUTED UPON RETURN             82108760
                      *           FROM THE ERROR CALL.                         82108770
                      *                                                        82108780
                      *                                                        82108790
0A90 0 0000         AIERC DC        0                                   SE   82108800
0A91 1 C480 0A90          LD    I   AIERC       LOAD MID                      82108810
0A93 0 E814               OR        H0040                                 $  82108820
0A94 0 D006               STO       ERMID       STO IN ERROR CALL             82108830
                      ************************************************       82108840
                      *                  ** ERROR CALL **            *       82108850
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0A95 1 4400 0DF3           BSI   L  ERRCL       GO TO ERR CALL SBRT*       82108860
0A97 1 097F                DC       AIERL       LOOP ERROR ENTRY   *       82108870
0A98 0 0005                DC       5           WORD COUNT         *       82108880
0A99 0 0000                DC       0           HEX-DEC SW %HEX<   *       82108890
0A9A 1 0AA2                DC       ERCAI       RTRN.ADDR.         *    $  82108900
0A9B 0 0000         ERMID  DC       0           MESSAGE ID         *       82108910
0A9C 0 1080                DC       /1080       BYPASS BITS        *       82108920
0A9D 1 0A90                DC       AIERC       ADDR OF CALLING RTN*       82108930
0A9E 1 0A2C                DC       ERDSW       ADDR OF DSW        *       82108940
0A9F 1 0920                DC       LMDSW       INTR ERROR DSW ADDR*       82108950
0AA0 1 0A2B                DC       AIERS       ERROR SW           *       82108960
0AA1 1 0B4B                DC       AICYR       CYCLE COUNTER      *       82108970
                      ************************************************       82108980
0AA2 1 6E00 0A2B    ERCAI STX   L2 AIERS       RESET ERROR SW                82108990
0AA4 1 6E00 0920          STX   L2 LMDSW       RESET INTR DSW                82109000
0AA6 1 4C80 0A90          BSC   I  AIERC       EXIT ROUTINE             SX   82109010
0AA8 0 0040         H0040  DC       /0040       CONSTANT                  $  82109020
                      *                                                        82109030
                      *                                                        82109040
                      *                SETUP ERROR CALL                        82109050
                      *                                                        82109060
                      *           SETUP ERROR IS LOGGED BY THIS CALL.          82109070
                      *           AFTER LOGGING CONTROL IS TRANSFERRED         82109080
                      *           TO THE DATA ENTRY ROUTINE.                   82109090
                      *                                                        82109100
                      *                                                        82109110
                      ************************************************       82109120
                      *                  ** LOG CALL **              *       82109130
0AA9 1 4400 0DE4    LSUER BSI   L  LOGCL       GO LOG ERROR          *       82109140
0AAB 0 0002                DC       2           WORD COUNT            *       82109150
0AAC 0 0000                DC       0           HEX-DEC SW %HEX<      *       82109160
0AAD 1 0E4D                DC       AIDER       RTRN.ADDR.            *    $  82109170
0AAE 0 E050                DC       /E050       MSG.I.D.              *    $  82109180
0AAF 0 2000                DC       /2000       BYPASS BIT            *       82109190
0AB0 1 0C9B                DC       AIWC1       EVL ADDR CNT ADDR     *       82109200
0AB1 1 083E                DC       AIWC        ADDR WD CNT ADDR      *       82109210
                      *                                              *       82109220
                      ************************************************       82109230
                      *                                                        82109240
                      *                                                        82109250
                      *              DATA EVALUATION SEQUENCE                  82109260
                      *                                                        82109270
                      *           THIS SEQUENCE IS ENTERED AFTER EACH          82109280
                      *           THIS ROUTINE IS ENTERED AFTER EACH           82109290
                      *           CYCLE TO EVALUATE, SORT AND SAVE             82109300
                      *           THE INPUT DATA FOR THE CALCULATIONS.         82109310
                      *           DATA WHICH IS NOT WITHIN THE LIMITS          82109320
                      *           TO BE SAVED FOR CALCULATIONS IS              82109330
                      *           OUTPUTTED FOR IMMEDIATE OBSERVATION.         82109340
                      *           THIS OUTPUT MESSAGE CAN BE                   82109350
                      *           BYPASSED.                                    82109360
                      *                                                        82109370
0AB2 0 0000         AIWKJ DC        0           WORK AREA - J                 82109380
                      *                                                        82109390
                      *                                                        82109400
0AB3 1 C400 0A2B    AIEVL LD    L  AIERS       LD ERROR SW                   82109410
0AB5 1 4420 0A90          BSI   L  AIERC,Z     GO LOG ERROR                  82109420
0AB7 0 E000               AND       *&0         MID FOR INTR ERROR            82109430
                      ************************************************       82109440
                      *                ** RELEASE AI **              *       82109450
0AB8 0 4480 0132          BSI   I  RELDV       GO TO RELEASE AI      *       82109460
0ABA 1 0811               DC       EDIT        ADDR OF AI DEV DEF    *       82109470
0ABB 1 0812               DC       EDIT&1      ADDR OF CMP DEV DEF   *       82109480
0ABC 1 080A               DC       TERM        ADDR OF TERMINATOR    *       82109490
                      ************************************************       82109500
0ABD 0 6100               LDX   I  0                                          82109510
0ABE 1 C400 0815    AIEVI LD    L  AIMOD       LD ADC MOD SWITCH             82109520
0AC0 0 1090               SLT       16          SET CARRY  ZERO Q             82109530
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0AC1 1 C580 0CBE        LD    I1 AIDTA      LD VALUE READ                82109540
0AC3 1 4C04 0B05        BSC   L  AIOVL,E    BR IF OVERLOAD               82109550
0AC5 1 4402 0979        BSI   L  MKPOS,C    BR IF CARRY ON               82109560
0AC7 1 D580 0CBE        STO   I1 AIDTA      RESTORE NEW VALUE            82109570
0AC9 0 1881             SRT      1                                       82109580
0ACA 0 D0E7             STO      AIWKJ      SAVE VALUE READ              82109590
0ACB 0 1890             SRT      16         SHIFT RDNG TO Q              82109600
0ACC 1 8D80 0E93        AD    I1 AISUM      TO BE ADDED TO SUM           82109610
0ACE 1 DD80 0E93        STD   I1 AISUM      TOTAL OF GOOD RDGNS          82109620
0AD0 1 C500 0EFE        LD    L1 AIGRD          ****                     82109630
0AD2 0 807B             A        AIONE      ADD 1 TO GRDING CTR*         82109640
0AD3 1 D500 0EFE        STO   L1 AIGRD          ****                     82109650
0AD5 0 10A0             SLT      32         CLEAR A & Q                  82109660
0AD6 0 C0DB             LD       AIWKJ      LD VALUE READ                82109670
0AD7 1 9500 081D        S     L1 AIPRC      SUBT PREC READING            82109680
0AD9 0 D029             STO      MDY04&1    SAVE DIFFERENCE              82109690
0ADA 1 4428 0979        BSI   L  MKPOS,&Z   GO TO MAKE POSITIVE          82109700
0ADC 1 9400 0C1C        S     L  FTFOR      SUBT TABLE LIMIT             82109710
0ADE 1 4C08 0AFE        BSC   L  AICNC,&    BR IF WITHIN LIMIT           82109720
0AE0 1 C500 0F03        LD    L1 AIOTR      LD OUT OF TABLE CNTR         82109730
0AE2 0 806B             A        AIONE      ADD 1 TO OTC                 82109740
0AE3 1 D500 0F03        STO   L1 AIOTR      SET OTC # OTC&1              82109750
0AE5 1 C500 0817        LD    L1 AIMPX                                   82109760
0AE7 0 4076             BSI      AIMPC                                   82109770
0AE8 1 C500 081D        LD    L1 AIPRC                                   82109780
0AEA 0 D06E             STO      AIWKH&1    SAVE PREC RDNG               82109790
0AEB 1 C500 0824        LD    L1 RANGE                                   82109800
0AED 0 D06F             STO      AIWKE      SAVE FOR LOG                 82109810
0AEE 0 C0C3             LD       AIWKJ      LD VALUE READ                82109820
0AEF 1 4400 0CA2        BSI   L  AIDCN      GO TO DEC CNVRT RTN          82109830
                ********************************************           82109840
                *              ** LOG CALL **              *           82109850
0AF1 1 4400 0DE4        BSI   L  LOGCL      GO TO LOG CALL SBRT*         82109860
0AF3 0 0006             DC       6          WORD COUNT          *        82109870
0AF4 0 1001     AIHXS   DC       /1001      HEX-DEC SW %DEC<    *        82109880
0AF5 1 0B0A             DC       AIZX1      RTRN.ADDR           *   $    82109890
0AF6 0 A041             DC       /A041      MSG.I.D.            *   $    82109900
0AF7 0 0804             DC       /0804      BYPASS BITS         *        82109910
0AF8 1 0B58             DC       AIWKH      MPX ADDRESS         *        82109920
0AF9 1 0B59             DC       AIWKH&1    PREC VALUE          *        82109930
0AFA 1 0AB2             DC       AIWKJ      VALUE READ %DEC<    *        82109940
0AFB 1 0CC6             DC       AIWKL      VALUE READ %VOLT<   *        82109950
0AFC 1 0CC7             DC       AIWKL&1    VALUE READ %VOLT<   *        82109960
0AFD 1 0B4B             DC       AICYR      CYCLE COUNTER       *        82109970
                ********************************************           82109980
                *                                                       82109990
0AFE 0 C004     AICNC   LD       MDY04&1    LOAD DIFFERENCE              82110000
0AFF 1 8500 0E98        A     L1 AISPT      ADD SPT ADDR TO DIFF         82110010
0B01 0 D001             STO      MDY04&1    SET ADDR OF RD CNT   PR01    82110020
0B02 0 7401 0000 MDY04  MDX   L  0,1        SET RD CNT#RD CNT&1  PM01    82110030
0B04 0 7005             MDX      AIZX1      BRANCH                       82110040
0B05 1 C500 0F08        LD    L1 AIOVC          ****                     82110050
0B07 0 8046             A        AIONE      ADD 1 TO OVLD CNTR *         82110060
0B08 1 D500 0F08        STO   L1 AIOVC          ****                     82110070
0B0A 0 7101     AIZX1   MDX   1  1                                       82110080
0B0B 0 6948             STX   1  AIWKF      STO X1 IN WK AREA            82110090
0B0C 0 C047             LD       AIWKF      LD WK AREA                   82110100
0B0D 1 F400 0C9B        EOR   L  AIWC1      EOR NUMBER OF POINTS         82110110
0B0F 1 4C20 0ABE        BSC   L  AIEV1,Z    BR TO CK NEXT PT             82110120
0B11 0 6100             LDX   1  0          RESET INDEX # 0              82110130
0B12 1 C400 0822        LD    L  AIAPR      LD AUTO PREC SW              82110140
0B14 1 4C18 0B22        BSC   L  AIOA4,&-   BR IF SW # OFF               82110150
0B16 1 6780 0C9B        LDX   I3 AIWC1      COMPARE #                    82110160
0B18 1 C780 0CBD AISPR  LD    I3 AIDTA-1    LOAD VALUE READ              82110170
0B1A 0 1881             SRT      1                                       82110180
0B1B 1 D700 081C        STO   L3 AIPRC-1    SET INTO PREC TBL            82110190
0B1D 0 73FF             MDX      3 -1       SUBT 1 FROM INDEX            82110200
0B1E 0 70F9             MDX      AISPR      BRANCH                       82110210
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0B1F 0 1010             SLA      16                                      82110220
0B20 1 D400 0822        STO   L  AIAPR      ZERO AUTO PREC SW            82110230
0B22 0 C028     AIOA4   LD       AICYR      LD CYCLE COUNT               82110240
0B23 1 F400 0816        EOR   L  AICYC                                   82110250
0B25 1 4C20 0967 AIOA5  BSC   L  AIRAC,Z     BRANCH IF MORE CYCLES        82110260
                *                                                       82110270
                *                                                       82110280
                *          PERCENT CONSTANT SETUP                       82110290
                *              SEQUENCE                                 82110300
                *                                                       82110310
                *          CONSTANT # 99.7 PCENT OF CYCLES              82110320
                *                                                       82110330
0B27 0 C023             LD       AICYR      LD NO OF CYCLES              82110340
0B28 0 A031             M        C0997      MULT BY 99.7 PERCENT         82110350
0B29 0 A822             D        A1000                                   82110360
0B2A 0 D024             STO      P9970      STORE CONSTANT               82110370
0B2B 0 1090             SLT      16         SHIFT REM TO A               82110380
0B2C 1 4C18 0B30        BSC   L  *&2,&-      CHECK FOR FRACTION           82110390
0B2E 1 7401 0B4F        MDX   L  P9970,1     ADD 1 FOR FRACTION           82110400
                *                                                       82110410
                *                                                       82110420
                *          DATA CALCULATION SEQUENCE                    82110430
                *                                                       82110440
                *     THIS SEQUENCE IS ENTERED WHEN THE                 82110450
                *     SPECIFIED NUMBER OF CYCLES IS                     82110460
                *     COMPLETED. THE CALCULATIONS PERFORMED             82110470
                *     IN THIS SEQUENCE ARE. MEAN, VOLTAGE               82110480
                *     MEAN, ACCURACY PERCENT, AND                       82110490
                *     REPEATABILITY PERCENT.                            82110500
                *                                                       82110510
                *                                                       82110520
0B30 1 C500 0817 AIYP1  LD    L1 AIMPX      LD MPX ADDR                  82110530
0B32 0 402B             BSI      AIMPC                                   82110540
0B33 1 C500 0824        LD    L1 RANGE      LOAD RANGE                   82110550
0B35 0 D027             STO      AIWKE      SAVE RANGE                   82110560
0B36 1 C500 081D        LD    L1 AIPRC                                   82110570
0B38 1 4400 0CA2        BSI   L  AIDCN      GO TO DEC CNVRT RT           82110580
0B3A 1 C500 081D        LD    L1 AIPRC                                   82110590
0B3C 0 A01F             M        TEN                                     82110600
0B3D 0 D818             STD      AIWKG      SAVE PREC READING            82110610
                ********************************************           82110620
                *              ** LOG CALL **              *           82110630
0B3E 1 4400 0DE4        BSI   L  LOGCL      GO TO LOG CALL SBRT*         82110640
0B40 0 0006             DC       6          WORD COUNT          *        82110650
0B41 0 2801             DC       /2801      HEX-DEC SW %DEC<    *        82110660
0B42 1 0B6B             DC       AI3        RETURN ADDR         *        82110670
0B43 0 D001             DC       /D001      MESSAGE ID          *        82110680
0B44 0 0204             DC       /0204      BYPASS BITS         *        82110690
0B45 1 0B58             DC       AIWKH      POINT NO            *        82110700
0B46 1 0B5D             DC       AIWKE      RANGE               *        82110710
0B47 1 0B56             DC       AIWKG      PRECISION READING   *        82110720
0B48 1 0B57             DC       AIWKG&1    PRECISION READING   *        82110730
0B49 1 0CC6             DC       AIWKL      DECIMAL VALUE       *        82110740
0B4A 1 0CC7             DC       AIWKL&1    DECIMAL VALUE       *        82110750
                ********************************************           82110760
                *                                                       82110770
                *                                                       82110780
0B4B 0 0000     AICYR   DC       0          CYCLE COUNTER                82110790
0B4C 0 03E8     A1000   DC       1000       CONSTANT 1000                82110800
0B4D 0 4000     AIRSC   DC       /4000      CONSTANT FULL SCALE          82110810
0B4E 0 0001     AIONE   DC       1          CONSTANT 1                   82110820
0B4F 0 0000     P9970   DC       0          99.70 PCENT VALUE            82110830
0B50 0 0000 0000 VMEAN  DEC      0          MEAN IN VOLTAGE              82110840
0B52 0 0000 0000 MEAN   DEC      0          MEAN IN DIGITS               82110850
0B54 0 00C0 0000 AIWKF  DEC      0          WORK AREA - F                82110860
0B56 0 0000 0000 AIWKG  DEC      0          WORK AREA - G                82110870
0B58 0 00C0 0000 AIWKH  DEC      0          WORK AREA - H                82110880
0B5A 0 03E5     C0997   DC       997        CONSTANT 997                 82110890
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0B5B 0 0005        FIVE  DC      5           CONSTANT FIVE
0B5C 0 000A        TEN   DC      10
0B5D 0 0000        AIWKE DC      0           WORK AREA - E
                   *
                   *
                   *            ** CONVERT MPX ADDR ROUTINE **
                   *
                   *         THIS ROUTINE CONVERTS THE HEX MPX
                   *         ADDR TO THE FORM TO BE OUTPUTTED
                   *         0 - 9999 # RLY ADDRESS
                   *         10000 - UP # SS ADDRESS
                   *         THIS IS USED ONLY IN THE OUTPUT
                   *         MESSAGE.
                   *
                   *
                   *
0B5E 0 0000        AIMPC DC      0                                    SI
0B5F 0 1003              SLA     3
0B60 1 4C10 0B69         BSC  L  AIMP1,-
0B62 0 1001              SLA     1
0B63 0 1804              SRA     4
0B64 1 8400 0C9F         A    L  TENTH
0B66 0 D0F1              STO     AIWKH        SAVE POINT NO
0B67 1 4C80 0B5E         BSC  I  AIMPC                                SX
0B69 0 1803        AIMP1 SRA     3
0B6A 0 70FB              MDX     AIMP1-3
                   *
                   *
                   *             MEAN CALCULATION
                   *                ALGORITHM
                   *
                   *
                   *           SUM/GRD # R1 & N1
                   *             N1 X 10 # N2
                   *           R1 X 10/GRD # N3
                   *          N2 & N3 # MEAN X 10
                   *
0B6B 1 CD80 0E93   AI3   LDD  I1 AISUM        SUM OF READINGS
0B6D 1 AD00 0EFE         D    L1 AIGRD        / NO OF GOOD READINGS
0B6F 0 D8E8              STD     AIWKH        # N1 & R1
0B70 0 A0EB              M       TEN          X 10
0B71 0 D8E0              STD     MEAN         # N2
0B72 0 C0E6              LD      AIWKH&1      R1
0B73 0 A0E8              M       TEN          X 10
0B74 1 AD00 0EFE         D    L1 AIGRD        / GOOD READINGS # N3
0B76 0 1890              SRT     16
0B77 0 88DA              AD      MEAN         & N2
0B78 0 D8D9              STD     MEAN         # MEAN X 10
                   *
                   *
                   *            VMEAN CALCULATION
                   *                ALGORITHM
                   *
                   *
                   *         SUM/GRD # N1 & R1
                   *     RANGE X 10000/RSC # N2 & R2
                   *             N2 X 10 # N3
                   *             N3 X N1 # N6
                   *        N1 X R2/RSC # N4 & R3
                   *             N4 X 10 # N7
                   *        N2 X R1/GRD # N5 & R4
                   *             N5 X 10 # N8
                   *           R3 X 10/RSC # N9
                   *           R4 X 10/GRD # N10
                   *         N6 & N7 & N8 & N9 & N10 # VMEAN IN
                   *    TERMS OF INPUT RANGE %XXX.XXXXX<
                   *
                   *
0B79 0 C0E3              LD      AIWKE        LOAD RANGE
0B7A 1 A400 0C9F         M    L  TENTH        X 10000
```



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0B7C 0 A8D0              D       AIRSC        / FULL SCALE
0B7D 0 D8D6              STD     AIWKF        # N2 & R2
0B7E 0 A0DD              M       TEN          # N3
0B7F 0 1090              SLT     16
0B80 0 A0D7              M       AIWKH        X N1
0B81 0 D8D4              STD     AIWKG        # N6
0B82 0 C0D5              LD      AIWKH        N1
0B83 0 A0D1              M       AIWKF&1      X R2
0B84 0 A8C8              D       AIRSC        / FULL SCALE
0B85 0 D8CA              STD     VMEAN        # N4 & R3
0B86 0 A0D5              M       TEN          # N7
0B87 0 88CE              AD      AIWKG        & N6
0B88 0 D8CD              STD     AIWKG        # N6 & N7
0B89 0 C0CA              LD      AIWKF        N2
0B8A 0 A0CE              M       AIWKH&1      X R1
0B8B 1 AD00 0EFE         D    L1 AIGRD        / NO OF GOOD READNGS
0B8D 0 D8C6              STD     AIWKF        # N5 & R4
0B8E 0 A0CD              M       TEN          # N8
0B8F 0 88C6              AD      AIWKG        & N6 & N7
0B90 0 D8C5              STD     AIWKG        # N6 & N7 & N8
0B91 0 C0BF              LD      VMEAN&1      R3
0B92 0 A0C9              M       TEN          X 10
0B93 0 A8B9              D       AIRSC        / FULL SCALE # N9
0B94 0 1890              SRT     16
0B95 0 88C0              AD      AIWKG        & N6 & N7 & N8
0B96 0 D8BF              STD     AIWKG        # N6 &N7 &N8 &N9
0B97 0 C0BD              LD      AIWKF&1      R4
0B98 0 A0C3              M       TEN          X 10
0B99 1 AD00 0EFE         D    L1 AIGRD        / GOOD READNGS # N10
0B9B 0 1890              SRT     16
0B9C 0 88B9              AD      AIWKG        & N6 &N7 &N8 &N9
0B9D 0 D8B2              STD     VMEAN        # MEAN IN VOLTS
0B9E 0 C8B3              LDD     MEAN         LD MEAN VALUE X 10
0B9F 0 D878              STD     AIWKD        SAVE MEAN X 10
0BA0 1 4428 0979         BSI  L  MKPOS,&Z     GO TO MAKE POS RT
0BA2 0 A8B8              D       FIVE         DIVIDE BY FIVE
0BA3 0 80AA              A       AIONE        ADD ONE
0BA4 0 1881              SRT     1            DIVIDE BY TWO
0BA5 0 D0B0              STO     AIWKG        SAVE RESULT RMEAN &
0BA6 0 C071              LD      AIWKD        LD MEAN X 10
0BA7 1 4C10 0BAE         BSC  L  AISRX,-      BR IF NOT NEGATIVE
0BA9 0 10A0              SLT     32           CLEAR A & Q
0BAA 0 C0AB              LD      AIWKG        LD RMEAN POSITIVE
0BAB 1 4400 0979         BSI  L  MKPOS        GO TO MK NEGATIVE
0BAD 0 D0A8              STO     AIWKG        SAVE RESULT RMEAN -
0BAE 0 C0A7        AISRX LD      AIWKG        LD RMEAN
0BAF 0 D070              STO     AIRAX        SET RMEAN FOR CALC
0BB0 1 9500 081D         S    L1 AIPRC        SUBT PREC READING
0BB2 0 4071              BSI     PCENT        BR TO PCENT ROUTINE
0BB3 0 C06A              LD      AIMCT        LD DEVIATION
0BB4 0 D062              STO     AIWKA&1      SAVE DEVIATION
0BB5 0 C063              LD      AIWKD&1      LD REPEATABILITY
0BB6 0 D064              STO     AIWKC        SAVE REPEATABILITY
0BB7 1 C500 081D         LD   L1 AIPRC        LD PREC READING
0BB9 0 D066              STO     AIRAX        STO PREC READING
0BBA 0 A0A1              M       TEN
0BBB 0 D85C              STD     AIWKD        STO PREC X 10 TO LOG
0BBC 0 1010              SLA     16
0BBD 0 4066              BSI     PCENT        BR TO PCENT ROUTINE
                   **********************************************
                   *                ** LOG CALL **              *
0BBE 1 4400 0DE4         BSI  L  LOGCL        GO TO LOG CALL SBRT*
0BC0 0 0006              DC      6            WORD COUNT         *
0BC1 0 2801              DC      /2801        HEX-DEC SW %DEC<   *
0BC2 1 0BCB              DC      AI4          RETURN ADDR        *
0BC3 0 D001              DC      /D001        MESSAGE ID         *
0BC4 0 02C4              DC      /0204        BYPASS BITS        *
0BC5 1 0C19              DC      AIWKD&1      ACCURACY           *
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F
N


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0BC6 1 0C1B                 DC       AIWKC        REPEATABILITY        *
0BC7 1 0B52                 DC       MEAN         MEAN IN DIGITS       *
0BC8 1 0B53                 DC       MEAN&1       MEAN IN DIGITS       *
0BC9 1 0B50                 DC       VMEAN        MEAN IN VOLTAGE      *
0BCA 1 0B51                 DC       VMEAN&1      MEAN IN VOLTAGE      *
                      *******************************************
0BCB 1 C500 0F08      AI4   LD    L1 AIOVC
0BCD 0 D04D                 STO      AIWKC        SAVE OVERLOAD CNTR
0BCE 1 C500 0F03            LD    L1 AIOTR
0BD0 0 D047                 STO      AIWKD        SAVE OUT OF TBL CNTR
                      *******************************************
                      *               ** LOG CALL **            *
0BD1 1 4400 0DE4            BSI   L  LOGCL        GO TO LOG CALL SBRT*
0BD3 0 0006                 DC       6            WORD COUNT           *
0BD4 0 0001                 DC       /0001        HEX-DEC SW %DEC<     *
0BD5 1 0BDE                 DC       AI5          RETURN ADDR          *
0BD6 0 D001                 DC       /D001        MESSAGE ID           *
0BD7 0 0204                 DC       /0204        BYPASS BITS          *
0BD8 1 0C1E                 DC       AIMCT        ACCURACY DEVIATION *
0BD9 1 0C17                 DC       AIWKA&1      REPEATABILITY DVTN *
0BDA 1 0823                 DC       AIFRS        RESOLUTION           *
0BDB 1 0816                 DC       AICYC        CYCLES               *
0BDC 1 0C1B                 DC       AIWKC        OVERLOAD COUNTER     *
0BDD 1 0C18                 DC       AIWKD        OUT OF TBL COUNTER *
                      *******************************************
0BDE 0 C041           AI5   LD       AIRAX        LD PREC READING
0BDF 0 803C                 A        FTFOR        ADD  54
0BE0 0 D03D                 STO      AIMCT        SET HIGH TBL VALUE
0BE1 0 7101                 MDX    1 1            SET X1 # X1&1
0BE2 0 693C                 STX    1 AITCN        STORE X1 IN WORK AREA
0BE3 0 616C                 LDX    1 108          SET X1 # 108
0BE4 0 C500 0000      AIRTB LD    L1 0            LD CNT FROM TBL       PM01
0BE6 1 4C18 0BF7            BSC   L  AINXT,-&     BR IF COUNT # 0
0BE8 0 D031                 STO      AIWKB        SAVE COUNT
0BE9 0 C034                 LD       AIMCT
0BEA 1 4400 0CA2            BSI   L  AIDCN        GO TO DEC CNVRT RT
                      *******************************************
                      *               ** LOG CALL **            *
0BEC 1 4400 0DE4            BSI   L  LOGCL        GO TO LOG CALL SBRT*
0BEE 0 0004                 DC       4            WORD COUNT           *
0BEF 0 8001                 DC       /8001        HEX-DEC SW %DEC<     *
0BF0 1 0BF7                 DC       AINXT        RETURN ADDR          *
0BF1 0 D001                 DC       /D001        MESSAGE ID           *
0BF2 0 0604                 DC       /0604        BYPASS BITS          *
0BF3 1 0CC6                 DC       AIWKL        DECIMAL VALUE        *
0BF4 1 0CC7                 DC       AIWKL&1      DECIMAL VALUE        *
0BF5 1 0C1E                 DC       AIMCT        VALUE                *
0BF6 1 0C1A                 DC       AIWKB        COUNT                *
                      *******************************************
0BF7 1 74FF 0C1E      AINXT MDX   L  AIMCT,-1     SUBT 1 FROM VALUE
0BF9 0 1000                 SLA      0            WILL SKIP THRU ZERO
0BFA 0 71FF                 MDX    1 -1           SKIP IF X1 # 0
0BFB 0 70E8                 MDX      AIRTB        BRANCH
0BFC 1 6E00 0E48            STX   L2 LNCNT        RESET LINE CNTR
0BFE 1 6580 0C1F            LDX   I1 AITCN        RESTORE X1
0C00 0 C01E                 LD       AITCN        LD WK AREA
0C01 1 F400 0C9B            EOR   L  AIWC1        EOR NUMBER OF POINTS
0C03 1 4C20 0B30            BSC   L  AIYP1,Z      BR TO CALC NEXT PNT
0C05 1 C400 0804            LD    L  SW2          LOAD SW WORD 2
0C07 1 4C20 0967            BSC   L  AIRAC,Z      INSURE DATA ENTRY
0C09 0 4C80 012E            BSC   I  END          EXIT TO MONITOR END
                      *
                      *
0C0B 0 0000           AICLM DC       0                                   SE
0C0C 0 9010                 S        STRAD
0C0D 0 8012                 A        AIRAX
0C0E 0 A06B                 M        AITEN
0C0F 0 98C8                 SD       AIWKD
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0C10 1 4428 0979            BSI   L  MKPOS,&Z
0C12 0 1090                 SLT      16
0C13 1 4C80 0C0B            BSC   I  AICLM        EXIT                    SX
                      *
                      *
0C15 0 006C           AI108 DC       108          CONSTANT 108
0C16 0 0000 0000      AIWKA DEC      0            WORK AREA - A
0C18 0 0000 0000      AIWKD DEC      0            WORK AREA - D
0C1A 0 0000           AIWKB DC       0            WORK AREA - B
0C1B 0 0000           AIWKC DC       0            WORK AREA - C
0C1C 0 0036           FTFOR DC       54           CONSTANT 54
0C1D 0 0000           STRAD DC       0            INITIAL ADDRESS
0C1E 0 0000           AIMCT DC       0            POSITIVE M CNTR
0C1F 0 0000           AITCN DC       0            COUNTER
0C20 0 0000           AIRAX DC       0            MEAN OR PREC RDNG
0C21 0 7000           ACON1 MDX      *            BRANCH CONSTANT -NOP
0C22 0 701E           ACON2 MDX   X  HIINC-BRLOC-1   BRANCH CONSTNT
0C23 0 7021           ACON3 MDX   X  LOINC-BRLOC-1   BRANCH CONSTNT
                      *
                      *
                      *               PERCENT SUBROUTINE
                      *
                      *        THIS SUBROUTINE PERFORMS THE TABLE
                      *        SEARCHES AND CALCULATES THE PERCENT
                      *        ACCURACY AND PERCENT REPEATABILITY.
                      *
                      *
                      *
0C24 0 0000           PCENT DC       0                                   SE
0C25 1 8500 0E98            A     L1 AISPT        SET UP STARTING
0C27 0 D0F5                 STO      STRAD         ADDRESS
0C28 0 D0F1                 STO      AIWKB         SAVE INITIAL ADDR
0C29 1 D400 0CC4            STO   L  AIWKI
0C2B 0 10A0                 SLT      32            INITIALIZE COUNTERS
0C2C 0 D8F1                 STD      AIMCT
0C2D 1 C500 0E98            LD    L1 AISPT        FIND AND STORE
0C2F 0 90EC                 S        FTFOR         HI AND LO ADDR
0C30 0 D0B4                 STO      AIRTB&1       LIMITS OF TABLE       PR01
0C31 0 80E3                 A        AI108          IN USE
0C32 0 D06E                 STO      PADDR
0C33 0 C0ED                 LD       ACON1        INITALIZE BRANCH
0C34 0 D010                 STO      BRLOC          INSTRUCTION          PR06
0C35 0 6200                 LDX    2 0             INITIALIZE X2 # 0
0C36 0 4033           AICHG BSI      WAWTC         GO TO CHECK LMT X2 # 0
0C37 1 C480 0C1A            LD    I  AIWKB         LD COUNT FROM TABLE
0C39 0 80E5                 A        AITCN         ADD TO COUNT SUM
0C3A 0 D0E4                 STO      AITCN         SAVE TOTAL
0C3B 1 9400 0B4F            S     L  P9970
0C3D 1 4C10 0C80            BSC   L  AIMBR,-       BR IF TOTAL # 99.7 PCNT
0C3F 1 C480 0C1A            LD    I  AIWKB
0C41 1 4C08 0C45            BSC   L  BRLOC,&       BR IF CNT # 0
0C43 0 C0D6                 LD       AIWKB
0C44 0 D07F                 STO      AIWKI
0C45 0 7000           BRLOC MDX      *             MDX WILL CHANGE NOP-BR
0C46 1 7401 0C1E            MDX   L  AIMCT,1       ADD 1 TO INC WORD
0C48 0 C0D5                 LD       AIMCT
0C49 0 4804                 BSC      E             SKIP IF INC WORD EVEN
0C4A 0 7003                 MDX      MDY05         BRANCH
0C4B 0 C0CE                 LD       AIWKB
0C4C 0 80D1                 A        AIMCT         ADD INC WORD TO STRT AD
0C4D 0 7002                 MDX      MDY06         BRANCH
                      *
0C4E 0 C0CB           MDY05 LD       AIWKB
0C4F 0 90CE                 S        AIMCT         SUBT INC WD FROM STRT AD
0C50 0 D0C9           MDY06 STO      AIWKB         SET NEXT TBL WORD ADDR
0C51 0 6201                 LDX    2 1
0C52 0 4017                 BSI      WAWTC         GO CHECK LMT  X2 # 1
0C53 0 70E1                 MDX      AICHG-1       BRANCH
```

```
0C54 0 0000
0C55 0 C0CC
0C56 0 D0EE
0C57 0 C0C2
0C58 0 90C5
0C59 0 D0C0
0C5A 1 4C80 0C54

0C5C 0 0000
0C5D 0 C0C5
0C5E 0 D0E6
0C5F 0 C0BA
0C60 0 80BD
0C61 0 D0B8
0C62 1 4C80 0C5C

0C64 1 74FF 0C1A
0C66 0 70CE

0C67 1 7401 0C1A
0C69 0 70C8



0C6A 0 0000
0C6B 0 C0AE
0C6C 0 9034
0C6D 1 46B0 0C76
0C6F 0 C0AA
0C70 1 9400 0BE5
0C72 1 46A8 0C78
0C74 1 4C80 0C6A

0C76 1 0C7B
0C77 1 0C54
0C78 1 0C7B
0C79 1 0C5C
0C7A 0 000A


0C7B 0 0000
0C7C 0 C822
0C7D 0 D89A
0C7E 0 D09F
0C7F 0 7019









0C80 0 C099
0C81 0 4089
0C82 0 D09B
```

```
*
HILMT DC    0                                    SE
      LD    ACON2
      STO   BRLOC     SET BR CONSTANT
      LD    AIWKB
      S     AIMCT
      STO   AIWKB     SET NEXT TBL WORD ADDR
      BSC I HILMT     EXIT                       SX
*
LOLMT DC    0                                    SE
      LD    ACON3
      STO   BRLOC     SET BR CONSTANT
      LD    AIWKB
      A     AIMCT
      STO   AIWKB     SET NEXT TBL WORD ADDR
      BSC I LOLMT     EXIT                       SX
*
HIINC MDX L AIWKB,-1  INC HIGH TBL ADDR
      MDX   AICHG-1   BRANCH
*
LOINC MDX L AIWKB,1   INC LOW TBL ADDR
      MDX   AICHG-1   BRANCH
*
*            WORKING ADDRESS WITHIN TBL CK
*
*
WAWTC DC    0                                    SE
      LD    AIWKB
      S     PADDR
      BSI I2 AIHIL,-Z BR IF HIGH LMT
      LD    AIWKB
      S   L AIRTB&1
      BSI I2 AILOL,&Z BR IF LOW LMT
      BSC I WAWTC     EXIT                       SX
*
AIHIL DC    AITLM     BR VECTOR
      DC    HILMT     BR VECTOR
AILOL DC    AITLM     BR VECTOR
      DC    LOLMT     BR VECTOR
AITEN DC    10        CONSTANT 10
*
*
AITLM DC    0
      LDD   TENTH     LD FLAG CONSTANT
      STD   AIWKD
      STO   AIMCT     SET 10000 DEVIATION
      MDX   AIPLX     BRANCH
*
*
*
*          PCENT CALCULATION
*
*          MEAN X 10 OR PREC X 10 IN WKD
*              RAX # PREC VALUE
*              WKB # END TBL ADDR
*              MDY # STRTNG TBL ADDR
*
*                   ALGORITHM
*
*           WKB - MDY & RAX - WKD X 10 # N 5
*              N5 # ABSOLUTE DEVIATION
*              N5 X 100 / RSC # N6 & R6
*              R6 X 1000 / RSC # N7
*              N6 X 1000 # N8
*              N7 & N8 # XX.XXXX PCENT
*
AIMBR LD    AIWKB     LD END TBL ADDR
      BSI   AICLM     GO GET DEVIATION
      STO   AIMCT     # N5
```

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82113620
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82114000
82114010
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82114100
82114110
82114120
82114130
82114140
82114150
82114160
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82114180
82114190
82114200
82114210
82114220
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82114240
82114250
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82114270
82114280
82114290
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0C83 0 C040
0C84 0 4086
0C85 0 D03F
0C86 0 9097
0C87 1 4C28 0C8B
0C89 0 C03B
0C8A 0 D093
0C8B 0 C092
0C8C 0 A010
0C8D 0 A80E
0C8E 0 D087
0C8F 0 1090
0C90 0 A00D
0C91 0 A80A
0C92 0 1890
0C93 0 D884
0C94 0 C081
0C95 0 A008
0C96 0 8881
0C97 1 DC00 0C18
0C99 1 4C80 0C24
```

```
      LD      AIWKI
      BSI     AICLM     GO GET DEVIATION
      STO     AIWKI&1
      S       AIMCT
      BSC   L DEVIA,&Z  BR IF 1ST DEV GREAT
      LD      AIWKI&1
      STO     AIMCT     # N5
DEVIA LD      AIMCT     N5
      M       HUND      X5 X 100
      D       AISRC     / FULL SCALE
      STO     AIWKA     # N6 & R6
      SLT     16
      M       THOWS     R6 X 1000
      D       AISRC     / FULL SCALE # N7
      SRT     16
      STD     AIWKD     # N7
      LD      AIWKA     # N6
      M       THOUS     N6 & 1000 # N8
      AD      AIWKD     N7 & N8 # REPEAT OR
      STD   L AIWKD         ACCURACY
AIPLX BSC   I PCENT     BR OUT OF SUBROUTINE SX
*
*
*
*                DECIMAL CONVERT RTN
*
*              VALUE IN A # BINARY
*            VALUE TO BE CONVERTED.
*
*                   ALGORITHM
*
*             RANGE X 100 X VALUE # N1
*                N1/RSC # N2 & R1
*                N2 X 1000 # N3
*           R1 X 10/RSC # N4 & R2
*                N4 X 100 # N5
*           R2 X 100/RSC # N6
*           N3 & N5 & N6 # N7
*
AIWC1 DC    0         EVL ADDR WD CNTR
AISRC DC    /4000     CONSTANT FULL SCALE
HUND  DC    100       CONSTSNT 100
      BSS   E 0
THOUS DC    1000      CONSTANT 1000
TENTH DC    10000     CONSTANT 10000
FIFTY DC    50        CONSTANT 50
PADDR DC    0         STORAGE FOR MAX & ADDR
AIDCN DC    0                                    SE
      STO   AIWKI     SAVE VALUE
      LD    L AIWKE   LOAD RANGE OF VALUE
      M       FIFTY   X 50
      SLT     16      SHIFT TO ACCUMULATOR
      M       AIWKI   X VALUE
      D       AISRC   / FULL SCALE
      STD     AIWKL   # N2 & R1
      M       THOUS   N2 X 1000
      SLT     1       X 2
      STD     AIWKI   # N3
      LD      AIWKL&1 R1
      M       AITEN   X 10
      SLT     1       X 2
      D       AISRC   / FULL SCALE
      STD     AIWKL   # N4 & R2
      M       HUND    X 100 # N5
      AD      AIWKI   & N3
      STD     AIWKI   # N3 & N5
      LD      AIWKL&1 R2
      M       HUND    X 100
```

```
0C9B 0 0000
0C9C 0 4000
0C9D 0 0064
0C9E   0000
0C9E 0 03E8
0C9F 0 2710
0CA0 0 0032
0CA1 0 0000
0CA2 0 0000
0CA3 0 D020
0CA4 1 C400 0B5D
0CA6 0 A0F9
0CA7 0 1090
0CA8 0 A01B
0CA9 0 A8F2
0CAA 0 D81B
0CAB 0 A0F2
0CAC 0 1081
0CAD 0 D816
0CAE 0 C018
0CAF 0 A0CA
0CB0 0 1081
0CB1 0 A8EA
0CB2 0 D813
0CB3 0 A0E9
0CB4 0 880F
0CB5 0 D80E
0CB6 0 C010
0CB7 0 A0E5
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82114300
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0CB8 0 A8E3                D       AISRC     / FULL SCALE # N6                82114980
0CB9 0 1890                SRT     16                                         82114990
0CBA 0 8809                AD      AIWKI     NO & N5 & N6                     82115000
0CBB 0 D80A                STD     AIWKL     # N7                             82115010
0CBC 1 4C80 0CA2           BSC  I  AIDCN     EXIT ROUTINE             SX      82115020
                     *                                                        82115030
0CBE    0005         AIDTA BSS     5         DATA TBL ADDRESSES               82115040
0CC3 0 0000          AILWB DC      0         LMT WD & EXEC BITS               82115050
0CC4 0 0000 0000     AIWKI DEC     0         WORK AREA - I                    82115060
0CC6 0 0000 0000     AIWKL DEC     0         WORK AREA - L                    82115070
                     *                                                        82115080
                     *                                                        82115090
                     *                                                        82115100
                     *                  ** I/O TABLES ROUTINE **              82115110
                     *                                                        82115120
                     *                THIS ROUTINE SETS UP THE INPUT DATA     82115130
                     *                TABLE, THE LIMIT WORD TABLE, AND        82115140
                     *                THE INPUT ADDRESS TABLE. IT IS ONLY     82115150
                     *                ENTERED FROM THE INITIALIZATION         82115160
                     *                ROUTINE IF @AIWC@ IS NOT ZERO. ANY      82115170
                     *                ERRORS FOUND WILL BE OUTPUTTED AFTER    82115180
                     *                ENTRY TO ROUTINE 1 AS E006 AND ENTRY    82115190
                     *                TO THE DATA ENTRY WILL BE FORCED        82115200
                     *                                                        82115210
                     *                                                        82115220
0CA1 0               AIORY EQU     PADDR     RELAY OVERLAP SW                 82115230
0CC5 0               AILWS EQU     AIWKI&1   LMT WD TBL ADDR                  82115240
0CC7 0               AITAS EQU     AIWKL&1   DATA TBL ADDR                    82115250
0CC4 0               AIRLS EQU     AIWKI     RLY DATA LOCATION                82115260
0CC6 0               WDCNT EQU     AIWKL     DATA TBL WD CNT ADDR             82115270
                     *                                                        82115280
0CC8 0 0000          AISTP DC      0                                  SE    82115290
0CC9 0 6114                LDX   1 20                                        82115300
0CCA 1 C500 0828           LD    L1 AIIAT-1                                  82115310
0CCC 1 D500 0840           STO   L1 AITOA-1                                  82115320
0CCE 0 71FF                MDX   1 -1                                        82115330
0CCF 0 70FA                MDX     *-6                                       82115340
0CD0 1 C400 083E           LD    L AIWC                                      82115350
0CD2 1 D400 0D65           STO   L AIWCX                                     82115360
0CD4 1 7400 083E           MDX   L AIWC,0    EXIT IF ZERO                    82115370
0CD6 0 7002                MDX     *&2                                       82115380
0CD7 1 6400 0D61           LDX   L SUERR     BR TO ERROR                     82115390
0CD9 1 6700 0841           LDX   L3 AITOA        ****                        82115400
0CDB 1 6F00 0D67           STX   L3 AIATS    INITIALIZE      *               82115410
0CDD 1 6700 084B           LDX   L3 AITOA&10 WORKING         *               82115420
0CDF 0 6BE5                STX    3 AILWS      AREAS USED      *               82115430
0CE0 1 6700 0EE3           LDX   L3 AIDRT-1    IN THIS       *               82115440
0CE2 0 6BE4                STX    3 AITAS      ROUTINE         *               82115450
0CE3 0 6BE2                STX    3 WDCNT                      *               82115460
0CE4 0 6700 6000           LDX   L3 /6000    LOAD EXEC BIT                   82115470
0CE6 1 7400 0840           MDX   L LMTCK,0   CHECK FOR EXEC LMT CK           82115480
0CE8 0 7002                MDX     *&2       BRANCH - NO LMT CK              82115490
0CE9 0 6BD9                STX    3 AILWB    STORE LIMIT CK BITS             82115500
0CEA 0 7003                MDX     *&3                                       82115510
0CEB 0 6700 4000           LDX   L3 /4000    LD NO EXEC BITS                 82115520
0CED 0 70FB                MDX     *-5       BRANCH TO STORE                 82115530
0CEE 1 6700 0EEE           LDX   L3 AIDRT&10 RLY DATA TBL ADDR               82115540
0CF0 0 6BD3                STX    3 AIRLS        ****                        82115550
0CF1 0 6100                LDX    1 0        INITIALIZE      *               82115560
0CF2 0 6200                LDX    2 0          INDEXES       *               82115570
0CF3 1 6D00 09A5           STX   L1 AIRSY    RESET RLY SW                    82115580
0CF5 0 69AB                STX    1 AIORY    RESET OVERLAP SW                82115590
0CF6 1 6D00 0A2A           STX   L1 AIOSB    OVLP CNTR STORAGE               82115600
0CF8 1 7401 0CC7     AICH1 MDX   L  AITAS,1  BUMP DATA TBL ADDR              82115610
0CFA 1 C480 0D67           LD    I  AIATS    LOAD MPX ADDR                   82115620
0CFC 0 4828                BSC     &Z        SKIP IF OK                      82115630
0CFD 0 706C                MDX     AICH2     BR TO CHAIN SETUP               82115640
0CFE 0 6300                LDX    3 0                                        82115650
```



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0CFF 0 6868                STX    3 AIWRK    RESET WORK SWITCH               82115660
0D00 0 6BA0                STX    3 AIORY    RESET RLY OLAP SW               82115670
0D01 1 6780 0CC7           LDX   I3 AITAS    LOAD ADDR OF DATA               82115680
0D03 0 1003                SLA    3          TEST FOR SS                     82115690
0D04 0 4828                BSC     &Z        SKIP IF RELAY                   82115700
0D05 0 700C                MDX     AICH4     BRANCH IF SS                    82115710
0D06 1 7401 09A5           MDX   L AIRSY,1   ADD 1 TO RELAY CNTR              82115720
0D08 1 C400 083F           LD    L AIOLS     LD OVERLAP SW                   82115730
0D0A 1 4C30 0D12           BSC   L AICH4,-Z  BR IF NO OVERP                  82115740
0D0C 1 7401 0CA1     AIOOP MDX   L AIORY,1   SET RLY OVLP SW ON              82115750
0D0E 1 6780 0CC4           LDX   I3 AIRLS    LOAD RLY DPC DATA ADDR          82115760
0D10 1 74FF 0CC4           MDX   L AIRLS,-1  DECR 1 FOR NXT RLY              82115770
0D12 1 C480 0D67     AICH4 LD    I  AIATS    LOAD MPX ADDR                   82115780
0D14 1 F500 0817           EOR   L1 AIMPX    CHECK FOR EVL ADDR              82115790
0D16 1 4C20 0D1D           BSC   L  AICH5,Z  BRANCH IF NOT                   82115800
0D18 0 6B4F                STX    3 AIWRK    STORE DATA ADDR                 82115810
0D19 0 C04E                LD       AIWRK    LOAD DATA ADDR                  82115820
0D1A 1 D500 0CBE           STO   L1 AIDTA    STORE IN DATA TABLE             82115830
0D1C 0 7101                MDX    1 1        BUMP FOR NXT EVL PT             82115840
0D1D 1 7400 0CA1     AICH5 MDX   L  AIORY,0  CHECK FOR RLY OLP               82115850
0D1F 0 7001                MDX     *&1       BR IF RLY OVERLAP               82115860
0D20 0 7003                MDX     AICH6     BR IF NO RLY OVERLAP            82115870
0D21 1 74FF 0CC7           MDX   L AITAS,-1   CORRECT DATA TBL ADDR           82115880
0D23 0 7016                MDX     AICH7&1   BR TO COMPL SETUP               82115890
                     *                                                        82115900
0D24 1 C400 0815     AICH6 LD    L  AIMOD                                    82115910
0D26 0 1090                SLT      16                                       82115920
0D27 1 7401 0A2A           MDX   L AIOSB,1   OVRL CNT WORD                   82115930
0D29 1 C480 0CC5           LD    I  AILWS    LOAD LIMIT WORD                 82115940
0D2B 1 4402 0ED1           BSI   L  CSLMW,C  CHANGE SIGN MOD 2               82115950
0D2D 0 4818                BSC     &-        SKIP IF LMT CK                  82115960
0D2E 0 700A                MDX     AICH7     NO LMT CK - BRANCH              82115970
0D2F 0 D038                STO     AIWRK     STORE LMT WORD                  82115980
0D30 1 C480 0D67           LD    I  AIATS        ****                        82115990
0D32 0 E890                OR    L  AILWB    SET LW & EXEC BITS *            82116000
0D33 1 D480 0D67           STO   I  AIATS        ****                        82116010
0D35 1 7401 0D67           MDX   L  AIATS,1  BUMP MPX ADDR TBL ADDR          82116020
0D37 0 C08D                LD       AILWS    LOAD LMT WD POSITION            82116030
0D38 0 4069                BSI      SHIFT    SHIFT TABLES                    82116040
0D39 0 7201          AICH7 MDX    2 1        ADD 1 TO WD CNT REGISTER        82116050
0D3A 1 7401 0D67           MDX   L  AIATS,1  BUMP MPX ADDR TBL ADDR          82116060
0D3C 1 7401 0CC5           MDX   L  AILWS,1  BUMP LMT WD TBL ADDR           82116070
0D3E 1 74FF 083E           MDX   L  AIWC,-1  DECR MPX ADDR CNT 1             82116080
0D40 0 70B7                MDX      AICH1    SETUP REST OF TABLE             82116090
0D41 0 C023                LD       AIWCX                                    82116100
0D42 1 D400 083E           STO   L  AIWC                                     82116110
0D44 1 6D00 0C9B     AICH8 STX   L1 AIWC1    STORE NO OF EVL ADDR            82116120
0D46 0 7200                MDX    2 0        CHECK FOR 0 CHN WD CNT          82116130
0D47 0 7001                MDX     *&1       BR IF OK                        82116140
0D48 0 7018                MDX     SUERR     BRANCH TO ERROR                 82116150
0D49 1 C400 0A2D           LD    L  AIOCS                                    82116160
0D4B 1 4C08 0D5D           BSC   L  AIARB,&  BR IF NOT OVERLP CK             82116170
0D4D 1 C400 0855           LD    L  AICCA                                    82116180
0D4F 1 D480 0D67           STO   I  AIATS    SET CHAIN ADDR                  82116190
0D51 0 C014                LD       C001                                     82116200
0D52 1 D400 0EF0           STO   L  LOOP                                     82116210
0D54 1 C400 0EEF           LD    L  AICCC                                    82116220
0D56 1 7401 0CC7           MDX   L  AITAS,1                                  82116230
0D58 1 D480 0CC7           STO   I  AITAS    SET CHAIN ADDR                  82116240
0D5A 0 7600 C000           MDX   L2 /C000                                    82116250
0D5C 0 1000                SLA      0        MDX WILL SKIP                   82116260
0D5D 1 6E80 0CC6     AIARB STX   I2 WDCNT                                    82116270
0D5F 0 7100                MDX    1 0        CHECK FOR 0 EVL ADDR            82116280
0D60 0 7002                MDX      SUEXX    EXIT OK                         82116290
0D61 1 7401 0A2B     SUERR MDX   L  AIERS,1  SET ERROR SW ON                 82116300
0D63 1 4C80 0CC8     SUEXX BSC   I  AISTP    EXIT ROUTINE             SX     82116310
                     *                                                      82116320
                     *                                                      82116330
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0D65 0 0000         AIWCX DC        0
0D66 0 8001         C001  DC        /8001                                  82116340
0D67 0 0000         AIATS DC        0          MPX ADDR TBL ADDR           82116350
0D68 0 0000         AIWRK DC        0          WORK AREA                   82116360
0D69 1 0854         AIATC DC        AITOA&19   ADDR CONSTANT               82116370
                    *                                                      82116380
                    *                                                      82116390
0D6A 0 7200         AICH2 MDX    2 0           CHECK FOR 0 CHN WD CNT      82116400
0D6B 0 7001               MDX       *&1        BR IF OK                    82116410
0D6C 0 70D7               MDX       AICH8      FORCE ERROR EXIT IF 0       82116420
0D6D 0 7600 C000          MDX   L2 /C000       SET CHN BITS ON             82116430
0D6F 0 1000               SLA       0          MDX WILL SKIP               82116440
0D70 1 6E80 0CC6          STX   I2 WDCNT       STORE WD CNT & CHN BITS     82116450
0D72 1 C400 0CC7          LD    L   AITAS          ****                    82116460
0D74 0 8041               A         ONEAI                                  82116470
0D75 1 D480 0CC7          STO   I   AITAS        FOR DATA TABLE   *        82116480
0D77 1 D400 0CC7          STO   L   AITAS                         *        82116490
0D79 1 D480 0CC7          STO   I   AITAS          ****                    82116500
0D7B 0 803A               A         ONEAI          ****                    82116510
0D7C 1 D400 0CC6          STO   L   WDCNT      SET UP FOR NXT CHN *        82116520
0D7E 1 D400 0CC7          STO   L   AITAS          ****                    82116530
0D80 1 7400 0CA1          MDX   L   AIORY,0    CHECK FOR RLY OLP           82116540
0D82 0 7001               MDX       *&1        BR IF RLY OVERLAP           82116550
0D83 0 7012               MDX       AICH9      BR IF NO RLY OVERLAP        82116560
0D84 1 7401 0CC4          MDX   L   AIRLS,1    CORRECT RLY ADDR            82116570
0D86 1 74FF 09A5          MDX   L   AIRSY,-1   CORRECT RELAY COUNT         82116580
0D88 0 1000               SLA       0          MDX MAY SKIP                82116590
0D89 0 C0DD               LD        AIATS          ****                    82116600
0D8A 1 74FF 0D67          MDX   L   AIATS,-1   SET CAR CHECK WD   *        82116610
0D8C 1 D480 0D67          STO   I   AIATS        OVER RLY MPX ADDR*        82116620
0D8E 0 D0D8               STO       AIATS        AND TERMINATOR   *        82116630
0D8F 1 D480 0D67          STO   I   AIATS        IN MPX ADDR TBL  *        82116640
0D91 1 7400 0D68          MDX   L   AIWRK,0    TEST WORK SWITCH   *        82116650
0D93 0 71FF               MDX    1 -1          CORRECT INDEX      *        82116660
0D94 0 1000               SLA       0          MDX MAY SKIP       *        82116670
0D95 0 700A               MDX       AICHB          ****                    82116680
                    *                                                      82116690
0D96 0 C0D0         AICH9 LD        AIATS          ****                    82116700
0D97 0 801E               A         ONEAI      SET CAR CHECK WD   *        82116710
0D98 1 D480 0D67          STO   I   AIATS        AND SHIFT MPX    *        82116720
0D9A 0 D0CC               STO       AIATS        ADDR AND LMT WD  *        82116730
0D9B 0 D0CC               STO       AIWRK        TBLS 1 POS FOR   *        82116740
0D9C 0 C0CC               LD        AIATC        BOTH CAR WORDS   *        82116750
0D9D 0 4004               BSI       SHIFT          ****                    82116760
0D9E 1 7401 0CC5          MDX   L   AILWS,1    CORRECT LMT WD TBL ADDR     82116770
0DA0 0 6200         AICHB LDX    2 0           SET CHN WD CNT ZERO         82116780
0DA1 0 7098               MDX       AICH7&1    BR TO COMPLETE SETUP        82116790
                    *                                                      82116800
0DA2 0 0000         SHIFT DC        0                                 SE   82116810
0DA3 0 90C3               S         AIATS      DETERMINE NO OF WDS         82116820
0DA4 0 D005               STO       AICNT&1    STO WD CNT             PR01 82116830
0DA5 0 C0C1               LD        AIATS      LOAD @TO@ ADDRESS           82116840
0DA6 0 D007               STO       AICNT&5                           PR02 82116850
0DA7 0 900E               S         ONEAI      LOAD @FROM@ ADDR            82116860
0DA8 0 D003               STO       AICNT&3                           PR03 82116870
0DA9 0 6700 0000    AICNT LDX   L3 0           LOAD WD CNT            PM01 82116880
0DAB 0 C700 0000          LD    L3 0           LOAD WORD              PM03 82116890
0DAD 0 D700 0000          STO   L3 0           STORE WORD             PM02 82116900
0DAF 0 73FF               MDX    3 -1                                      82116910
0DB0 0 70FA               MDX       AICNT&2    SHIFT REST OF WDS           82116920
0DB1 0 C0B6               LD        AIWRK      LOAD DATA TO FILL           82116930
0DB2 1 D480 0D67          STO   I   AIATS       VACATED POS & STO          82116940
0DB4 1 4C80 0DA2          BSC   I   SHIFT      EXIT ROUTINE           SX   82116950
                    *                                                      82116960
0DB6 0 0001         ONEAI DC        1          CONSTANT ONE                82116970
                    *                                                      82116980
                    *                                                      82116990
                    *                ** TIMER ROUTINE **                   82117000
                                                                           82117010
```

```
                    *                                                      82117020
                    *          THIS ROUTINE BEGINS A TIME DELAY            82117030
                    *          DETERMINED BY THE INCREMENT RATE            82117040
                    *          OF THE TIMER SELECTED, THE TIMER            82117050
                    *          COUNT SPECIFIED AND THE INTERRUPT           82117060
                    *          CQUNT CONTAINED IN THE TIMER CALL.          82117070
                    *          AT THE START OF THE DELAY, THE WORD         82117080
                    *          SPECIFIED BY THE SWITCH ADDRESS IN          82117090
                    *          THE TIMER CALL IS SET TO A & VALUE.         82117100
                    *          AT THE END OF THE DELAY, THIS SWITCH        82117110
                    *          WORD IS SET TO ZERO.                        82117120
                    *          THE ROUTINE CAN OPERATE 3 UNIQUE            82117130
                    *          DELAYS SIMULTANEOUSLY, ANY ADDITIONAL       82117140
                    *          CALL OTHER THAN ONE OF THE THREE            82117150
                    *          OPERATING WILL NOT BE HONORED UNTIL         82117160
                    *          SPACE IS VACATED BY A DELAY TIMING          82117170
                    *          OUT. A SECOND CALL FOR AN OPERATING         82117180
                    *          DELAY WILL RE-ESTABLISH THE INITIAL         82117190
                    *          COUNT WITHOUT SETTING THE PROGRAM           82117200
                    *          SWITCH WORD TO ZERO.                        82117210
                    *                                                      82117220
                    *                                                      82117230
                    *          FOLLOWING TABLE LISTS CONSTANTS             82117240
                    *           TO BE ENTERED BY THE OPERATOR              82117250
                    *           FOR TIMER ONE BASE SPEED                   82117260
                    *                                                      82117270
                    *          THE FOLLOWING TABLE APPLIES TO              82117280
                    *              A 4.0 MICRO SEC MACHINE                 82117290
                    *                                                      82117300
                    *          TIME BASE         CONSTANT ENTERED          82117310
                    *          OF TIMER A        IN HEX AT LABEL           82117320
                    *          IN MILLISEC           TIBT1                 82117330
                    *                                                      82117340
                    *          128.000               0001                  82117350
                    *           64.000               0002                  82117360
                    *           32.000               0004                  82117370
                    *           16.000               0007                  82117380
                    *            8.000               000E                  82117390
                    *            4.000               001B                  82117400
                    *            2.000               0036                  82117410
                    *            1.000               006B                  82117420
                    *             .500               00D6                  82117430
                    *             .250               01AB                  82117440
                    *                                                      82117450
                    *          THE FOLLOWING TABLE APPLIES TO              82117460
                    *              A 2 MICRO SEC MACHINE                   82117470
                    *                                                      82117480
                    *          TIME BASE         CONSTANT ENTERED          82117490
                    *          OF TIMER A        IN HEX AT LABEL           82117500
                    *          IN MILLISEC           TIBT1                 82117510
                    *                                                      82117520
                    *           64.000               0002                  82117530
                    *           32.000               0004                  82117540
                    *           16.000               0007                  82117550
                    *            8.000               000E                  82117560
                    *            4.000               001B                  82117570
                    *            2.000               0036                  82117580
                    *            1.000               006B                  82117590
                    *             .500               00D6                  82117600
                    *             .250               01AB                  82117610
                    *             .125               0356                  82117620
                    *                                                      82117630
                    *                                                      82117640
                    *                                                      82117650
                    *                                                      82117660
0DB7 0 0000         TIMER DC        0                                 SE   82117670
0DB8 1 0C00 0EB6          XIO   L   TSTOP      STOP TIMER 1                82117680
0DBA 1 C480 0DB7          LD    I   TIMER      LOAD TIME COUNT             82117690
```

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0DBC 0 80F9              A       ONEAI                                  82117700
0DBD 0 18D0              RTE     16          Q # TIME COUNT             82117710
0DBE 1 7401 0DB7         MDX  L  TIMER,1     SET UP FOR PROG SW         82117720
0DC0 0 6306              LDX     3 6         INITIALIZE INDEX           82117730
0DC1 1 C700 0878  TIRNG  LD   L3 TIM11-2     LOAD CALL SWITCH           82117740
0DC3 1 4C18 0DCC         BSC  L  TICNO,&-    BR IF CALL NOT USED        82117750
0DC5 1 F480 0DB7         EOR  I  TIMER       SAME PROG SW TEST          82117760
0DC7 1 4C18 0DCC         BSC  L  TICNO,&-    USE CALL IF SAME SW        82117770
0DC9 0 73FE              MDX     3 -2                                   82117780
0DCA 0 70F6              MDX     TIRNG       SEARCH CALL TABLE          82117790
0DCB 0 70F4              MDX     TIRNG-1     TIMER IS BUSY              82117800
0DCC 1 C480 0DB7  TICNO  LD   I  TIMER       LOAD PROG SW ADDR          82117810
0DCE 1 DF00 0878         STD  L3 TIM11-2     STORE CNT & ADDR           82117820
0DD0 1 D780 0878         STO  I3 TIM11-2     SET PROG SW ON             82117830
0DD2 0 73FE              MDX     3 -2                                   82117840
0DD3 0 7006              MDX     *&6         TEST FOR DUP CALLS         82117850
0DD4 1 7401 0DB7  TEXIT  MDX  L  TIMER,1                                82117860
0DD6 1 0C00 0E08         XIO  L  TSTRT        START TIMER 1              82117865
0DD8 1 4C80 0DB7         BSC  I  TIMER       EXIT ROUTINE          SX   82117870
0DDA 1 C700 0878         LD   L3 TIM11-2     LOAD PROG CALL SW          82117880
0DDC 1 F480 0DB7         EOR  I  TIMER       TEST FOR DUP SW            82117890
0DDE 1 4C20 0DD2         BSC  L  TISRC,Z     BR IF NOT DUPLICATE        82117900
0DE0 0 10A0              SLT     32                                     82117910
0DE1 1 DF00 0878         STD  L3 TIM11-2     ZERO DUPLICATE CALL        82117920
0DE3 0 70F0              MDX     TEXIT                                  82117930
                    *                                                   82117940
                    *                                                   82117950
                    *            ** ERROR-LOG SETUP ROUTINE **          82117960
                    *                                                   82117970
                    *            THIS ROUTINE SETS UP THE CALL          82117980
                    *            AND THE DATA STRING FOR MONITOR.       82117990
                    *            THE CALL ON THIS ROUTINE CONTAINS      82118000
                    *            THE MESSAGE ID, OPTION CONTROLS,       82118010
                    *            AND THE ADDRESSES OF THE DATA          82118020
                    *            WORDS TO BE OUTPUTTED.                 82118030
                    *            THIS ROUTINE WILL CALL ON EITHER       82118040
                    *            LOG OR ERROR, DETERMINED BY THE        82118050
                    *            ENTRY USED.                            82118060
                    *            THE ROUTINE ALLOWS LOG OR ERROR        82118070
                    *            TO BE BYPASSED BY HAVING THE BYPASS    82118080
                    *            BIT SPECIFIED IN THE CALL SET ON       82118090
                    *            IN BIT SW WORD 0.                      82118100
                    *                                                   82118110
                    *                 LOG ENTRY                         82118120
                    *                                                   82118130
0DE4 0 0000         LOGCL DC        0                              SE   82118140
0DE5 1 6780 0DE4            LDX  I3 LOGCL       LOAD STRING ADDR       82118150
0DE7 0 6200                 LDX  2  0           INIT X2 TO 0           82118160
0DE8 0 6A1C                 STX  2  LOGCS&4     RESET TERM ADDR        82118170
0DE9 1 6600 0A01            LDX  L2 AIRTM       LOAD RET TO MON ADDR   82118180
0DEB 0 6A1B                 STX  2  LGRTN&1     INIT RETURN ADDR  PR06 82118190
0DEC 0 6600 012F            LDX  L2 LOG         LOAD CALL ADDR         82118200
0DEE 0 401B                 BSI     ERLG1       SET UP STRING          82118210
0DEF 1 6E00 0880            STX  L2 TIERS       RESET TIMER ERR SW     82118220
0DF1 0 6A4A                 STX  2  AILGS       RESET LOG REQ SW       82118230
0DF2 0 7009                 MDX     LOGCK                              82118240
                    *                                                   82118250
                    *                                                   82118260
                    *                 ERROR ENTRY                       82118270
                    *                                                   82118280
0DF3 0 0000         ERRCL DC        0                              SE   82118290
0DF4 0 6600 0130            LDX  L2 ERROR       LOAD CALL ADDR         82118300
0DF6 1 6780 0DF3            LDX  I3 ERRCL       LOAD STRING ADDR       82118310
0DF8 0 C300                 LD   3  0           LOAD LOOP ADDR         82118320
0DF9 0 D00B                 STO     LOGCS&4     STORE LOOP ERR ADDR    82118330
0DFA 0 7301                 MDX  3  1           MODIFY FOR STRING      82118340
0DFB 0 400E                 BSI     ERLG1       SET UP STRING          82118350
0DFC 0 C300         LOGCK LD    3   0           LOAD BYPASS BITS       82118360
```



```
0DFD 1 E400 0802             AND  L  SW0        TEST FOR BYPASS BIT        82118370
0DFF 0 4FA0 FFFE             BSC  I3 -2,Z       EXIT IF BIT ON        SX   82118380
                    *                                                      82118390
                    *                                                      82118400
                    ********************************************         82118410
                    *              ** LOG OR ERROR **          *         82118420
0E01 0 4480 0000    LOGCS BSI  I 0                           * PM05 82118430
0E03 1 0E32                  DC     MSTBL      ADDR OF MESSAGE TBL*       82118440
0E04 1 0E3D                  DC     ERLGB      ADDR OF BUSY RTN   *       82118450
0E05 0 0000                  DC     0          ADDR OF RETURN-LOOP*       82118460
                    *                                          *         82118470
                    ********************************************         82118480
0E06 0 4C00 0000    LGRTN BSC  L 0             EXIT ROUTINE          PM06 82118490
                    *                                                      82118500
                         BSS  E 0                                          82118510
0E08   0000         TSTRT DC     /8000         TIMER START IOCC           82118520
0E09 0 0420                  DC     /0420                                  82118530
                    *                                                      82118540
                    *                                                      82118550
0E0A 0 0000         ERLG1 DC     0                                   SE    82118560
0E0B 0 6AF6                  STX    2 LOGCS&1   SET CALL ADDR         PR05 82118570
0E0C 0 C303                  LD     3 3         LD.MSG.I.D.                $ 82118580
0E0D 1 E400 0AA8             AND  L HO040                                  $ 82118590
0E0F 1 4C18 0E13             BZ     *+2                                    $ 82118600
0E11 0 C302                  LD     3 2         LD.RTRN.ADDR.              $ 82118610
0E12 0 7006                  B      ERLG3                                  $ 82118620
0E13 0 C302                  LD     3 2         LD.RTRN ADDR.              $ 82118630
0E14 0 D0F0                  STO    LOGCS&4     STORE TERM ADDR              82118640
0E15 0 C032                  LD     LNCNT       LOAD LINE COUNTER            82118650
0E16 1 7401 0E48             MDX  L LNCNT,1     BUMP CNTR 1                  82118660
0E18 0 7002                  MDX    ERLG5                                    82118670
                    *                                                      82118680
0E19 0 D0ED         ERLG3 STO      LGRTN&1     STORE RETURN ADDR     PR06 82118690
0E1A 0 C02D                  LD     LNCNT       LOAD LINE COUNTER            82118700
0E1B 0 1008         ERLG5 SLA      8                                        82118710
0E1C 0 8300                  A      3 0         ADD WORD COUNT               82118720
0E1D 0 D014                  STO    MSTBL       SET COUNTER LINE             82118730
0E1E 0 C300                  LD     3 0         LD WORD COUNT                82118740
0E1F 0 D008                  STO    MSSWA&1     SAVE WORD COUNT       PR04 82118750
0E20 0 C301                  LD     3 1         LOAD HEX-DEC SW              82118760
0E21 0 D011                  STO    MSTBL&1     SET HEX-DEC SW LINE          82118770
0E22 0 C303                  LD     3 3         LOAD MESSAGE ID              82118780
0E23 0 E00D                  AND    HFFBF                              $ 82118790
0E24 0 D00F                  STO    MSTB1       SET MESSAGE ID               82118800
0E25 0 7304                  MDX    3 4         ADD 4 TO STRING              82118810
0E26 0 6B03                  STX    3 ERLG6&1   SAVE STRING ADDR      PR01 82118820
0E27 0 6600 0000    MSSWA LDX  L2 0                                  PM04 82118830
0E29 0 C680 0000    ERLG6 LD   I2 0            LD MESSAGE WORD       PM01 82118840
0E2B 1 D600 0E34             STO  L2 MSTB1     SET MESS WD IN TABLE         82118850
0E2D 0 72FF                  MDX    2 -1        SKIP ON ZERO                 82118860
0E2E 0 70FA                  MDX    ERLG6       BRANCH                       82118870
0E2F 1 4C80 0E0A             BSC  I ERLG1       EXIT ROUTINE          SX     82118880
                    *                                                      82118890
0E31 0 FFBF         HFFBF DC       /FFBF       CONSTANT                   $ 82118900
                    *                                                      82118910
0E32   0002         MSTBL BSS      2           CONTROL LINES                82118920
0E34   0008         MSTB1 BSS      8           ID AND MESSAGE               82118930
0E3C 0 0000         AILGS DC       0           LOG REQUEST SW               82118940
                    *                                                      82118950
                    *                                                      82118960
                    *                    LOG BUSY ROUTINE                  82118970
0E3D 0 6906         ERLGB STX      1 LGLYR&1   SAVE INDEX REG 1       PR21 82118980
0E3E 0 6A07                  STX    2 LGLYR&3   SAVE INDEX REG 2       PR22 82118990
0E3F 0 C002                  LD     LGERC       LOAD RETURN ADDR             82119000
0E40 1 4C00 09FF             BSC  L AIEXX&3     EXIT TO MONITOR              82119010
                    *                                                      82119020
                    *                                                      82119030
0E42 1 0E43         LGERC DC       LGLYR       ENTRY ADDRESS                82119040
```

```
0E43 0 6500 0000
0E45 0 6600 0000
0E47 0 7089

0E48 0 0000
0E49 0 007F
0E4A   0000
0E4A 0 0006
0E4B 1 0E4D

0E4C 0 0000
0E4D 0 10A0
0E4E 1 C400 0804
0E50 1 4C18 0E55
0E52 0 401B
0E53 1 6E00 0804
0E55 0 C0F6
0E56 1 4C18 0E68
0E58 0 F0F0
0E59 1 4C18 0EB0
0E5B 1 C400 0805
0E5D 0 B027
0E5E 0 7002
0E5F 0 7001
0E60 0 700A
0E61 1 D480 0E88
0E63 1 7401 0E88
0E65 0 C01F
0E66 1 D400 0805
0E68 1 74FF 0E4C
0E6A 0 1000
0E6B 0 C8DE
0E6C 1 4C00 09FC

0E6E 0 0000
0E6F 0 18CC
0E70 0 D001
0E71 0 6700 0000
0E73 0 6200
0E74 0 1010
0E75 0 1085
0E76 1 8700 0E9D
0E78 0 D00F
0E79 0 1010
0E7A 0 1087
0E7B 0 D0D0
0E7C 1 4C80 0E6E
```

```
LGLYR LDX  L1 0        RESTORE INDEX REG 1  PM21  82119050
      LDX  L2 0        RESTORE INDEX REG 2  PM22  82119060
      MDX     LOGCS    BRANCH TO TRY AGAIN        82119070
*                                                 82119080
*                                                 82119090
*                ** DATA ENTRY ROUTINE **         82119100
*                                                 82119110
*           THIS ROUTINE CAN BE USED BY THE       82119120
*           OPERATOR TO ENTER DATA INTO THE       82119130
*           DATA TABLES. ALSO ANY WORD IN         82119140
*           CORE CAN BE CHANGED BY FIRST          82119150
*           USING THE ROUTINE TO ENTER THE        82119160
*           WORD ADDRESS INTO TABLE POSITION      82119170
*           NUMBER 8.                             82119180
*           THIS ROUTINE IS ENTERED BY SETTING    82119190
*           TABLE NUMBER, DISPLACEMENT, AND       82119200
*           WORD COUNT IN BIT SWITCH WORD 02      82119210
*           AND EXECUTING THE PROGRAM.            82119220
*                                                 82119230
LNCNT DC      0          LINE COUNTER              82119240
AIC7F DC      /007F      TERMINATOR CONSTANT       82119250
      BSS  E  0                                   82119260
RT06  DC      6          RT 06 - ENTER DATA        82119270
      DC      AIDER      ENTRY ADDRESS             82119280
*                                                 82119290
AIDWC DC      0          WORD COUNT STORAGE        82119300
AIDER SLT     32                                  82119310
                                                  SE 82119320
      LD   L  SW2        LD BIT SW WORD 2          82119330
      BSC  L  AIUSA,&-   BR IF BITSW WORD # 0      82119340
      BSI     AIBSA                               82119350
      STX  L2 SW2        RESET BIT SW WORD 2       82119360
AIUSA LD      AIDWC                               82119370
      BSC  L  AILRK,&-   BR IF END TBL             82119380
      EOR     AIC7F                               82119390
      BSC  L  AIRST,&-   BR IF END DATA NTRY       82119400
      LD   L  SW3        LD BIT SW WORD 3          82119410
      CMP     AIAAS      COMPARE TO TERMINATO      82119420
      MDX     AISTW      BRANCH                    82119430
      MDX     AISTW      BRANCH                    82119440
      MDX     AILRK      BRANCH                    82119450
AISTW STO  I  AITAE      SET DATA WORD IN TBL      82119460
      MDX  L  AITAE,1    ADD 1 TO TBL WD ADDR      82119470
      LD      AIAAS                               82119480
      STO  L  SW3        INITIALIZE BIT SW 3       82119490
      MDX  L  AIDWC,-1   SUBT 1 FROM WORD CNT      82119500
      SLA     0          WILL SKIP LAST PASS       82119510
AILRK LDD     RT06       LOAD ROUTINE 6            82119520
      BSC  L  AIEXX      BRANCH TO EXIT            82119530
*                                                 82119540
*                                                 82119550
*                                                 82119560
AIBSA DC      0                                   82119570
                                                  SE 82119580
      RTE     12                                  82119590
      STO     AILAR&1    STO TBL ADDR       PR16  82119600
AILAR LDX  L3 0                              PM16  82119610
      LDX   2 0          SET X2 # 0                82119620
      SLA     16                                  82119630
      SLT     5                                   82119640
      A    L3 AIADT      ADD TABLE ADDR            82119650
      STO     AITAE      STO TBL POSTN ADDR        82119660
      SLA     16                                  82119670
      SLT     7                                   82119680
      STO     AIDWC      STO TBL WORD CNT          82119690
      BSC  I  AIBSA      EXIT SUBROUTINE       SX  82119700
*                                                 82119710
*                                                 82119720
```



```
*                                                 82119730
*                ** VERIFY ENTERED DATA ROUTINE ** 82119740
*                                                 82119750
*           THIS ROUTINE IS USED TO LOG ANY       82119760
*           DATA WHICH IS ENTERED INTO THE        82119770
*           TABLES, ALSO IT CAN BE USED TO        82119780
*           LOG ANY WORD OR GROUP OF WORDS        82119790
*           IN CORE.                              82119800
*           THIS ROUTINE IS ENTERED BY SETTING    82119810
*           TABLE NUMBER, DISPLACEMENT, AND       82119820
*           WORD COUNT IN BIT SWITCH WORD 01      82119830
*           AND EXECUTING THE PROGRAM.            82119840
*                                                 82119850
AIVED DC      0                                   82119860
                                                  SE 82119870
      BSI     AIBSA      GO TO SETUP ADDR          82119880
*************************************************82119890
*                ** LOG CALL **                 *82119900
      BSI  L  LOGCL      GO TO LOG CALL SBRT*      82119910
      DC      2          WORD COUNT         *      82119920
      DC      0          HEX-DEC SW %HEX<   *      82119930
      DC      AITAE&1    RETURN ADDRESS     *      82119940
AIAAS DC      /AAAA      MESSAGE ID         *      82119950
      DC      /8000      BYPASS BIT         *      82119960
      DC      AITAE      ADDR OF WORD       *      82119970
AITAE DC      0          TBL ADDR STORAGE   *      82119980
*************************************************82119990
      MDX  L  AITAE,1    ADD 1 TO ADDR             82120000
      MDX  L  AIDWC,-1   SUBT 1 FROM WORD CNT      82120010
      MDX     AIVED&2    BRANCH                    82120020
      STX   2 LNCNT      RESET LINE CNTR           82120030
      STX  L2 SW1        RESET BIT SW WORD 1       82120040
      BSC  I  AIVED      EXIT ROUTINE          SX  82120050
*                                                 82120060
*                                                 82120070
*                                                 82120080
*                                                 82120090
*                                                 82120100
*           CONSTANT TABLES                       82120110
*                                                 82120120
AISUM DC      AISUX      ****                      82120130
      DC      AISUX&2                         *   82120140
      DC      AISUX&4    SUM TABLE ADDR TBL   *   82120150
      DC      AISUX&6                         *   82120160
      DC      AISUX&8    ****                      82120170
AISPT DC      AISTB&54   ****                      82120180
      DC      AISTB&163                       *   82120190
      DC      AISTB&272  SPREAD TBL ADDR TBL*      82120200
      DC      AISTB&381                       *   82120210
      DC      AISTB&490  ****                      82120220
*                                                 82120230
*                                                 82120240
*                ADDRESS CONSTANT TABLES          82120250
*                                                 82120260
*           FOR USE WITH THE DATA ENTRY AND THE   82120270
*           VERIFY ENTERED DATA ROUTINES.         82120280
*           THE TABLE NUMBER IS THE NUMBER BE-    82120290
*           TWEEN THE @DC@ AND @CONSTANT@. THIS   82120300
*           NUMBER IS ENTERED IN B0 - B3 OF       82120310
*           THE PROPER BIT SWITCH WORD.           82120320
*                                                 82120330
*                                                 82120340
AIADT DC    0 TIBT1      ADDR OF TMR CONSTANT     82120350
      DC    1 AICYC      CYCLE COUNT ADDRESS      82120360
      DC    2 AIMPX      MPX ADDR TBL ADDR        82120370
      DC    3 AIPRC      PREC RDING TBL ADDR      82120380
      DC    4 AIFRS      RESOLUTION TBL ADDR      82120390
      DC    5 RANGE      RANGE TABLE ADDRESS      82120400
```

```
0E7E 0 0000
0E7F 0 40EE

0E80 1 4400 0DE4
0E82 0 0002
0E83 0 0000
0E84 1 0E89
0E85 0 AAAA
0E86 0 8000
0E87 1 0E88
0E88 0 0000

0E89 1 7401 0E88
0E8B 1 74FF 0E4C
0E8D 0 70F2
0E8E 0 6AB9
0E8F 1 6E00 0803
0E91 1 4C80 0E7E

0E93 1 0EF4
0E94 1 0EF6
0E95 1 0EF8
0E96 1 0EFA
0E97 1 0EFC
0E98 1 0F58
0E99 1 0FC5
0E9A 1 1032
0E9B 1 109F
0E9C 1 110C

0E9D 1 0814
0E9E 1 0816
0E9F 1 0817
0EA0 1 081D
0EA1 1 0823
0EA2 1 0824
```

```
0EA3 1 0AF4              DC    6 AIHXS     HEX-DEC%A001< SW ADDR      82120410
0EA4 1 0EA5              DC    7 AIADT&8   AUX                        82120420
0EA5 1 0B4B              DC    8 AICYR     AUX/CYCLE CNTR ADDR        82120430
0EA6 1 0829              DC    9 AIIAT     INPUT ADDR TBL ADDR        82120440
0EA7 1 083D              DC    A AIXSS     EXT SYNC SW ADDR           82120450
0EA8 1 083E              DC    B AIWC      NUMBER OF POINTS ADDR      82120460
0EA9 1 083F              DC    C AIOLS     OVERLAP SWITCH ADDR        82120470
0EAA 1 0833              DC    D AILWT     LIMIT WD TBL ADDR          82120480
0EAB 1 0EE3              DC    E AIDRT-1   INPUT DATA TABLE           82120490
0EAC 1 0841              DC    F AITOA     WRITE TBL ADDR             82120500
                     *                                               82120510
                     *                                               82120520
                     *            GO PROGRAM ENTRY                   82120530
                     *                                               82120540
                     *       THE PROGRAM IS ENTERED AT THIS POINT    82120550
                     *       ONLY AFTER LOADING.                     82120560
                     *                                               82120570
                     *                                               82120580
0EAD 0 4480 012C     AIGO  BSI  I  BEGIN                             82120590
0EAF 1 07FF              DC        PID .     ADDRESS OF PID TBL      82120600
                     *                                               82120610
                     *                                               82120620
                     *            RESTART ENTRY                      82120630
                     *                                               82120640
                     *       ENTRY IS MADE AT THIS POINT AFTER       82120650
                     *       EXITING FROM THE DATA ENTRY ROUTINE.    82120660
                     *                                               82120670
                     *                                               82120680
0EB0 0 4007          AIRST BSI      AIEND     RESET PROGRAM - RESTART 82120690
0EB1 1 4400 08E6           BSI  L   RSAI      REINITIALIZE            82120700
0EB3 0 4C80 012D           BSC  I   START     RESTART PROGRAM     SX  82120710
                     *                                               82120720
0EB6   0000                BSS  E   0                                82120730
0EB6 0 0000          TSTOP DC       0         TIMER STOP IOCC         82120740
0EB7 0 0420                DC       /0420                             82120750
                     *                                               82120760
                     *                                               82120770
                     *              ** END PROGRAM ROUTINE **        82120780
                     *                                               82120790
                     *       THIS ROUTINE IS ENTERED FROM MONITOR    82120800
                     *       WHENEVER THIS PROGRAM IS BEING DE-      82120810
                     *       EXECUTED. IT IS ENTERED FROM THE        82120820
                     *       DATA ENTRY ROUTINE SO THAT A            82120830
                     *       COMPLETE RESTART OF THE PROGRAM MAY     82120840
                     *       BE DONE. THIS ROUTINE RESETS ALL        82120850
                     *       DEVICES AND STOPS TIMERS.               82120860
                     *                                               82120870
                     *                                               82120880
0EB8 0 0000          AIEND DC       0                           SE   82120890
0EB9 0 6200                LDX    2 0                                82120900
0EBA 1 6E00 09A0           STX   L2 AITMS     RESET TIME SWITCH       82120910
0EBC 0 6A88                STX    2 LNCNT     RESET LINE COUNTER      82120920
0EBD 0 6A8E                STX    2 AIDWC     RESET DATA WORD CNTR    82120930
0EBE 0 08F7                XIO      TSTOP     STOP TIMER              82120940
0EBF 1 4400 0991           BSI  L   BLAST     RESET AI                82120950
                     ********************************************    82120960
                     *              ** RELEASE DEVICES **       *    82120970
0EC1 0 4480 0132           BSI  I   RELDV     GO TO REL DEVICES   *    82120980
0EC3 1 0811                DC       EDIT      ADDR OF AI DEV DEF  *    82120990
0EC4 1 0812                DC       EDIT&1    ADDR OF CMP DEV DEF*     82121000
0EC5 1 0813                DC       EDIT&2    ADDR OF TM DEV DEF  *    82121010
0EC6 1 080A                DC       TERM      ADDR OF TERMINATOR  *    82121020
                     ********************************************    82121030
0EC7 1 4C80 0EB8           BSC  I   AIEND     EXIT ROUTINE        SX   82121040
                     *                                               82121050
                     *                                               82121060
                     ********************************************    82121070
                                                                     82121080
```



```
                     *              ** LOG CALL **              *    82121090
0EC9 1 4400 0DE4     AIOLT BSI  L  LOGCL                       *    82121100
0ECB 0 0001                DC       1         WORD COUNT        *    82121110
0ECC 0 0001                DC       /0001     HEX-DEC SW %DEC<  *    82121120
0ECD 1 09DC                DC       AITOD+2   RTRN.ADDR.        *  $ 82121130
0ECE 0 BBFB                DC       /BBFB     MSG.I.D.          *  $ 82121140
0ECF 0 0010                DC       /0010     BYPASS BITS       *    82121150
0ED0 1 09A6                DC       AIOSP     COUNTER ADDR      *    82121160
                     ********************************************    82121170
                     *                                               82121180
                     *            ** CHANGE SIGN OF LMT WD **        82121190
                     *                                               82121200
                     *       THIS SEQUENCE WILL CHANGE THE SIGN      82121210
                     *       OF THE LIMIT WORD FOR MOD 2 ADC         82121220
                     *                                               82121230
                     *                                               82121240
0ED1 0 0000          CSLMW DC       0                           SE   82121250
0ED2 0 1888                SRT      8                                82121260
0ED3 0 D00D                STO      LEFT      SAVE LEFT WORD         82121270
0ED4 0 1090                SLT      16                               82121280
0ED5 1 4400 0979           BSI  L   MKPOS     CHANGE RITE WORD SIGN  82121290
0ED7 0 D00A                STO      RITE      SAVE RITE WORD         82121300
0ED8 0 C008                LD       LEFT                             82121310
0ED9 1 4400 0979           BSI  L   MKPOS     CHANGE LEFT WORD SIGN  82121320
0EDB 0 18C8                RTE      8         MAKE  LEFT # RITE      82121330
0EDC 0 C005                LD       RITE                             82121340
0EDD 0 1808                SRA      8         MAKE RITE # LEFT       82121350
0EDE 0 1088                SLT      8                                82121360
0EDF 1 4C80 0ED1           BSC  I   CSLMW     EXIT                SX   82121370
                     *                                               82121380
0EE1 0 0000          LEFT  DC       0                                82121390
0EE2 0 0000          RITE  DC       0                                82121400
                     *                                               82121410
                     *                                               82121420
                     *            VARIABLE TABLES                    82121430
                     *                                               82121440
0EE3 0 0000                DC       0         WORD CNT WORD          82121450
0EE4   000B          AIDRT BSS      11        INPUT DATA TABLE       82121460
                     *                                               82121470
0EEF 1 0EEF          AICCC DC       AICCC     DATA CHANN LOOP        82121480
0EF0 0 0000          LOOP  DC       0         CONTROL-WC             82121490
0EF1 0 0000                DC       0         DATA                   82121500
0EF2 1 0EEF                DC       AICCC                            82121510
0EF4   000A          AISUX BSS    E 10        SUM TABLE              82121520
0EFE   0005          AIGRD BSS      5         GOOD READING TABLE     82121530
0F03   0005          AIOTR BSS      5         OUT OF TBL CNTR TBL    82121540
0F08   0005          AIOVC BSS      5         OVERLOAD CNTR TBL      82121550
0F22                 PARA  ORG      /7FD&PID-218     PATCH AREA      82121560
0F22   00DA          AISTB BSS      218       SPREAD TABLE           82121570
0FFC 0 0015          PEND  DC       PEND-PARA-218  ADDR OF LAST WD   82121580
                     *                                               82121590
                     *                                               82121600
                     ********************************************** 82121610
                     *                                            * 82121620
                     *                                            * 82121630
                     *                                            * 82121640
                     *  *****  *****  *   *  *****  *  *****  *   * * 82121650
                     *  *      *   *  *   *    *    *  *   *  **  * * 82121660
                     *  *      *****  *   *    *    *  *   *  * * * * 82121670
                     *  *      *   *  *   *    *    *  *   *  *  ** * 82121680
                     *  *****  *   *  *****    *    *  *****  *   * * 82121690
                     *                                            * 82121700
                     *                                            * 82121710
                     *                                            * 82121720
                     *    THIS DECK MUST BE LOADED LAST WHEN      * 82121730
                     *    RUNNING THIS PROGRAM WITH MORE THAN TWO * 82121740
                     *    %2< MULTIPLEX ADDRESSES SPECIFIED FOR   * 82121750
                     *    EVALUATION. IF THIS IS NOT DONE 327     * 82121760
```

```
                *     CORE POSITIONS OF THE PROGRAM FOLLOWING     * 82121770
                *     THIS ONE WILL BE WIPED OUT AND USED         * 82121780
                *     BY THIS PROGRAM FOR DATA STORAGE.           * 82121790
                *                                                 * 82121800
                *                                                 * 82121810
                *                                                 * 82121820
                ************************************************* 82121830
                *                                                 82121840
OFFE  OEAD              END     AICO                                82121850
  NO STATEMENTS FLAGGED IN THE ABOVE ASSEMBLY
```



```
ACAI    08D0  0931 0936 094C 095F
ACCMP   08C5  0961
ACON1   0C21  0C33
ACON2   0C22  0C55
ACON3   0C23  0C5D
AIAAS   0E85  C8E7 0E5D 0E65
AIACC   095B  C91F
AIADT   0E9D  0E76 0EA4
AIAPR   0822  0B12 0B20
AIARB   0D5D  0D4B
AIATC   0D69  0D9C
AIATS   0D67  0CDB 0CFA 0D12 0D30 0D33 0D35 0D3A 0D4F 0D89 0D8A 0D8C 0D8E 0D8F
              0D96 0D98 0D9A 0DA3 0DA5 0DB2
AIBSA   0E6E  0E52 0E7C 0E7F
AIBST   0998  0933 0992
AIBSY   0958  095D
AIB08   09A2  093E 0950
AIB11   09A3  094B
AIB14   09A1  0944
AICBL   0A68  0A67 0A6B
AICCA   0855  C855 0857 0D4D
AICCC   0EEF  0D54 0EEF 0EF2
AICHB   0DA0  0D95
AICHG   0C36  0C53 0C66 0C69
AICH1   0CF8  0D40
AICH2   0D6A  0CFD
AICH4   0D12  0D05 0D0A
AICH5   0D1D  0D16
AICH6   0D24  0D20
AICH7   0D39  0D23 0D2E 0DA1
AICH8   0D44  0D6C
AICH9   0D96  0D83
AICKB   0A4F  0A7E
AICKC   0A52  0A86
AICKT   0A7E  0A51
AICLM   0C0B  0C13 0C81 0C84
AICMR   08C6  08CD
AICNC   0AFE  0ADE
AICNT   0DA9  0DA4 0DA6 0DA8 0DB0
AICRY   0A77  0A4E
AICYC   0816  0B23 0BDB 0E9E
AICYR   0B4B  0905 0968 0A47 0AA1 0AFD 0B22 0B27 0EA5
AIC7F   0E49  0E58
AIDCN   0CA2  0AEF 0B38 0BEA 0CBC
AIDER   0E4D  0985 0AAD 0E48
AIDRT   0EE4  08E2 096A 099C 0CE0 0CEE 0EAB
AIDSW   089B  08A2 08D3
AIDTA   0CBE  0AC1 0AC7 0B18 0D1A
AIDWC   0E4C  0E55 0E68 0E7B 0E8B 0EBD
AIENB   0A3A  0A39 0A42
AIEND   0EB8  0808 0EB0 0EC7
AIENX   0A58  0A53
AIEOT   08B9  0898 088F 0A1C
AIERC   0A90  0987 0A59 0A74 0A7B 0A83 0A91 0A9D 0AA6 0AB5
AIERL   097F  0A97
AIERR   08A1  088A 088B 088C 088D 088E 0891 0892 0893 0894 0895 089D 08A9 08B0
              08BC 08D7
AIERS   0A2B  08A5 08F4 0952 097F 0AA0 0AA2 0AB3 0D61
AIEVL   0AB3  0A5E 0A61 0A72
AIEV1   0ABE  0B0F
AIEXB   09FB  0A31 0A36 0A57 0A79
AIEXT   0A72  0A76
AIEXX   09FC  0959 09A8 0E40 0E6C
AIFRS   0823  0940 0BDA 0EA1
AIGO    0EAD  0FFE
AIGRD   0EFE  0AD0 0AD3 0B6D 0B74 0B8B 0B99
AIHIL   0C76  0C6D
AIHXS   0AF4  0EA3
```

F
N


```
AIIAT  0829  0CCA 0EA6
AIIBR  08D9  08E1
AIIBT  0889  08DF
AIINP  09B2  096E 0983 09A9
AIINX  09AA  0966 09C4
AIIRD  099C  0951 09F2 0A63
AIIRY  08AB  0896 08B7
AIIST  089A  08D5 08D9 08DE
AIIZZ  09EC  09C0
AILAR  0E71  0E70
AILCL  0A48  0A3C
AILGS  0E3C  08C9 0A3A 0A46 0DF1
AILOL  0C78  0C72
AILRK  0E6B  0E56 0E60
AILWB  0CC3  0CE9 0D32
AILWS  0CC5  0CDF 0D29 0D37 0D3C 0D9E
AILWT  0833  0EAA
AIMBR  0C80  0C3D
AIMCT  0C1E  0BB3 0BD8 0BE0 0BE9 0BF5 0BF7 0C2C 0C46 0C48 0C4C 0C4F 0C58 0C60
             0C7E 0C82 0C86 0C8A 0C8B
AIMOD  0815  0ABE 0D24
AIMPC  0B5E  0AE7 0B32 0B67
AIMPX  0817  0AE5 0B30 0D14 0E9F
AIMP1  0B69  0B60 0B6A
AINTR  08D1  08DB
AINXT  0BF7  0BE6 0BF0
AIOA4  0B22  0B14
AIOA5  0B25
AIOCK  0A03  09F6 0A28
AIOCS  0A2D  09AD 09CF 09D3 09F4 0D49
AIOLS  083F  09C6 09E0 0D08 0EA9
AIOLT  0EC9  09DA
AIONE  0B4E  0AD2 0AE2 0B07 0BA3
AIOOP  0D0C
AIORY  0CA1  0CF5 0D00 0D0C 0D1D 0D80
AIOSB  0A2A  09D8 09EA 0CF6 0D27
AIOSP  09A6  09D7 09EB 0A04 0A1B 0ED0
AIOTR  0F03  0AE0 0AE3 0BCE
AIOVC  0F08  08F8 0B05 0B08 0BCB
AIOVL  0B05  0AC3
AIPAS  08C1  08D4
AIPLT  09E0  0981 09C8
AIPLX  0C99  0C7F
AIPRC  081D  0AD7 0AE8 0B1B 0B36 0B3A 0B80 0BB7 0EA0
AIRAC  0967  0883 0956 0B25 0C07
AIRAX  0C20  0BAF 0B89 0BDE 0C0D
AIRCC  08E2  08AC 08B2 0938 096C 0A12
AIRCT  0973  08AD 08B4 08F2 09C5 09E5 0A14 0A4C
AIRDD  094C  0948 094A
AIREQ  0930
AIRG   0949  0945
AIRL   0948  0946
AIRLS  0CC4  0CF0 0D0E 0D10 0D84
AIRSC  0B4D  0B7C 0B84 0B93
AIRST  0EB0  0E59
AIRSY  09A5  0909 09BF 0CF3 0D06 0D86
AIRTB  0BE4  0BFB 0C30 0C70
AIRTM  0A01  0DE9
AISPR  0B18  0B1E
AISPT  0E98  0AFF 0C25 0C2D
AISRC  0C9C  0C8D 0C91 0CA9 0CB1 0CB8
AISRD  08E4  089E 0939
AISRT  0981
AISRX  0BAE  0BA7
AISSE  089C  0897 089F
AISSS  0A0A  0A19
AISTB  0F22  0902 0E98 0E99 0E9A 0E9B 0E9C
AISTP  0CC8  0BF6 09AF 09D5 0D63
```



```
AISTW  0E61  0E5E 0E5F
AISUM  0E93  0ACC 0ACE 0B6B
AISUX  0EF4  08F8 08FA 0E93 0E94 0E95 0E96 0E97
AITAE  0E88  0E61 0E63 0E78 0E84 0E87 0E89
AITAS  0CC7  0CE2 0CF8 0D01 0D21 0D56 0D58 0D72 0D75 0D77 0D79 0D7E
AITCN  0C1F  0BE2 0BFE 0C00 0C39 0C3A
AITEN  0C7A  0C0E 0CAF
AITLM  0C7B  0C76 0C78
AITMS  09A0  09C2 09E9 0EBA
AITOA  0841  099E 0CCC 0CD9 0CDD 0D69 0EAC
AITOO  09DA  0ECD
AITRP  08A8  08A8 7002
AITRT  09E6  09E2
AIUSA  0E55  0E50
AIVED  0E7E  09B9 0E8D 0E91
AIWC   083E  0AB1 0CD0 0CD4 0D3E 0D42 0EA8
AIWCX  0D65  0CD2 0D41
AIWC1  0C9B  08FD 0A80 0B0D 0B16 0C01 0D44
AIWKA  0C16  0BB4 0BD9 0C8E 0C94
AIWKB  0C1A  0BE8 0BF6 0C28 0C37 0C3F 0C43 0C48 0C4E 0C50 0C57 0C59 0C5F 0C61
             0C64 0C67 0C6B 0C6F 0C80
AIWKC  0C1B  0BB6 0BC6 0BCD 0BDC
AIWKD  0C18  0B9F 0BA6 0BB5 0BBB 0BC5 0BD0 0BDD 0C0F 0C7D 0C93 0C96 0C97
AIWKE  0B5D  0AED 0B35 0B46 0B79 0CA4
AIWKF  0B54  0B0B 0B0C 0B7D 0B83 0B89 0B8D 0B97
AIWKG  0B56  0B3D 0B47 0B48 0B81 0B87 0B88 0B8F 0B90 0B95 0B96 0B9C 0BA5 0BAA
             0BAD 0BAE
AIWKH  0B58  0978 0AEA 0AF8 0AF9 0B45 0B66 0B6F 0B72 0B80 0B82 0B8A
AIWKI  0CC4  0C29 0C44 0C83 0C85 0C89 0CA3 0CA8 0CAD 0CB4 0CB5 0CBA
AIWKJ  0AB2  0ACA 0AD6 0AEE 0AFA
AIWKL  0CC6  0AFB 0AFC 0B49 0B4A 0BF3 0BF4 0CAA 0CAE 0CB2 0CB6 0CBB
AIWRK  0D68  0CFF 0D18 0D19 0D2F 0D91 0D9B 0DB1
AIWRT  099E  0935 09F3 0A65
AIXSS  083D  094E 09F8 0EA7
AIYP1  0B30  0C03
AIZX1  0B0A  0AF5 0B04
AI108  0C15  0C31
AI3    0B68  0B42
AI4    0BCB  0BC2
AI5    0BDE  0BD5
AONE   08CF  0866 093C
A1000  0B4C  0B29
BEGIN  012C  0EAD
BLAST  0991  0981 0995 0A1E 0A6D 0EBF
BLTRP  0A69  7003 7004
BRLOC  0C45  0C22 0C23 0C34 0C41 0C56 0C5E
BSYBT  0A2E  0A52
CKDSW  0922  08D2 08E4 093D 0994 0A0A
CLEAR  0912  08FC 0904 0919
CLRCR  0915  0913 0918
CMTRP  08CC  08CC 7005
CONTL  0970  0932
CSLMW  0ED1  0D2B 0EDF
C001   0D66  09DC 0D51
C0997  0B5A  0B28
DEVIA  0C8B  0C87
EDIT   0811  0927 095E 0960 098C 098D 0ABA 0ABB 0EC3 0EC4 0EC5
END    012E  098F 0C09
ENDAI  098A  0A8B
EPA    0808
ERCAI  0AA2  0A9A
ERDSW  0A2C  0985 0A58 0A73 0A7A 0A7D 0A82 0A85 0A9E
ERLGB  0E3D  0E04
ERLG1  0E0A  0DEE 0DFB 0E2F
ERLG3  0E19  0E12
ERLG5  0E1B  0E18
ERLG6  0E29  0E26 0E2E
ERMID  0A9B  0A94
```

```
ERRCL   0DF3  0A95 0DF6
ERROR   0130  0DF4
FIFTY   0CA0  0CA6
FIVE    0B5B  0BA2
FTFOR   0C1C  0ADC 0BDF 0C2F
HALT    0133
HFFBF   0E31  0E23
HIINC   0C64  0C22
HILMT   0C54  0C5A 0C77
HUND    0C9D  0C8C 0CB3 0C87
H0040   0AA8  0A93 0E0D
INTSW   0911  088A 08BE 09EC 0A33 0A4F
IPA     0806
IRD     0971  094D
IWT     0972  0934
LEFT    0EE1  0ED3 0ED8
LGDSW   08C4  08C8 0A45
LGERC   0E42  0E3F
LGLYR   0E43  0E3D 0E3E 0E42
LGRTN   0E06  0DEB 0E19
LGTER   0A87  09BD
LMDSW   0920  08A3 08C7 093F 0993 0A9F 0AA4
LMTCK   0840  0CE6
LNCNT   0E48  0BFC 0E15 0E16 0E1A 0E8E 0EBC
LOG     012F  0DEC
LOGCK   0DFC  0DF2
LOGCL   0DE4  0A3E 0A87 0AA9 0AF1 0B3E 0B8E 0BD1 0BEC 0DE5 0E80 0EC9
LOGCS   0E01  0DE8 0DF9 0E0B 0E14 0E47
LOINC   0C67  0C23
LOLMT   0C5C  0C62 0C79
LOOP    0EF0  09DE 0A26 0D52
LOPAI   0881  0807 0887
LPA     0807
LSUER   0AA9  0954
MASK    0348  0A06
MASK1   034A  0A08
MDY04   0B02  0AD9 0AFE 0B01
MDY05   0C4E  0C4A
MDY06   0C50  0C4D
MEAN    0B52  0B71 0B77 0B78 0B9E 0BC7 0BC8
MKPOS   0979  092C 097D 0AC5 0ADA 0BA0 0BAB 0C10 0ED5 0ED9
MLSCF   0809  0885 08EF 09FF
MSSWA   0E27  0E1F
MSTBL   0E32  0E03 0E1D 0E21
MSTB1   0E34  0E24 0E2B
NOTVC   09AC  09CD
ONEAI   0DB6  0D74 0D78 0D97 0DA7 0DBC
OVLPC   09D7  09D1
PADDR   0CA1  0C32 0C6C
PARA    0F0D  0FFC
PCENT   0C24  0B82 0BBD 0C99
PEND    0FFC  080B 0FFC
PID     07FF  0EAF
POSWK   0976  097A 097C
P9970   084F  0B2A 0B2E 0C3B
RAD     0801
RANGE   0824  0AEB 0B33 0EA2
RD      096F  0937
RDDSW   099A  093B 0982 0A2F 0A48 0A4A 0A69 0A6F
RELDV   0132  098A 0AB8 0EC1
REQAI   0957  0930 0963 0967
REQDV   0131  0924 095B
RID     0800  08EC 09FC
RITE    0EE2  0ED7 0EDC
RSAI    08E6  0806 0882 090F 0EB1
RT01    091C  08EB 0965
RT01A   091E  0958 0A24
RT03    09A8  09AA
```



```
RT04    0A38  09FB
RT06    0E4A  0E6B
SDSW    0974  093A
SHIFT   0DA2  0D38 0D9D 0DB4
SPRLY   0A18  0A0F
START   012D  0A01 0EB3
STRAD   0C1D  0C0C 0C27
SUERR   0D61  0CD7 0D48
SUEXX   0D63  0D60
SW0     0802  09CA 0A5B 0DFD
SW1     0803  09B7 0E8F
SW2     0804  09B3 0C05 0E4E 0E53
SW3     0805  08E9 0E5B 0E66
T       0A79  0A81
TEN     085C  0B3C 0B70 0B73 0B7E 0B86 0B8E 0B92 0B98 0BBA
TENTH   0C9F  0B64 0B7A 0C7C
TERM    C8CA  0929 0962 098E 0ABC 0EC6
TEXIT   0DD4  0DE3
THOUS   0C9E  0C90 0C95 0CAB
TIBT1   0814  092A 0E9D
TICNO   0DCC  0DC3 0DC7
TICON   0899  085B 08DD
TIDSW   0878  0873 0A8E
TIERR   0873  085D
TIERS   0880  0874 09BB 0A8F 0DEF
TIEXX   0871  0876
TIGOB   086F  0864 0869
TIINT   0859  0871 0928
TIMER   0DB7  09E6 09EE 0DBA 0DBE 0DC5 0DCC 0DD4 0DD8 0DDC
TIM11   087A  0862 0867 086B 086D 0DC1 0DCE 0DD0 0DDA 0DE1
TIRNG   0DC1  0DCA 0DCB
TISRC   0DD2  0DDE
TITRP   0877  0877 7001
TIWRK   0862  0870
TMBSY   0965  0926
TMCNT   09F0  0907 090B
TMREQ   0924  091D
TMSSW   09A4  09F1 0A55 0A77 0A7F
TSNSE   08C2  085A 085E 092D
TSTOP   0EB6  0DB8 0EBE
TSTRT   0E08  0DD6
UMASK   034C  0A20
UMAS1   034E  0A22
VMEAN   0850  0B85 0B91 0B9D 0BC9 0BCA
WAWTC   0C6A  0C36 0C52 0C74
WDCNT   0CC6  0CE3 0D5D 0D70 0D7C
XTSNC   0A2F  09FA 0A35
END OF ASSEMBLY
```

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

```
                    *                                                   82200020
                    *                                                   82200030
                    *                                                   82200040
                    *                                                   82200050
                    *             ***** *** ****  ***** *****           82200060
                    *             *   *  *  *   * *     *               82200070
                    *             *****  *  *   * *      ***            82200080
                    *             *   *  *  *   * *         *           82200090
                    *             *   * *** ****  ***** *****           82200100
                    *                                                   82200110
                    *                                                   82200120
                    *  ***** *   * *   * ***** ***** *** ***** *   *    82200130
                    *  *     *   * **  * *       *    *  *   * **  *    82200140
                    *  ***   *   * * * * *       *    *  *   * * * *    82200150
                    *  *     *   * *  ** *       *    *  *   * *  **    82200160
                    *  *     ***** *   * *****   *   *** ***** *   *    82200170
                    *                                                   82200180
                    *                                                   82200190
                    *               ***** ***** ***** *****             82200200
                    *                 *   *     *       *               82200210
                    *                 *   ***    ***    *               82200220
                    *                 *   *         *   *               82200230
                    *                 *   ***** *****   *               82200240
                    *                                                   82200250
                    *                                                   82200260
                    *                                                   82200270
                    *                                                   82200280
                    *                                                   82200290
                    *********************************************       82200300
                    *********************************************       82200310
                    *         PROGRAM HALT DESCRIPTIONS                 82200320
                    *********************************************       82200330
                    *********************************************       82200340
                    *     THE THREE POSSIBLE PROGRAM HALTS OR           82200350
                    *     TRAPS ARE DESCRIBED IN THE FOLLOWING          82200360
                    *     PARAGRAPHS. IN EVERY CASE THESE TRAPS         82200370
                    *     ARE IDENTIFYABLE ONLY AFTER THE STOP          82200380
                    *     KEY HAS BEEN DEPRESSED AND THE MODE           82200390
                    *     SWITCH MOVED OUT OF THE RUN MODE TO           82200400
                    *     STOP THE INTERVAL TIMER FROM CYCLE            82200410
                    *     STEALING. AFTER THIS IS DONE THE I REG        82200420
                    *     CAN BE USED TO IDENTIFY THE SPECIFIC          82200430
                    *     TRAP.                                         82200440
                    *                                                   82200450
                    *                                                   82200460
7001                      ORG     *&/7001                               82200470
                    *--------------------------------------------       82200480
                    *         TRAP STOPS                                82200490
                    *                                                   82200500
                    *                                                   82200510
7001 1 0852               DC      TITRP      ERROR TRAP 1               82200520
                    *                                                   82200530
                    *             THE TIMER INTERRUPT IS ON SOLID       82200540
                    *             AND CANNOT BE RESET.                  82200550
                    *                                                   82200560
                    *                                                   82200570
7002 1 0879               DC      AITRP      ERROR TRAP 2               82200580
                    *                                                   82200590
                    *             THE AI RESPONSE INTERRUPT IS ON       82200600
                    *             SOLID AND CANNOT BE RESET.            82200610
                    *                                                   82200620
7003 1 0970               DC      BLTRP      ERROR TRAP 3               82200630
7004 1 0971               DC      BLTRP&1                               82200640
                    *                                                   82200650
                    *             IF THE AI BUSY INDICATOR DOES NOT     82200660
                    *             COME ON AFTER A START AI OPERATION    82200670
                    *             THE PROGRAM WILL HANG UP IN AN        82200680
                    *             UNINTERRUPTABLE XIO-BSI LOOP.         82200690
```

```
                    *                                                   82200700
                    *************************************************** 82200710
                    *                                                   82200720
                    *   *****  *****  *   *  *****   * *****   *   *    82200730
                    *   *   *  *   *  *   *    *     * *   *   **  *    82200740
                    *   *   *  *****  *   *    *     * *   *   * * *    82200750
                    *   *   *  *   *  *   *    *     * *   *   *  **    82200760
                    *   *****  *   *  *****    *     * *****   *   *    82200770
                    *                                                   82200780
                    *************************************************** 82200790
                    *                                                   82200800
                    *     THIS TEST MUST BE LOADED LAST OR LOW CORE     82200810
                    *      LOCATIONS OF THE FOLLOWING TEST WILL BE      82200820
                    *      WIPED OUT AND USED FOR STORAGE FOR THIS TEST 82200830
                    *                                                   82200840
                    *                                                   82200850
                    *                                                   82200860
                    *                                                   82200870
07FF                      ORG     *-/6806                               82200880
                    *                  PROGRAM EQU TABLES               82200890
                    *                                                   82200900
012C 0              BEGIN EQU     300                                   82200910
012D 0              START EQU     BEGIN&1                               82200920
012E 0              END   EQU     START&1                               82200930
012F 0              LOG   EQU     END&1                                 82200940
0130 0              ERROR EQU     LOG&1                                 82200950
0131 0              REQDV EQU     ERROR&1                               82200960
0132 0              RELDV EQU     REQDV&1                               82200970
0133 0              HALT  EQU     RELDV&1                               82200980
                    *                                                   82200990
                    *                                                   82201000
                    *                                                   82201010
                    *                                                   82201020
07FF 0 2200         PID   DC      /2200      PROGRAM ID                 82201030
0800 0 0000         RID   DC      0          ROUTINE NO                 82201040
0801 0 0000         RAD   DC      0          ROUTINE ID                 82201050
0802 0 0000         SW0   DC      0          BIT SW WORD 0              82201060
0803 0 0000         SW1   DC      0                      1              82201070
0804 0 0000         SW2   DC      0                      2              82201080
0805 0 0000         SW3   DC      0                      3              82201090
0806 1 0899         IPA   DC      RSAI       INITIALIZATION ADDR        82201100
0807 1 086C         LPA   DC      LOPAI      LOOP PROGRAM ADDR          82201110
0808 1 0D02         EPA   DC      AIEND      END PROGRAM ADDR           82201120
0809 0 0000         MLSCF DC      0          MAIN LINE SEQ CNTRL        82201130
080A 0 FFFF         TERM  DC      /FFFF      TERMINATOR                 82201140
080B 1 0FFD               DC      PEND&1     ADDR OF LAST WORD  *       82201150
080C 0 0000               DC      0                             *       82201160
080D 0 0000               DC      0          MONITOR STORAGE    *       82201170
080E 0 0000               DC      0           AREA              *       82201180
080F 0 0000               DC      0                             *       82201190
0810 0 0000               DC      0          *****          *****       82201200
                    *                                                   82201210
                    *                                                   82201220
                    *                ** EDIT TABLE **                   82201230
                    *                                                   82201240
                    *             THIS TABLE IS LOADED BY THE           82201250
                    *             OPERATOR WITH EITHER THE EDIT         82201260
                    *             CARDS OR BY THE USE OF THE DATA       82201270
                    *             ENTRY ROUTINE IN THIS PROGRAM.        82201280
                    *                                                   82201290
                    *                                                   82201300
0811 0 0000         EDIT  DC      0          DDEF FOR AI                82201310
0812 0 0000               DC      0          DDEF FOR TIMER             82201320
0813 0 0356         TIBT1 DC    0 /356       TIMER CONSTANT             82201330
0814 0 0000         AIMOD DC      0 # MOD1   ADC MOD CONSTANT           82201340
0815 0 03E8         AICYC DC    1 1000       CYCLES TO BE RUN           82201350
0816 0 13E8         AIMPX DC    2 5096           ****                   82201360
0817 0 13E8               DC      5096                                  82201370
```

6182

```
0818 0 13E8                DC       5096        MPX ADDR TABLE
0819 0 13E8                DC       5096
081A 0 13E8                DC       5096
081B 0 FFFF                DC       /FFFF           ****
081C 0 0000         AIPRC  DC     3 0               ****
081D 0 0000                DC       0
081E 0 0000                DC       0           PREC READING TABLE
081F 0 0000                DC       0
0820 0 0000                DC       0               ****
0821 0 0001         AIAPR  DC       1           AUTO PREC RDNG SW
0822 0 000E         AIFRS  DC     4 14              ****
0823 0 0005         RANGE  DC     5 5               ****
0824 0 0005                DC       5
0825 0 0005                DC       5           RANGE TABLE
0826 0 0005                DC       5
0827 0 0005                DC       5               ****
0828 0 13E8         AIIAT  DC     9 5096            ****
0829 0 0001                DC       1
082A 0 13E8                DC       5096
082B 0 0001                DC       1
082C 0 13E8                DC       5096
082D 0 0001                DC       1           INPUT ADDRESS TABLE
082E 0 13E8                DC       5096
082F 0 0001                DC       1
0830 0 13E8                DC       5096
0831 0 0001                DC       1
0832 0 FFFF                DC       /FFFF           ****
0833 0 0000         AIXSS  DC     A 0           EXTERNAL SYNC SWITCH
                    *
                    *
                    *             ** TIMER INTERRUPT ROUTINE **
                    *
                    *           THIS ROUTINE IS ENTERED FOR EACH
                    *           TIMER INTERRUPT. %APROX. EVERY 110
                    *           MILLISECONDS¤ EACH DELAY COUNT IS
                    *           DECREMENTED BY 1. WHEN ANY COUNT
                    *           GOES TO ZERO, THE PROGRAM SWITCH
                    *           WORD CORRESPONDING TO THE COUNT
                    *           IS SET TO ZERO.
                    *
                    *
0834 0 0000                DC       0           TIMER AC/MOD STORAGE
0835 0 0030         TIINT  DC       0                                  IE
0836 0 0857                XIO      TSNSE       SENSE TIMER DSW
0837 0 8024                CMP      TICON       CHECK FOR PROPER BIT
0838 0 1000                SLA      0           SKIP
0839 0 7015                MDX      TIERR       ERROR DSW - BRANCH
083A 0 C053                LD       TSNSE       RESTORE CONSTANT
083B 0 D400 0004           STO   L  4
083D 0 6305                LDX    3 5
083E 1 C700 0854    TIWRK  LD    L3 TIM11       GET TIME COUNT
0840 1 4C18 084B           BSC   L  TIGOB,&-    CALL NOT USED
0842 0 9020                S        AONE
0843 1 D700 0854           STO   L3 TIM11       RESTORE ADJ CNT
0845 1 4C20 084B           BSC   L  TIGOB,Z
0847 1 D780 0853           STO   I3 TIM11-1     SET PROG SW OFF
0849 1 D700 0853           STO   L3 TIM11-1     RESET CALL
084B 0 73FE         TIGOB  MDX    3 -2
084C 0 70F1                MDX      TIWRK       CHECK REST OF CALLS
084D 1 4C80 0835    TIEXX  BSC   I  TIINT       EXIT ROUTINE          IX
                    *
084F 0 D00B         TIERR  STO      TIDSW       SAVE  DSW
0850 1 7401 085A           MDX   L  TIERS,1     ADD ONE TO ERR SW
0852 0 70FF         TITRP  MDX      TITRP       INTR ON SOLID - TRAP
0853 0 70FF                MDX      *-1         INTR ON SOLID - HANG
                    *
                    *
0854 0 0000 0000    TIM11  DEC      0           CALL THREE
```


6183

```
0856 0 0000 0000           DEC      0           CALL TWO
0858 0 0000 0000           DEC      0           CALL ONE
085A 0 0000         TIERS  DC       0           TIMER DSW ERROR SW
085B 0 0000         TIDSW  DC       0           DSW STORAGE
                    *
                    *
                    *              DSW TRANSFER VECTOR
                    *
                    *
085C 0 8000         AIIBT  DC       /8000       NT USD VECTR - CNSTNT
085C 0              TICON  EQU      AIIBT
085D 1 0873                DC       AIERR       ERROR ENTRY
085E 1 0873                DC       AIERR       ERROR ENTRY
085F 1 0873                DC       AIERR       ERROR ENTRY
0860 1 0873                DC       AIERR       ERROR ENTRY
0861 1 0873                DC       AIERR       ERROR ENTRY
0862 0 0000         AIDSW  DC       0           NT USD VECTR - CNSTNT
0863 0 0001         AONE   DC       1           NT USD VECTR - CNSTNT
0864 1 0873                DC       AIERR       ERROR ENTRY
0865 1 0873                DC       AIERR       ERROR ENTRY
0866 1 0873                DC       AIERR       ERROR ENTRY
0867 1 0873                DC       AIERR       ERROR ENTRY
0868 1 0873                DC       AIERR       ERROR ENTRY
0869 1 0873                DC       AIERR       ERROR ENTRY
086A 1 0873                DC       AIERR       ERROR ENTRY
086B 1 0891                DC       AIEOT       END OF TABLE ENTRY
                    *
                    *
                    *
                    *
                    *            ** LOOP PROGRAM ROUTINE **
                    *
                    *           THIS ROUTINE IS ENTERED ONLY FROM
                    *           MONITOR WHEN THE LOOP PROGRAM BIT
                    *           IS SET ON IN MONITOR.
                    *
                    *
086C 0 0000         LOPAI  DC       0
086D 0 402B                BSI      RSAI        INITIALIZE PROGRAM
086E 1 6700 08FA           LDX   L3 AIRAC       LOAD ENTRY ADDRESS
0870 0 6B98                STX    3 MLSCF       SET RETURN ENTRY
0871 1 4C80 086C           BSC   I  LOPAI       EXIT TO MONITOR
                    *
                    *
                    *
                    *            ** AI INTERRUPT ROUTINE **
                    *
                    *           THE MONITOR ENTERS THIS ROUTINE
                    *           AFTER DETECTING AN AI INTERRUPT.
                    *           THE ROUTINE SENSES AND EVALUATES
                    *           THE DSW AND TRANSFERS TO THE SUB-
                    *           ROUTINE TO PERFORM THE REQUIRED
                    *           SERVICE. MISSING OR EXTRA DSW BITS
                    *           WILL BE OUTPUTTED IN AN ERROR
                    *           MESSAGE FROM MAINLINE. %E000¤
                    *
                    *
                    *              ERROR BITS ENTRY
                    *
                    *           THIS SEQUENCE SETS UP TO ENABLE
                    *           LOGGING OF AN ERROR INTERRUPT.
                    *
                    *
0873 0 0000         AIERR  DC       0                                  IE
0874 0 C0ED                LD       AIDSW
0875 0 D046                STO      CKDSW       SAVE ERROR DSW
0876 1 7401 0926           MDX   L  AIERS,1     SET ERROR SW ON
0878 0 7001                MDX      *&1
```

```
0879 0 70FF        AITRP MDX     AITRP       INTR ON SOLID - TRAP                82202740
087A 1 4C80 0873        BSC  I   AIERR       EXIT ROUTINE              IX        82202750
                      *                                                         82202760
                      *                                                         82202770
087C 0 0000        ACAI  DC      0           AI AC/MOD STORAGE                   82202780
087D 0 0000        AINTR DC      0                                     IE        82202790
087E 0 083D             XIO     CKDSW       SENSE-RESET AI DSW                  82202800
087F 0 D0E2             STO     AIDSW       SAVE DSW                            82202810
0880 0 E00F             AND     AIPAS       TURN OFF PASS BITS                  82202820
0881 0 D017             STO     AIIST       STORE DSW                           82202830
0882 1 4418 0873        BSI  L  AIERR,&-    ERROR IF DSW ZERO                   82202840
0884 0 630F             LDX     3 15                                            82202850
0885 0 C013        AIIBR LD     AIIST                                           82202860
0886 0 1340             SLCA    3 0         SHIFT TO DSW BIT                    82202870
0887 1 4C98 087D        BSC  I  AINTR,&-    EXIT IF DONE              IX        82202880
0889 0 F002             EOR     TICON                                           82202890
088A 0 D00E             STO     AIIST                                           82202900
088B 1 4780 085C        BSI  I3 AIIBT       BRANCH TO XFER VECTOR               82202910
088D 0 70F7             MDX     AIIBR       BRANCH                              82202920
                      *                                                         82202930
                      *                                                         82202940
088E    0000            BSS  E  0                                               82202950
088E 0 0090        TSNSE DC      0           TIMER SENSE IOCC                    82202960
088F 0 0721             DC      /0721                                           82202970
0890 0 FF3E        AIPAS DC      /FF3E       INTERRUPT BITS                      82202980
                      *                                                         82202990
                      *                                                         82203000
                      *          END-OF-TBL BIT ENTRY                           82203010
                      *                                                         82203020
                      *                                                         82203030
0891 0 0000        AIEOT DC      0                                     IE        82203040
0892 0 C028             LD      INTSW       LOAD INTER SW                       82203050
0893 1 4418 0873        BSI  L  AIERR,&-    EXTRA INTER IF OFF                  82203060
0895 0 1010             SLA     16                                              82203070
0896 0 D024             STO     INTSW       RESET INTER SW                      82203080
0897 1 4C80 0891        BSC  I  AIEOT       EXIT SUBROUTINE           IX        82203090
                      *                                                         82203100
                      *          ** INITIALIZATION ROUTINE **                   82203110
                      *                                                         82203120
                      *     THIS ROUTINE PERFORMS THE REQUIRED                  82203130
                      *     INITIALIZATION FOR RESTART OF THE                   82203140
                      *     PROGRAM, AND LOADS THE INITIAL                      82203150
                      *     ENTRY ADDRESS INTO THE MAIN LINE                    82203160
                      *     SEQUENCE CONTROL FIELD.                             82203170
                      *                                                         82203180
                      *                                                         82203190
0899 0 0000        RSAI  DC      0                                               82203200
089A 1 C400 0CAA        LD   L  AIAAS       LOAD TERMINATOR                     82203210
0899 0             AIIST EQU     RSAI        WORD SAVER                          82203220
089C 1 D400 0805        STO  L  SW3         INITIALIZE BIT SW 3                 82203230
089E 0 C81F             LDD     RTO1        LOAD ROUTINE 1                      82203240
089F 1 DC00 0800        STD  L  RID         STO RT ID & ADDR                    82203250
08A1 0 1090             SLT     16          SHIFT ENTRY ADDR                    82203260
08A2 1 D400 0809        STO  L  MLSCE       STORE ENTRY                         82203270
08A4 0 6600 0240        LDX  L2 AISTB&546-AISUX                                 82203280
08A6 0 10A0             SLT     32                                      *       82203290
08A7 1 DE00 0DC8        STD  L2 AISUX-2                                 *       82203300
08A9 0 72FE             MDX     2 -2        ZERO WORK AREAS             *       82203310
08AA 0 70FC             MDX     *-4                                     *       82203320
08AB 0 D016             STO     AIRSY         ****                              82203330
08AC 1 D400 0A46        STO  L  AICYR       INITIALIZE                  *       82203340
08AE 1 D400 0945        STO  L  TMCNT       SWITCHES                    *       82203350
08B0 0 D075             STO     AIERS         ****                              82203360
08B1 1 4400 08BC        BSI  L  AISTP       GO TO SET UP RT                     82203370
08B3 1 6780 08C2        LDX     I3 AIRSY                                        82203380
08B5 1 7401 0945   AICNT MDX  L  TMCNT-1    COUNT # NO. RLY/10                  82203390
08B7 0 73F6             MDX     3 -10                                           82203400
08B8 0 70FC             MDX     AICNT                                           82203410
```



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08B9 1 4C80 0899        BSC  I  RSAI        EXIT ROUTINE                        82203420
                      *                                                         82203430
                      *                                                         82203440
08BB 0 0000        INTSW DC      0           INTERRUPT SWITCH                    82203450
08BC 0 0000 0000   CKDSW DEC     0           IOCC TO RESET AI DSW                82203460
                      *                                                         82203470
                      *                                                         82203480
                      *          CONTROL SEQUENCE NUMBER 1                      82203490
                      *                                                         82203500
                      *     THIS SEQUENCE REQUESTS THE USE OF                   82203510
                      *     THE DEVICES USED IN THIS PROGRAM                    82203520
                      *     FROM MONITOR. THE FIRST PART                        82203530
                      *     REQUESTS THE TIMERS AND IS ENTERED                  82203540
                      *     ONLY FROM THE INITIALITION. THE                     82203550
                      *     SECOND PART %RTO1A¤ REQUESTS THE                    82203560
                      *     AI AND IS ENTERED PRIOR TO EACH                     82203570
                      *     CYCLE. ANY SETUP ERROR IS OUTPUTTED                 82203580
                      *     FROM THIS SEQUENCE. %E006¤                          82203590
                      *                                                         82203600
                      *                                                         82203610
08BE 0 0001        RT01  DC      1           RT 01 - REQ DEVICES                 82203620
08BF 1 08C3             DC      TMREQ       ENTRY ADDRESS                       82203630
                      *                                                         82203640
08C0 0 0001        RT01A DC      1           RT 01A - REQ AI                     82203650
08C1 1 08F0             DC      AIJO        ENTRY ADDR                          82203660
08C2 0 0000        AIRSY DC      0           RELAY SWITCH                        82203670
                      *                                                         82203680
                      *                                                         82203690
                      ********************************************              82203700
                      *          ** REQUEST TIMERS **            *              82203710
08C3 2 4480 0131   TMREQ BSI  I  REQDV       GO REQUEST TIMERS  *              82203720
08C5 1 08F8             DC      TMBSY       ADDR OF BSY RTRN   *              82203730
08C6 1 0812             DC      EDIT&1      ADDR OF TM DEV DEF *              82203740
08C7 1 0834             DC      TIINT-1     ADDR OF AC STORAGE *              82203750
08C8 1 080A             DC      TERM        ADDR OF TERMINATOR *              82203760
                      *                                          *              82203770
                      ********************************************              82203780
08C9 1 C400 0813        LD   L  TIBT1       LOAD TIMER 1 CONS                   82203790
08CB 0 4034             BSI     MKPOS       CHANGE SIGN                         82203800
08CC 0 D0C1             STO     TSNSE       STORE CONSTANT                      82203810
08CD 0 D400 0004        STO  L  4           INITIALIZE TIMER 1                  82203820
08CF 0 401D        AIREQ BSI    REQAI       REQUEST AI                          82203830
08D0 0 C0AB             LD      ACAI        LOAD AREA CODE & MOD                82203840
08D1 0 E84D             OR      CONTL       OR CONTROL FUNTION                  82203850
08D2 0 D046             STO     AIBST&1     STORE IN IOCC WORD                  82203860
08D3 0 E84A             OR      SDSW        OR SENSE FUNTION                    82203870
08D4 0 D046             STO     RDDSW&1     STO IN READ DSW IOCC                82203880
08D5 0 E88D             OR      AONE        OR BIT 15                           82203890
08D6 0 D0E6             STO     CKDSW&1     STO IN RESET DSW IOCC               82203900
08D7 1 C400 0822        LD   L  AIERS         ****                              82203910
08D9 0 100E             SLA     14                                      *       82203920
08DA 0 180E             SRA     14                                      *       82203930
08DB 0 B045             CMP     AIB14                                   *       82203940
08DC 0 7003             MDX     AIRG        RESOLUTION ADJUST           *       82203950
08DD 0 7004             MDX     AIRL          SEQUENCE                  *       82203960
08DE 0 1002             SLA     2                                       *       82203970
08DF 0 7003             MDX     AIRDD       CAN BE EITHER               *       82203980
08E0 0 1010        AIRG  SLA    16            14 BIT                    *       82203990
08E1 0 7001             MDX     AIRDD         11 BIT                    *       82204000
08E2 0 C040        AIRL  LD     AIB11         08 BIT                    *       82204010
08E3 0 E898        AIRDD OR     ACAI        OR AREA CODE                *       82204020
08E4 0 E840             OR      IRD         OR READ FUNTION             *       82204030
08E5 1 7400 0833        MDX  L  AIXSS,0     CHECK FOR EXT SYNC          *       82204040
08E7 0 E83A             OR      AIB08       OR EXT SYNC BIT             *       82204050
08E8 0 D034             STO     AIIRD&1     SET IN IOCC                 *       82204060
08E9 0 C03C             LD      AIERS       LOAD SETUP ERROR SW                 82204070
08EA 1 4C20 0985        BSC  L  ERMPX,Z     BRANCH IF ON                        82204080
                                                                                82204090
```

6186

```
08EC 0 700E                   MDX      AIRAC&1
                        *
                        *
08ED 0 0000             REQAI DC       0                                  SE
08EE 0 C8D1             AIBSY LDD      RT01A      LOAD ROUTINE 1A
08EF 0 7058                   MDX      AIEXX      BRANCH TO EXIT
                        ******************************************
                        *              ** REQUEST AI **          *
08F0 2 4480 0131        AIJO  BSI  I   REQDV      GO REQUEST AI       *
08F2 1 08EE                   DC       AIBSY      ADDR OF BSY RTRN    *
08F3 1 0811                   DC       EDIT       ADDR OF AI DEV DEF  *
08F4 1 087C                   DC       ACAI       ADDR OF AC STORAGE  *
08F5 1 080A                   DC       TERM       ADDR OF TERMINATOR  *
                        *                                        *
                        ******************************************
08F6 1 4C?0 08ED              BSC  I   REQAI      EXIT ROUTINE            SX
                        *
                        *
08F8 0 C8C5             TMBSY LDD      RT01       LOAD ROUTINE 1
08F9 0 704E                   MDX      AIEXX      BRANCH TO EXIT
                        *
                        *
08FA 0 40F2             AIRAC BSI      REQAI      GO REQUEST AI
08FB 1 7401 0A46              MDX  L   AICYR,1    ADD 1 TO CYCLE CNTR
08FD 0 7029                   MDX      AIINP      BRANCH TO RT03
                        *
                        *
                        *              ** CHANGE SIGN SUBROUTINE **
                        *
                        *        THIS SUBROUTINE CHANGES THE SIGN
                        *        OF THE VALUE IN A&Q, AND RETURNS
                        *        WITH THE NEW VALUE IN A&Q. THE
                        *        VALUE CAN BE A ONE WORD VALUE IN
                        *        A BUT Q MUST # ZERO.
                        *
                        *
08FE 0 0000 0000        POSWK DEC      0          WORK AREA
0900 0 0000             MKPOS DC       0                                  SE
0901 0 D8FC                   STD      POSWK
0902 0 10A0                   SLT      32
0903 0 98FA                   SD       POSWK
0904 1 4C80 0900              BSC  I   MKPOS                              SX
                        *
                        *
                        *
                        *
                        *              CONTROL SEQUENCE NUMBER 2
                        *
                        *        THIS SEQUENCE SENSES AND RESETS
                        *        THE AI DSW. NONZERO DSW WILL OUT-
                        *        PUT AN ERROR. %E001¤
                        *
                        *
                        *
0906 0 6A1F             AIERL STX    2 AIERS      RESET ERROR SW
0907 0 0810             AISRT XIO      AIBST      RESET AI
0908 0 08B3                   XIO      CKDSW      CHECK DSW
0909 0 0810                   XIO      RDDSW      SENSE DSW
090A 1 4C18 0927              BSC  L   AIINP,&-   TO RT03 IF DSW # 0
090C 0 D00B                   STO      ERDSW      STORE DSW FOR PRINT
090D 1 4400 098F              BSI  L   AIERC
090F 0 E001                   AND      *&1        MID FOR DSW NOT RESET
                        ******************************************
                        *              ** RELEASE AI **          *
0910 2 4480 0132        ENDAI BSI  I   RELDV      GO TO RELEASE AI    *
0912 1 0811                   DC       EDIT       ADDR OF AI DEV DEF  *
0913 1 080A                   DC       TERM       ADDR OF TERMINATOR  *
                        ******************************************
```


6187

```
0914 2 4C80 012E              BSC  I   END        END PROGRAM EXECUTION
                        *
                        *
0916 0 C83F             AIINX LDD      RT03       LOAD ROUTINE 3
0917 0 7030                   MDX      AIEXX      BRANCH TO EXIT
                        *
                        *
0918 0 0000 0000        AIBST DEC      0          BLAST IOCC WORD
0918 0                  ERDSW EQU      AIBST      WORD SAVER
091A 0 0000 0000        RDDSW DEC      0          IOCC TO RD AI DSW
091C 1 0D20             AIIRD DC       AIDRT-2    IOCC TO INIATE READ
091D 0 0000                   DC       0
091E 0 0700             SDSW  DC       /0700      SENSE FUNTION
091F 0 0400             CONTL DC       /0400      CONTROL FUNTION
0920 0 0000             AITMS DC       0          TIMER SWITCH
0921 0 0002             AIB14 DC       /0002      BIT 14 CONSTANT
0922 0 0080             AIB08 DC       /0080      BIT 08 CONSTANT
0923 0 0010             AIB11 DC       /10        BIT 11 CONSTANT
0924 0 0000             TMSSW DC       0          TIME SWITCH
                        *
                        *              CONTROL SEQUENCE NUMBER 3
                        *
                        *        THIS SEQUENCE STARTS THE TIME
                        *        DELAY FOR RELAY AND LOST END
                        *        OF TABLE INTERRUPTS. IT ALSO
                        *        INIATES THE READ OPERATION.
                        *
                        *
0925 0 0600             IRD   DC       /0600
0926 0 0000             AIERS DC       0          ERROR SWITCH
                        *
0927 0 10A0             AIINP SLT      32         CLEAR A & Q
0928 1 C400 0804              LD   L   SW2        LD BIT SW WORD 2
092A 1 4C20 0CBA              BSC  L   AIDER,Z    GO TO ADD DATA
092C 1 C400 0803              LD   L   SW1        LD BIT SW WORD 1
092E 1 4420 0CA4              BSI  L   AIVED,Z    CO TO VERIFY DATA
0930 1 7400 085A              MDX  L   TIERS,0    TEST FOR TIMER ERROR
0932 0 7074                   MDX      LGTER      GO LOG TIMER ERROR
0933 0 C08E                   LD       AIRSY      LOAD RELAY SW
0934 1 4C18 093D              BSC  L   AIIZZ,-&   BR TO RD IF NOT RLY
0936 1 7400 0920              MDX  L   AITMS,0    SKIP IF TMR SW IS OFF
0938 0 700D                   MDX      AIINX      BRANCH TO EXIT
                        ******************************************
                        *              ** TIMER **               *
0939 1 4400 0C15              BSI  L   TIMER      GO TO TIMER         *
093B 0 0003                   DC       3          INTERRUPT COUNT     *
093C 1 0920                   DC       AITMS      ADDR OF TIME SWITCH*
                        ******************************************
093D 0 08DE             AIIZZ XIO      AIIRD      INITIATE READ
093E 1 7401 08BB              MDX  L   INTSW,1    TURN INTR SW ON
0940 1 7400 0833              MDX  L   AIXSS,0    CHECK FOR EXT SYNC
0942 0 700C                   MDX      XTSNC      BRANCH FOR EXT SYNC
                        ******************************************
                        *              ** TIMER CALL **          *
0943 1 4400 0C15              BSI  L   TIMER      GO TO TIMER         *
0945 0 0000             TMCNT DC       0          INTERRUPT COUNT     *
0946 1 0924                   DC       TMSSW      ADDR OF TIME SWITCH*
                        *                                        *
                        ******************************************
0947 0 C810             AIEXB LDD      RT04       LOAD ROUTINE 4
0948 1 DC00 0800        AIEXX STD  L   RID        STO RT ID & ADDR
094A 0 1090                   SLT      16         SHIFT ENTRY ADDR
094B 1 D400 0809              STO  L   MLSCF      STORE ENTRY ADDRESS
094D 2 4C80 012D        AIRTM BSC  I   START      RETURN TO MONITOR
                        *
                        *
094F 0 08CA             XTSNC XIO      RDDSW      READ DSW
0950 1 4C20 0943              BSC  L   TMCNT-2,Z  CHECK FOR BUSY
```

```
0952 1 7400 088B          MDX  L  INTSW,0     CHECK FOR INTER          82205460
0954 0 70FA               MDX     XTSNC       LOOP FOR BUSY            82205470
0955 0 70ED               MDX     TMCNT-2     EXIT IF INTER OFF        82205480
                     *                                                 82205490
                     *                                                 82205500
                     *              CONTROL SEQUENCE NUMBER 4          82205510
                     *                                                 82205520
                     *              THIS SEQUENCE IS ENTERED FROM      82205530
                     *              MONITOR AS LONG AS THE AI IS       82205540
                     *              BUSY. IT CHECKS FOR LOST END       82205550
                     *              OF TABLE INTERRUPTS AND PROPER     82205560
                     *              OPERATION OF THE BUSY BITS AND THE 82205570
                     *              BLAST INSTRUCTION. IT INITIATES    82205580
                     *              THE OUTPUT OF AN ERROR WHEN ONE IS 82205590
                     *              DETECTED. %E003, E007, E008¤       82205600
                     *                                                 82205610
                     *                                                 82205620
0956   0000               BSS  E  0                                    82205630
0956 0 0003          RT03 DC      3           RT 03 - INPUT RT         82205640
0957 1 0927               DC      AIINP       ENTRY ADDRESS            82205650
0958 0 0004          RT04 DC      4           RT 04 - INTER/BSY CK     82205660
0959 1 095A               DC      AIENB       ENTRY B ADDRESS          82205670
                     *                                                 82205680
095A 0 08BF          AIENB XIO    RDDSW       READ DSW                 82205690
095B 0 D0BE               STO     RDDSW       STORE BSY BITS           82205700
095C 1 7400 088B          MDX  L  INTSW,0     CHECK FOR INTERRUPT      82205710
095E 0 701E               MDX     AICKT       GO CHECK TIME            82205720
095F 0 E02E          AICKC AND    BSYBT       BUSY BITS 8 & 9          82205730
0960 1 4C18 0968          BSC  L  AIENX,&-    GO EVALUATE IF BSY OFF   82205740
0962 1 7400 0924          MDX  L  TMSSW,0     CHECK FOR TIMEOUT        82205750
0964 0 70E2               MDX     AIEXB       BRANCH TO EXIT           82205760
0965 0 D0B2               STO     ERDSW       STORE BITS FOR PRINT     82205770
0966 0 4028               BSI     AIERC       GO LOG ERROR             82205780
0967 0 E007               AND     *&7         MID FOR BSY ON ERROR     82205790
0968 1 C400 0802     AIENX LD     L  SWO                               82205800
096A 0 1009               SLA     9                                    82205810
096B 1 4C28 0980          BSC  L  AIEVL,&Z    BYPASS BLAST AI          82205820
096D 0 08AE               XIO     AIIRD       INITIATE READ            82205830
096E 0 4000               BSI     AICKB       PREVENT INTERRUPT        82205840
                     *                                                 82205850
096F 0 0000          AICKB DC     0                                    82205860
0970 0 08A9          BLTRP XIO    RDDSW       SENSE DSW                82205870
0971 1 4418 096F          BSI  L  AICKB,&-    BRANCH IF ZERO           82205880
0973 0 08A4               XIO     AIBST       RESET AI                 82205890
0974 1 0C00 088C          XIO  L  CKDSW       RESET DSW                82205900
0976 0 08A2               XIO     RDDSW       READ DSW                 82205910
0977 0 481F               BSC     &-          ERROR IF NOT ZERO        82205920
0978 0 7037          AIEXT MDX    AIEVL       GO TO EVALUATE           82205930
0979 0 D09E               STO     ERDSW       SAVE ERROR DSW           82205940
097A 0 4014               BSI     AIERC       GO LOG ERROR             82205950
097B 0 E008               AND     *&8         MID FOR BLAST FAILING    82205960
097C 0 70FB               MDX     AIEXT       BRANCH TO EXIT           82205970
                     *                                                 82205980
                     *                                                 82205990
                     *                                                 82206000
097D 1 7400 0924     AICKT MDX    L  TMSSW,0     CHECK FOR TIMEOUT     82206010
097F 0 70C7               MDX     AIEXB       BRANCH TO EXIT           82206020
0980 0 D097               STO     ERDSW       STORE FOR PRINT          82206030
0981 0 400D               BSI     AIERC       GO LOG ERROR             82206040
0982 0 E003               AND     *&3         MID FOR LOST EOT ERROR   82206050
0983 0 C096               LD      RDDSW       LOAD BUSY BITS           82206060
0984 0 70DA               MDX     AICKC                                82206070
                     *                                                 82206080
                     *              SETUP ERROR CALL                   82206090
                     *                                                 82206100
                     *              SETUP ERROR IS LOGGED BY THIS CALL.82206110
                     *              AFTER LOGGING CONTROL IS TRANSFERED82206120
                     *              TO THE DATA ENTRY ROUTINE.         82206130
```



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                     *                                                 82206140
                     *                                                 82206150
                     ***************************************************82206160
                     *                  ** LOG CALL **                 *82206170
0985 1 4400 0C42     ERMPX BSI  L  LOGCL     GO LOG ERROR             *82206180
0987 0 0002               DC     2           WORD COUNT               *82206190
0988 0 0000               DC     0           HEX-DEC %HEX¤            *82206200
0989 1 0CBA               DC     AIDER       RTRN.ADDR.               * $82206210
098A 0 E050               DC     /E050       MSG.I.D.                 * $82206220
098B 0 2000               DC     /2000       BYPASS BIT               *82206230
098C 1 0828               DC     AIIAT       ADDR OF 1ST MPX ADD*     82206240
098D 1 0816               DC     AIMPX       ADDR OF 1ST EVL ADD*     82206250
                     *                                               * 82206260
                     ***************************************************82206270
098E 0 00C0          BSYBT DC     /00C0       BUSY BITS 8 & 9          82206280
                     *                                                 82206290
                     *                                                 82206300
                     *                                                 82206310
                     *            ** ERROR LOG ROUTINE **              82206320
                     *                                                 82206330
                     *            THIS ROUTINE IS ENTERED WHEN EVER    82206340
                     *            AN AI ERROR IS DETECTED. ALL ERRORS  82206350
                     *            WHICH OCCUR DURING MAINLINE          82206360
                     *            OPERATION HAVE AN UNIQUE ID NUMBER,  82206370
                     *            AND EACH ONE IS OUTPUTTED UNLESS     82206380
                     *            BYPASSED BY BIT 11 ON IN SWO.        82206390
                     *            ERROR DETECTED IN INTERRUPT WILL     82206400
                     *            BE COUNTED AND THE INFORMATION FOR   82206410
                     *            THE LAST ONE DETECTED WILL BE OUT-   82206420
                     *            PUTTED AFTER RETURN TO MAINLINE.     82206430
                     *            THE @AND@ FOLLOWING THE BSI TO       82206440
                     *            AIERC IS THE MESSAGE ID FOR THAT     82206450
                     *            CALL AND IS EXECUTED UPON RETURN     82206460
                     *            FROM THE ERROR CALL.                 82206470
                     *                                                 82206480
                     *                                                 82206490
098F 0 0000          AIERC DC     0                                SE 82206500
0990 1 C480 098F          LD   I  AIERC       LOAD MID                 82206510
0992 0 E813               OR      H0040                              $ 82206520
0993 0 D006               STO     ERMID       STO IN ERROR CALL        82206530
                     ***************************************************82206540
                     *                ** ERROR CALL **                 *82206550
0994 1 4400 0C50          BSI  L  ERRCL       GO TO ERR CALL SBRT*     82206560
0996 1 0906               DC      AIERL       LOOP ERROR ENTRY   *     82206570
0997 0 0005               DC      5           WORD COUNT         *     82206580
0998 0 0000               DC      0           HEX-DEC SW %HEX¤   *     82206590
0999 1 09A1               DC      ERCAI       RTRN.ADDR.         *   $ 82206600
099A 0 0000          ERMID DC     0           MESSAGE ID         *     82206610
099B 0 1080               DC      /1080       BYPASS BITS        *     82206620
099C 1 098F               DC      AIERC       ADDR OF ERROR ID   *     82206630
099D 1 0918               DC      ERDSW       ADDR OF DSW        *     82206640
099E 1 08BC               DC      CKDSW       INTR ERROR DSW ADDR*     82206650
099F 1 0926               DC      AIERS       ERROR SW           *     82206660
09A0 1 0A46               DC      AICYR       CYCLE COUNTER      *     82206670
                     ***************************************************82206680
09A1 0 6A84          ERCAI STX    2 AIERS     RESET ERROR SW           82206690
09A2 1 6E00 08BC          STX    L2 CKDSW     RESET ERROR DSW          82206700
09A4 1 4C80 098F          BSC  I  AIERC       EXIT ROUTINE           SX82206710
09A6 0 C040          H0040 DC     /0040       CONSTANT                 $82206720
                     *                                                 82206730
                     *                                                 82206740
                     *              TIMER DSW ERROR CALL               82206750
                     *                                                 82206760
                     *              TIMER DSW ERRORS ARE LOGGED FROM   82206770
                     *              THIS CALL. AFTER LOGGING THE PROGRAM82206780
                     *              IS ENDED AND CONTROL RETURNED TO   82206790
                     *              MONITOR. %C000¤                    82206800
                     *                                                 82206810
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6190


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                       *                                                        82206820
                       *********************************************            82206830
                       *                ** LOG CALL **              *           82206840
09A7 1 4400 0C42       LGTER BSI  L  LOGCL      GO LOG ERROR         *          82206850
09A9 0 0002                  DC      2          WORD COUNT           *          82206860
09AA 0 0000                  DC      0          HEX-DEC SW %HEX¤     *          82206870
09AB 1 0910                  DC      ENDAI      RTRN.ADDR.           *        $ 82206880
09AC 0 C040                  DC      /C040      MSG.I.D.             *        $ 82206890
09AD 0 4004                  DC      /4004      BYPASS BITS          *          82206900
09AE 1 085B                  DC      TIDSW      ADDR OF DSW          *          82206910
09AF 1 085A                  DC      TIERS      ADDR OF ERROR SW     *          82206920
                       *********************************************            82206930
                       *                                                        82206940
                       *                                                        82206950
                       *          DATA EVALUATION SEQUENCE                      82206960
                       *                                                        82206970
                       *          THIS SEQUENCE IS ENTERED AFTER EACH           82206980
                       *          CYCLE TO EVALUATE, SORT AND SAVE              82206990
                       *          THE INPUT DATA FOR THE CALCULATIONS.          82207000
                       *          DATA WHICH IS NOT WITHIN THE LIMITS           82207010
                       *          TO BE SAVED FOR CALCULATIONS IS               82207020
                       *          OUTPUTTED FOR IMMEDIATE OBSERVATION.          82207030
                       *          THIS OUTPUT MESSAGE CAN BE OMITTED            82207040
                       *          BY SETTING BIT 12 OF BITSW WORD 0             82207050
                       *          ON.                                           82207060
                       *                                                        82207070
                       *                                                        82207080
098F 0                 AIWKJ EQU     AIERC      WORD SAVER                      82207090
                       *                                                        82207100
                       *                                                        82207110
09B0 1 7400 0926       AIEVL MDX  L  AIERS,0    TEST ERROR SW                   82207120
09B2 0 40DC                  BSI     AIERC      GO LOG ERROR                    82207130
09B3 0 E000                  AND     *&0        MID FOR INTR ERROR              82207140
                       *********************************************            82207150
                       *              ** RELEASE AI **              *           82207160
09B4 2 4480 0132             BSI  I  RELDV      GO TO RELEASE AI     *          82207170
09B6 1 0811                  DC      EDIT       ADDR OF AI DEV DEF   *          82207180
09B7 1 080A                  DC      TERM       ADDR OF TERMINATOR   *          82207190
                       *                                            *           82207200
                       *********************************************            82207210
C9B8 0 6100                  LDX   1 0                                          82207220
09B9 1 C400 0814       AIEV1 LD   L  AIMOD      LD ADC MOD SWITCH               82207230
09BB 0 1090                  SLT     16         SET CARRY ZERO Q                82207240
09BC 1 C560 0DD4             LD   I1 AIDTA      LD VALUE READ                   82207250
09BE 1 4C04 0A00             BSC  L  AIOVL,E    BR IF OVERLOAD                  82207260
09C0 1 4402 0900             BSI  L  MKPOS,C    BR IF CARRY ON                  82207270
09C2 1 D560 0DD4             STO  I1 AIDTA      RESTORE NEW VALUE               82207280
09C4 0 1881                  SRT     1                                          82207290
09C5 0 D0C9                  STO     AIWKJ      SAVE VALUE READ                 82207300
09C6 0 1890                  SRT     16         SHIFT RDNG TO Q                 82207310
09C7 1 8D80 0CEE             AD   I1 AISUM      TO BE ADDED TO SUM              82207320
09C9 1 DD80 0CEE             STD  I1 AISUM      TOTAL OF GOOD RDGNS             82207330
09CB 1 C500 0DD9             LD   L1 AIGRD      ****                            82207340
09CD 0 807C                  A       AIONE      ADD 1 TO GRDING CTR*            82207350
09CE 1 D500 0DD9             STO  L1 AIGRD      ****                            82207360
09D0 0 1040                  SLT     32         CLEAR A & Q                     82207370
09D1 0 C08D                  LD      AIWKJ      LD VALUE READ                   82207380
09D2 1 9500 081C             S    L1 AIPRC      SUBT PREC READING               82207390
09D4 0 D029                  STO     MDY04&1    SAVE DIFFERENCE                 82207400
09D5 1 4428 0900             BSI  L  MKPOS,&Z   GO TO MAKE POSITIVE             82207410
09D7 1 9400 0817             S    L  FTFOR      SUBT TABLE LIMIT                82207420
09D9 1 4C08 09F9             BSC  L  AICNC,&    BR IF WITHIN LIMIT              82207430
09DB 1 C500 0DDE             LD   L1 AIOTR      LD OUT OF TABLE CNTR            82207440
09DD 0 806C                  A       AIONE      ADD 1 TO OTC                    82207450
09DE 1 D500 0DDE             STO  L1 AIOTR      SET OTC # OTC&1                 82207460
09E0 1 C500 0816             LD   L1 AIMPX                                      82207470
09E2 0 4075                  BSI     AIMPC                                      82207480
09E3 1 C500 081C             LD   L1 AIPRC                                      82207490
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6191


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09E5 0 D06F                  STO     AIWKH&1    SAVE PREC RDNG                  82207500
09E6 1 C500 0823             LD   L1 RANGE                                      82207510
09E8 0 D06F                  STO     AIWKE      SAVE FOR LOG                    82207520
09E9 0 C0A5                  LD      AIWKJ      LD VALUE READ                   82207530
09EA 1 4400 0B98             BSI  L  AIDCN      GO TO DEC CNVRT RTN             82207540
                       *********************************************            82207550
                       *                ** LOG CALL **              *           82207560
09EC 1 4400 0C42             BSI  L  LOGCL      GO TO LOG CALL SBRT*            82207570
09EE 0 0006                  DC      6          WORD COUNT           *          82207580
09EF 0 1001            AIHXS DC      /1001      HEX-DEC SW %DEC¤     *          82207590
09F0 1 0A05                  DC      AIZX1      RTRN.ADDR.           *        $ 82207600
09F1 0 A041                  DC      /A041      MSG.I.D.             *        $ 82207610
09F2 0 0804                  DC      /0804      BYPASS BITS          *          82207620
09F3 1 0A54                  DC      AIWKH      MPX ADDRESS          *          82207630
09F4 1 0A55                  DC      AIWKH&1    PREC VALUE           *          82207640
09F5 1 098F                  DC      AIWKJ      VALUE READ %DEC¤     *          82207650
09F6 1 0BB6                  DC      AIWKL      VALUE READ %VOLT¤    *          82207660
09F7 1 0BB7                  DC      AIWKL&1    VALUE READ %VOLT¤    *          82207670
09F8 1 0A46                  DC      AICYR      CYCLE COUNTER        *          82207680
                       *********************************************            82207690
                       *                                                        82207700
09F9 0 C004            AICNC LD      MDY04&1    LOAD DIFFERENCE                 82207710
09FA 1 8500 0CF3             A    L1 AISPT      ADD SPT ADDR TO DIFF            82207720
09FC 0 0001                  STO     MDY04&1    SET ADDR OF RD CNT   PRO1       82207730
09FD 0 7401 0000       MDY04 MDX  L  0,1        SET RD CNT#RD CNT&1  PMO1       82207740
09FF 0 7005                  MDX     AIZX1      BRANCH                          82207750
0A00 1 C500 0DE3       AIOVL LD   L1 AIOVC      ****                            82207760
0A02 0 8047                  A       AIONE      ADD 1 TO OVLD CNTR *            82207770
0A03 1 D500 0DE3             STO  L1 AIOVC      ****                            82207780
0A05 0 7101            AIZX1 MDX   1 1                                          82207790
0A06 0 6949                  STX   1 AIWKF      STO X1 IN WK AREA               82207800
0A07 0 C048                  LD      AIWKF      LD WK AREA                      82207810
0A08 1 F400 0B93             EOR  L  AIWC1      EOR NUMBER OF POINTS            82207820
0A0A 1 4C20 09B9             BSC  L  AIEV1,Z    BR TO CK NEXT PT                82207830
0A0C 1 C400 0821             LD   L  AIAPR      LD AUTO PREC SW                 82207840
0A0E 1 4C18 0A1C             BSC  L  AIOA4,&-   BR IF SW # OFF                  82207850
0A10 1 6780 0B93             LDX  I3 AIWC1      COMPARE #                       82207860
0A12 1 C780 0DD3       AISPR LD   I3 AIDTA-1    LOAD VALUE READ                 82207870
0A14 0 1881                  SRT     1                                          82207880
0A15 1 D700 081B             STO  L3 AIPRC-1    SET INTO PREC TBL               82207890
0A17 0 73FF                  MDX   3 -1         SUBT 1 FROM INDEX               82207900
0A18 0 70F9                  MDX     AISPR      BRANCH                          82207910
0A19 0 1010                  SLA     16                                         82207920
0A1A 1 D400 0821             STO  L  AIAPR      ZERO AUTO PREC SW               82207930
0A1C 0 C029            AIOA4 LD      AICYR      LD CYCLE COUNT                  82207940
0A1D 1 F400 0815             EOR  L  AICYC                                      82207950
0A1F 1 4C20 08FA       AIOA5 BSC  L  AIRAC,Z    BRANCH IF MORE CYCLES           82207960
                       *                                                        82207970
                       *                                                        82207980
                       *          PERCENT CONSTANT SETUP                        82207990
                       *               SEQUENCE                                 82208000
                       *                                                        82208010
                       *          CONSTANT # 99.7 PCENT OF CYCLES               82208020
                       *                                                        82208030
0A21 0 6100                  LDX   1 0          RESET INDEX # 0                 82208040
0A22 0 C023                  LD      AICYR      LD NO OF CYCLES                 82208050
0A23 0 A032                  M       C0997      MULT BY 99.7 PERCENT            82208060
0A24 0 A822                  D       A1000                                      82208070
0A25 0 D025                  STO     P9970      STORE CONSTANT                  82208080
0A26 0 1090                  SLT     16         SHIFT REM TO A                  82208090
0A27 1 4C18 0A2B             BSC  L  *&2,&-     CHECK FOR FRACTION              82208100
0A29 1 7401 0A4B             MDX  L  P9970,1    ADD 1 FOR FRACTION              82208110
                       *                                                        82208120
                       *                                                        82208130
                       *          DATA CALCULATION SEQUENCE                     82208140
                       *                                                        82208150
                       *          THIS SEQUENCE IS ENTERED WHEN THE             82208160
                       *          SPECIFIED NUMBER OF CYCLES IS                 82208170
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                        *          COMPLETED. THE CALCULATIONS PERFORMED 82208180
                        *          IN THIS SEQUENCE ARE. MEAN, VOLTAGE   82208190
                        *          MEAN, ACCURACY PERCENT, AND           82208200
                        *          REPEATABILITY PERCENT.                82208210
                        *                                                82208220
                        *                                                82208230
0A2B 1 C500 0816    AIYP1 LD   L1 AIMPX      LD MPX ADDR                82208240
0A2D 0 402A             BSI    AIMPC                                     82208250
0A2E 1 C500 0823        LD   L1 RANGE      LOAD RANGE                    82208260
0A30 0 D027             STO    AIWKE       SAVE RANGE                    82208270
0A31 1 C500 081C        LD   L1 AIPRC                                    82208280
0A33 1 4400 0898        BSI  L  AIDCN      GO TO DEC CNVRT RT            82208290
0A35 1 C500 081C        LD   L1 AIPRC                                    82208300
0A37 0 A011             M       TEN                                      82208310
0A38 0 D819             STD     AIWKG      SAVE PREC READING             82208320
                        ********************************************     82208330
                        *              ** LOG CALL **              *     82208340
0A39 1 4400 0C42        BSI  L  LOGCL      GO TO LOG CALL SBRT         *  82208350
0A3B 0 0006             DC      6          WORD COUNT                  *  82208360
0A3C 0 2801             DC      /2801      HEX-DEC SW %DEC¤            *  82208370
0A3D 1 0A64             DC      AI3        RETURN ADDR                 *  82208380
0A3E 0 0001             DC      /0001      MESSAGE ID                  *  82208390
0A3F 0 0204             DC      /0204      BYPASS BITS                 *  82208400
0A40 1 0A54             DC      AIWKH      POINT NO                    *  82208410
0A41 1 0A58             DC      AIWKE      RANGE                       *  82208420
0A42 1 0A52             DC      AIWKG      PRECISION READING           *  82208430
0A43 1 0A53             DC      AIWKG&1    PRECISION READING           *  82208440
0A44 1 0BB6             DC      AIWKL      DECIMAL VALUE               *  82208450
0A45 1 0BB7             DC      AIWKL&1    DECIMAL VALUE               *  82208460
                        ********************************************     82208470
                        *                                                82208480
                        *                                                82208490
0A46 0 0000         AICYR DC       0          CYCLE COUNTER              82208500
0A47 0 03E8         A1000 DC       1000       CONSTANT 1000              82208510
0A48 0 4000         AIRSC DC       /4000      CONSTANT FULL SCALE        82208520
0A49 0 000A         TEN   DC       10         CONSTANT TEN               82208530
0A4A 0 0001         AIONE DC       1          CONSTANT 1                 82208540
0A4B 0 0000         P9970 DC       0          99.70 PCENT VALUE          82208550
0A4C 0 0000 0000    VMEAN DEC      0          MEAN IN VOLTAGE            82208560
0A4E 0 0000 0000    MEAN  DEC      0          MEAN IN DIGITS             82208570
0A50 0 0000 0000    AIWKF DEC      0          WORK AREA - F              82208580
0A52 0 0000 0000    AIWKG DEC      0          WORK AREA - G              82208590
0A54 0 0000 0000    AIWKH DEC      0          WORK AREA - H              82208600
0A56 0 03E5         C0997 DC       997        CONSTANT 997               82208610
0A57 0 0005         FIVE  DC       5          CONSTANT FIVE              82208620
                        *                                                82208630
                        *                                                82208640
                        *          ** CONVERT MPX ADDR ROUTINE **        82208650
                        *                                                82208660
                        *          THIS ROUTINE CONVERTS THE HEX MPX     82208670
                        *          ADDR TO THE FORM TO BE OUTPUTTED      82208680
                        *          0 - 9999 # RLY ADDRESS                82208690
                        *          10000 - UP # SS ADDRESS               82208700
                        *          THIS IS USED ONLY IN THE OUTPUT       82208710
                        *          MESSAGE.                              82208720
                        *                                                82208730
                        *                                                82208740
                        *                                                82208750
                        *                                                82208760
0A58 0 0000         AIMPC DC       0                                     82208770
0A58 0              AIWKE EQU      AIMPC      WORD SAVER                 82208780
0A59 0 1003               SLA     3                                     82208790
0A5A 1 4C10 0A62          BSC  L  AIMP1,-                               82208800
0A5C 0 1001               SLA     1                                     82208810
0A5D 0 1804               SRA     4                                     82208820
0A5E 0 8064               A       TENTH                                 82208830
0A5F 0 D0F4               STO     AIWKH      SAVE POINT NO              82208840
0A60 1 4C80 0A58          BSC  I  AIMPC                          SX     82208850
0A62 0 1803         AIMP1 SRA     3
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0A63 0 70FB                MDX     AIMP1-3                               82208860
                        *                                                82208870
                        *                                                82208880
                        *          MEAN CALCULATION                      82208890
                        *            ALGORITHM                           82208900
                        *                                                82208910
                        *          SUM/GRD # R1 & N1                     82208920
                        *            N1 X 10 # N2                        82208930
                        *          R1 X 10/GRD # N3                      82208940
                        *          N2 & N3 # MEAN X 10                   82208950
                        *                                                82208960
0A64 1 CD80 0CEE    AI3.  LDD  I1 AISUM      SUM OF READINGS              82208970
0A66 1 AD00 0DD9          D    L1 AIGRD      / NO OF GOOD READINGS        82208980
0A68 0 D8EB               STD     AIWKH      # N1 & R1                    82208990
0A69 0 A00F               M       TEN        X 10                         82209000
0A6A 0 D8E3               STD     MEAN       # N2                        82209010
0A6B 0 C0E9               LD      AIWKH&1    R1                           82209020
0A6C 0 A00C               M       TEN        X 10                         82209030
0A6D 1 AD00 0DD9          D    L1 AIGRD      / GOOD READINGS # N3         82209040
0A6F 0 1890               SRT     16                                      82209050
0A70 0 88DD               AD      MEAN       & N2                         82209060
0A71 0 D8DC               STD     MEAN       # MEAN X 10                  82209070
                        *                                                82209080
                        *                                                82209090
                        *          VMEAN CALCULATION                     82209100
                        *            ALGORITHM                           82209110
                        *                                                82209120
                        *          SUM/GRD # N1 & R1                     82209130
                        *        RANGE X 10000/RSC # N2 & R2             82209140
                        *            N2 X 10 # N3                        82209150
                        *            N3 X N1 # N6                        82209160
                        *        N1 X R2/RSC # N4 & R3                   82209170
                        *            N4 X 10 # N7                        82209180
                        *        N2 X R1/GRD # N5 & R4                   82209190
                        *            N5 X 10 # N8                        82209200
                        *          R3 X 10/RSC # N9                      82209210
                        *          R4 X 10/GRD # N10                     82209220
                        *        N6 & N7 & N8 & N9 & N10 # VMEAN IN      82209230
                        *      TERMS OF INPUT RANGE %XXX.XXXXX¤          82209240
                        *                                                82209250
                        *                                                82209260
0A72 0 C0E5               LD      AIWKE      LOAD RANGE                   82209270
0A73 0 A04F               M       TENTH      X 10000                      82209280
0A74 0 A8D3               D       AIRSC      / FULL SCALE                 82209290
0A75 0 D8DA               STD     AIWKF      # N2 & R2                    82209300
0A76 0 A0D2               M       TEN        # N3                         82209310
0A77 0 1090               SLT     16                                      82209320
0A78 0 A0DB               M       AIWKH      X N1                         82209330
0A79 0 D8D8               STD     AIWKG      # N6                         82209340
0A7A 0 C0D9               LD      AIWKH      N1                           82209350
0A7B 0 A0D5               M       AIWKF&1    X R2                         82209360
0A7C 0 A8CB               D       AIRSC      / FULL SCALE                 82209370
0A7D 0 D8CE               STD     VMEAN      # N4 & R3                    82209380
0A7E 0 A0CA               M       TEN        # N7                         82209390
0A7F 0 88D2               AD      AIWKG      & N6                         82209400
0A80 0 D8D1               STD     AIWKG      # N6 & N7                    82209410
0A81 0 C0CE               LD      AIWKF      N2                           82209420
0A82 0 A0D2               M       AIWKH&1    X R1                         82209430
0A83 1 AD00 0DD9          D    L1 AIGRD      / NO OF GOOD READNGS         82209440
0A85 0 D8CA               STD     AIWKF      # N5 & R4                    82209450
0A86 0 A0C2               M       TEN        # N8                         82209460
0A87 0 88CA               AD      AIWKG      & N6 & N7                    82209470
0A88 0 D8C9               STD     AIWKG      # N6 & N7 & N8                82209480
0A89 0 C0C3               LD      VMEAN&1    R3                           82209490
0A8A 0 A0BE               M       TEN        X 10                         82209500
0A8B 0 A8BC               D       AIRSC      / FULL SCALE # N9            82209510
0A8C 0 1890               SRT     16                                      82209520
0A8D 0 88C4               AD      AIWKG      & N6 & N7 & N8               82209530
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0A8E 0 D8C3              STD     AIWKG     # N6 &N7 &N8 &N9          82209540
0A8F 0 C0C1              LD      AIWKF&1   R4                        82209550
0A90 0 A088              M       TEN       X 10                      82209560
0A91 1 AD00 0DD9         D    L1 AIGRD     / GOOD READNGS # N10      82209570
0A93 0 1890              SRT     16                                  82209580
0A94 0 88BD              AD      AIWKG     & N6 &N7 &N8 &N9          82209590
0A95 0 D8B6              STD     VMEAN     # MEAN IN VOLTS           82209600
0A96 0 C8B7              LDD     MEAN      LD MEAN VALUE X 10        82209610
0A97 0 D87C              STD     AIWKD     SAVE MEAN X 10            82209620
0A98 1 4428 0900         BSI  L  MKPOS,&Z  GO TO MAKE POS RT         82209630
0A9A 0 A88C              D       FIVE      DIVIDE BY FIVE            82209640
0A9B 0 80AE              A       AIONE     ADD ONE                   82209650
0A9C 0 1881              SRT     1         DIVIDE BY TWO             82209660
0A9D 0 D084              STO     AIWKG     SAVE RESULT RMEAN &       82209670
0A9E 0 C075              LD      AIWKD     LD MEAN X 10              82209680
0A9F 1 4C10 0AA6         BSC  L  AISRX,-   BR IF NOT NEGATIVE        82209690
0AA1 0 10A0              SLT     32        CLEAR A & Q               82209700
0AA2 0 C0AF              LD      AIWKG     LD RMEAN POSITIVE         82209710
0AA3 1 4400 0900         BSI  L  MKPOS     GO TO MK NEGATIVE         82209720
0AA5 0 D0AC              STO     AIWKG     SAVE RESULT RMEAN -       82209730
0AA6 0 C0AB       AISRX  LD      AIWKG     LD RMEAN                  82209740
0AA7 0 D074              STO     AIRAX     SET RMEAN FOR CALC        82209750
0AA8 1 9500 081C         S    L1 AIPRC     SUBT PREC READING         82209760
0AAA 0 4077              BSI     PCENT     BR TO PCENT ROUTINE       82209770
0AAB 0 C06E              LD      AIMCT     LD DEVIATION              82209780
0AAC 0 D066              STO     AIWKA&1   SAVE DEVIATION            82209790
0AAD 0 C067              LD      AIWKD&1   LD REPEATABILITY          82209800
0AAE 0 D062              STO     AIWKC     SAVE REPEATABILITY        82209810
0AAF 1 C500 081C         LD   L1 AIPRC     LD PREC READING           82209820
0AB1 0 D06A              STO     AIRAX     STO PREC READING          82209830
0AB2 0 A096              M       TEN                                 82209840
0AB3 0 D860              STD     AIWKD     STO PREC X 10 TO LOG      82209850
0AB4 0 1010              SLA     16                                  82209860
0AB5 0 406C              BSI     PCENT     BR TO PCENT ROUTINE       82209870
                  ********************************************     82209880
                  *          ** LOG CALL **                  *     82209890
0AB6 1 4400 0C42         BSI  L  LOGCL     GO TO LOG CALL SBRT*      82209900
0AB8 0 0006              DC      6         WORD COUNT          *     82209910
0AB9 0 2801              DC      /2801     HEX-DEC SW %DEC¤    *     82209920
0ABA 1 0AC4              DC      AI4       RETURN ADDR         *     82209930
0ABB 0 D001              DC      /D001     MESSAGE ID          *     82209940
0ABC 0 0204              DC      /0204     BYPASS BITS         *     82209950
0ABD 1 0B15              DC      AIWKD&1   ACCURACY             *     82209960
0ABE 1 0B11              DC      AIWKC     REPEATABILITY       *     82209970
0ABF 1 0A4E              DC      MEAN      MEAN IN DIGITS      *     82209980
0AC0 1 0A4F              DC      MEAN&1    MEAN IN DIGITS      *     82209990
0AC1 1 0A4C              DC      VMEAN     MEAN IN VOLTAGE     *     82210000
0AC2 1 0A4D              DC      VMEAN&1   MEAN IN VOLTAGE     *     82210010
0AC3 0 2710       TENTH  DC      10000     MUST BE ODD ADDR          82210020
0AC4 1 C500 0DE3  AI4    LD   L1 AIOVC                               82210030
0AC6 0 D04A              STO     AIWKC     SAVE OVERLOAD CNTR        82210040
0AC7 1 C500 0DDE         LD   L1 AIOTR                               82210050
0AC9 0 D04A              STO     AIWKD     SAVE OUT OF TBL CNTR      82210060
                  ********************************************     82210070
                  *          ** LOG CALL **                  *     82210080
0ACA 1 4400 0C42         BSI  L  LOGCL     GO TO LOG CALL SBRT*      82210090
0ACC 0 0006              DC      6         WORD COUNT          *     82210100
0ACD 0 0001              DC      /0001     HEX-DEC SW %DEC¤    *     82210110
0ACE 1 0AD7              DC      AI5       RETURN ADDR         *     82210120
0ACF 0 D001              DC      /D001     MESSAGE ID          *     82210130
0AD0 0 0204              DC      /0204     BYPASS BITS         *     82210140
0AD1 1 0B1A              DC      AIMCT     ACCURACY DEVIATION  *     82210150
0AD2 1 0B13              DC      AIWKA&1   REPEATABILITY DVTN  *     82210160
0AD3 1 0822              DC      AIFRS     RESOLUTION          *     82210170
0AD4 1 0815              DC      AICYC     CYCLES              *     82210180
0AD5 1 0B11              DC      AIWKC     OVERLOAD COUNTER    *     82210190
0AD6 1 0B14              DC      AIWKD     OUT OF TBL COUNTER  *     82210200
                  ********************************************     82210210
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0AD7 0 C044       AI5    LD      AIRAX     LD PREC READING           82210220
0AD8 0 803E              A       FTFOR     ADD  54                   82210230
0AD9 0 D040              STO     AIMCT     SET HIGH TBL VALUE        82210240
0ADA 0 7101              MDX     1 1       SET X1 # X1&1             82210250
0ADB 0 693F              STX     1 AITCN   SAVE X1 IN WK AREA        82210260
0ADC 0 616C              LDX     1 108     SET X1 # 108              82210270
0ADD 0 C500 0000  AIRTB  LD   L1 0         LD CNT FROM TBL      PM01 82210280
0ADF 1 4C18 0AF0         BSC  L  AINXT,-&  BR IF COUNT # 0           82210290
0AE1 0 D034              STO     AIWKB     SAVE COUNT                82210300
0AE2 0 C037              LD      AIMCT                               82210310
0AE3 1 4400 0B98         BSI  L  AIDCN     GO TO DEC CNVRT RT        82210320
                  ********************************************     82210330
                  *          ** LOG CALL **                  *     82210340
0AE5 1 4400 0C42         BSI  L  LOGCL     GO TO LOG CALL SBRT*      82210350
0AE7 0 0004              DC      4         WORD COUNT          *     82210360
0AE8 0 8001              DC      /8001     HEX-DEC SW %DEC¤    *     82210370
0AE9 1 0AF0              DC      AINXT     RETURN ADDR         *     82210380
0AEA 0 D001              DC      /D001     MESSAGE ID          *     82210390
0AEB 0 0604              DC      /0604     BYPASS BITS         *     82210400
0AEC 1 0BB6              DC      AIWKL     DECIMAL VALUE       *     82210410
0AED 1 0BB7              DC      AIWKL&1   DECIMAL VALUE       *     82210420
0AEE 1 0B1A              DC      AIMCT     VALUE               *     82210430
0AEF 1 0B16              DC      AIWKB     COUNT               *     82210440
                  ********************************************     82210450
0AF0 1 74FF 0B1A  AINXT  MDX  L  AIMCT,-1  SUBT 1 FROM VALUE         82210460
0AF2 0 1000              SLA     0         WILL SKIP THRU ZERO       82210470
0AF3 0 71FF              MDX     1 -1      SKIP IF X1 # 0            82210480
0AF4 0 70E8              MDX     AIRTB     BRANCH                    82210490
0AF5 1 6E00 0C90         STX     L2 LNCNT  RESET LINE CNTR           82210500
0AF7 1 6580 0B1B         LDX     i1 AITCN  RESTORE X1                82210510
0AF9 0 C021              LD      AITCN     LD INDEX CNT              82210520
0AFA 1 F400 0B93         EOR  L  AIWC1     EOR NUMBER OF POINTS      82210530
0AFC 1 4C20 0A2B         BSC  L  AIYP1,Z   BR TO CALC NEXT PNT       82210540
0AFE 1 C400 0804         LD   L  SW2       LOAD SW WORD 2            82210550
0B00 1 4C20 08FA         BSC  L  AIRAC,Z   INSURE DATA ENTRY         82210560
0B02 2 4C80 012E         BSC  I  END       EXIT TO MONITOR END       82210570
                  *                                                  82210580
                  *                                                  82210590
0B04 0 0000       AICLM  DC      0                              SE    82210600
0B05 0 9013              S       STRAD                               82210610
0B06 0 8015              A       AIRAX                               82210620
0B07 0 A070              M       AITEN                               82210630
0B08 0 980B              SD      AIWKD                               82210640
0B09 1 4428 0900         BSI  L  MKPOS,&Z                            82210650
0B0B 0 1090              SLT     16                                  82210660
0B0C 1 4C80 0B04         BSC  I  AICLM     EXIT                  SX    82210670
                  *                                                  82210680
                  *                                                  82210690
0B0E 0 7000       ACON1  MDX     *         INSTRUCTION CONSTANT      82210700
0B0F 0 701E       ACON2  MDX  X  HIINC-BRLOC-1   INSTR CONSTANT     82210710
0B10 0 7021       ACON3  MDX  X  LOINC-BRLOC-1   INSTR CONSTANT     82210720
0B11 0 0000       AIWKC  DC      0         WORK AREA - C             82210730
0B12 0 0000 0000  AIWKA  DEC     0         WORK AREA - A             82210740
0B14 0 0000 0000  AIWKD  DEC     0         WORK AREA - D             82210750
0B16 0 0000       AIWKB  DC      0         WORK AREA - B             82210760
0B17 0 0036       FTFOR  DC      54        CONSTANT 54               82210770
0B18 0 006C       AI108  DC      108       CONSTANT 108              82210780
0B19 0 0000       STRAD  DC      0         INITIAL ADDR              82210790
0B1A 0 0000       AIMCT  DC      0         POSITIVE M CNTR           82210800
0B1B 0 0000       AITCN  DC      0         COUNTER                   82210810
0B1C 0 0000       AIRAX  DC      0         MEAN OR PREC RING         82210820
                  *                                                  82210830
0B1D 0 0000       AITLM  DC      0                                   82210840
0B1E 0 C8A4              LDD     TENTH     LD FLAG CONSTANT          82210850
0B1F 0 D8F4              STD     AIWKD                               82210860
0B20 0 D0F9              STO     AIMCT     SET 10000 DEVIATION       82210870
0B21 0 706F              MDX     AIPLX     BRANCH                    82210880
                  *                                                  82210890
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6196

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                      *                                                    82210900
                      *               PERCENT SUBROUTINE                   82210910
                      *                                                    82210920
                      *         THIS SUBROUTINE PERFORMS THE TABLE         82210930
                      *         SEARCHES AND CALCULATES THE PERCENT        82210940
                      *         ACCURACY AND PERCENT REPEATABILITY.        82210950
                      *                                                    82210960
                      *                                                    82210970
                      *                                                    82210980
0B22 0 0000           PCENT DC        0                              SE    82210990
0B23 1 8500 0CF3            A     L1  AISPT      SET UP STARTING           82211000
0B25 0 D0F3                 STO       STRAD       SAVE INITIAL ADDR        82211010
0B26 0 D0EF                 STO       AIWKB       SAVE INITIAL ADDR        82211020
0B27 1 D400 0BB4            STO   L   AIWKI                                82211030
0B29 0 10A0                 SLT       32          INITIAL:ZE COUNTERS      82211040
0B2A 0 D8EF                 STD       AIMCT                                82211050
0B2B 1 C500 0CF3            LD    L1  AISPT      FIND AND STORE            82211060
0B2D 0 90E9                 S         FTFOR       HI AND LO ADDR           82211070
0B2E 0 D0AF                 STO       AIRTB&1     LIMITS OF TABLE   PR01   82211080
0B2F 0 80E8                 A         AI108        IN USE                  82211090
0B30 0 D065                 STO       PADDR                                82211100
0B31 0 C0DC                 LD        ACON1      INITALIZE BRANCH          82211110
0B32 0 D010                 STO       BRLOC                         PR06   82211120
0B33 0 6200                 LDX     2 0           INITIALIZE X2 # 0        82211130
0B34 0 4033           AICHG BSI       WAWTC       GO TO CHECK LMT X2 # 0   82211140
0B35 1 C480 0B16            LD    I   AIWKB       LD COUNT FROM TABLE      82211150
0B37 0 80E3                 A         AITCN       ADD TO CNT SUM           82211160
0B38 0 D0E2                 STO       AITCN       SAVE TOTAL               82211170
0B39 1 9400 0A4B            S     L   P9970                                82211180
0B3B 1 4C10 0B79            BSC   L   AIMBR,-     BR IF TOTAL # 99.7 PCNT  82211190
0B3D 1 C480 0B16            LD    I   AIWKB                                82211200
0B3F 1 4C08 0B43            BSC   L   BRLOC,&     BR IF CNT # 0            82211210
0B41 0 C0D4                 LD        AIWKB                                82211220
0B42 0 D071                 STO       AIWKI                                82211230
0B43 0 7000           BRLOC MDX       *           MDX WILL CHANGE  NOP-BR  82211240
0B44 1 7401 0B1A            MDX   L   AIMCT,1     ADD 1 TO INC WORD        82211250
0B46 0 C0D3                 LD        AIMCT                                82211260
0B47 0 4804                 BSC       E           SKIP IF INC WD EVEN      82211270
0B48 0 7003                 MDX       MDY05       BRANCH                   82211280
0B49 0 C0CC                 LD        AIWKB                                82211290
0B4A 0 80CF                 A         AIMCT       ADD INC WD TO ADDR       82211300
0B4B 0 7002                 MDX       MDY06       BRANCH                   82211310
                      *                                                    82211320
0B4C 0 C0C9           MDY05 LD        AIWKB                                82211330
0B4D 0 90CC                 S         AIMCT       SUBT INC WD FROM ADDR    82211340
0B4E 0 D0C7           MDY06 STO       AIWKB       SET NEXT TBL WORD ADDR   82211350
0B4F 0 6201                 LDX     2 1                                    82211360
0B50 0 4017                 BSI       WAWTC       GO CHECK LMT  X2 # 1     82211370
0B51 0 70E1                 MDX       AICHG-1     BRANCH                   82211380
                      *                                                    82211390
0B52 0 0000           HILMT DC        0                              SE    82211400
0B53 0 C0BB                 LD        ACON2                                82211410
0B54 0 D0EE                 STO       BRLOC       SET BR CONSTANT          82211420
0B55 0 C0C0                 LD        AIWKB                                82211430
0B56 0 90C3                 S         AIMCT                                82211440
0B57 0 D0BE                 STO       AIWKB       SET NEXT TBL WD ADDR     82211450
0B58 1 4C80 0B52            BSC   I   HILMT       EXIT                   SX    82211460
                      *                                                    82211470
0B5A 0 0000           LOLMT DC        0                              SE    82211480
0B5B 0 C0B4                 LD        ACON3                                82211490
0B5C 0 D0E6                 STO       BRLOC       SET BR CONSTANT          82211500
0B5D 0 C0B8                 LD        AIWKB                                82211510
0B5E 0 80BB                 A         AIMCT                                82211520
0B5F 0 D0B6                 STO       AIWKB       SET NEXT TBL WD ADDR     82211530
0B60 1 4C80 0B5A            BSC   I   LOLMT       EXIT                   SX    82211540
                      *                                                    82211550
0B62 1 74FF 0B16      HIINC MDX   L   AIWKB,-1    INC HIGH TBL ADDR        82211560
0B64 0 70CE                 MDX       AICHG-1     BRANCH                   82211570
```


6197

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                      *                                                    82211580
0B65 1 7401 0B16      LOINC MDX   L   AIWKB,1     INC LOW TBL ADDR         82211590
0B67 0 70CB                 MDX       AICHG-1     BRANCH                   82211600
                      *                                                    82211610
                      *         WORKING ADDRESS WITHIN TBL CK              82211620
                      *                                                    82211630
                      *                                                    82211640
0B68 0 0000           WAWTC DC        0                              SE    82211650
0B69 0 C0AC                 LD        AIWKB                                82211660
0B6A 0 902B                 S         PADDR                                82211670
0B6B 1 4680 0B74            BSI   I2  AIHIL,-Z    BR IF HIGH LMT           82211680
0B6D 0 C0A8                 LD        AIWKB                                82211690
0B6E 1 9400 0ADE            S     L   AIRTB&1                              82211700
0B70 1 46A8 0B76            BSI   I2  AILOL,&Z    BR IF LOW LMT            82211710
0B72 1 4C80 0B68            BSC   I   WAWTC       EXIT                   SX    82211720
                      *                                                    82211730
0B74 1 0B1D           AIHIL DC        AITLM       BR VECTOR                82211740
0B75 1 0B52                 DC        HILMT       BR VECTOR                82211750
0B76 1 0B1D           AILOL DC        AITLM       BR VECTOR                82211760
0B77 1 0B5A                 DC        LOLMT       BR VECTOR                82211770
0B78 0 000A           AITEN DC        10          CONSTANT 10              82211780
                      *                                                    82211790
                      *                                                    82211800
                      *                                                    82211810
                      *                                                    82211820
                      *              PCENT CALCULATION                     82211830
                      *                                                    82211840
                      *         MEAN X 10 OR PREC X 10 IN WKD              82211850
                      *             RAX # PREC VALUE                       82211860
                      *             WKB # END TBL ADDR                     82211870
                      *             MDY # STRTNG TBL ADDR                  82211880
                      *                                                    82211890
                      *                 ALGORITHM                          82211900
                      *                                                    82211910
                      *          WKB - MDY & RAX - WKD X 10 # N 5          82211920
                      *             N5 # ABSOLUTE DEVIATION                82211930
                      *             N5 X 100 / RSC # N6 & R6               82211940
                      *             R6 X 1000 / RSC # N7                   82211950
                      *             N6 X 1000 # N8                         82211960
                      *             N7 & N8 + XX.XXXX PCENT                82211970
                      *                                                    82211980
0B79 0 C09C           AIMBR LD        AIWKB       LD END TBL ADDR          82211990
0B7A 0 4089                 BSI       AICLM       GO GET DEVIATION         82212000
0B7B 0 D09E                 STO       AIMCT       # N5                     82212010
0B7C 0 C037                 LD        AIWKI                                82212020
0B7D 0 4086                 BSI       AICLM       GO GET DEVIATION         82212030
0B7E 0 D036                 STO       AIWKI&1                              82212040
0B7F 0 909A                 S         AIMCT                                82212050
0B80 1 4C28 0B84            BSC   L   DEVIA,&Z    BR IF 1ST DEV GREAT      82212060
0B82 0 C032                 LD        AIWKI&1                              82212070
0B83 0 D096                 STO       AIMCT       # N5                     82212080
0B84 0 C095           DEVIA LD        AIMCT       N5                       82212090
0B85 0 A00E                 M         HUND        N5 X 100                 82212100
0B86 0 A831                 D         AISRC       / FULL SCALE             82212110
0B87 0 D08A                 STO       AIWKA       # N6 & R6                82212120
0B88 0 1090                 SLT       16                                   82212130
0B89 0 A00B                 M         THOUS       R6 X 1000                82212140
0B8A 0 A82D                 D         AISRC       / FULL SCALE # N7        82212150
0B8B 0 1890                 SRT       16                                   82212160
0B8C 0 D887                 STD       AIWKD       # N7                     82212170
0B8D 0 C084                 LD        AIWKA       # N6                     82212180
0B8E 0 A006                 M         THOUS       N6 & 1000 # N8           82212190
0B8F 0 8884                 AD        AIWKD       N7 & N8 # REPEAT OR      82212200
0B90 0 D883                 STD       AIWKD            ACCURACY            82212210
0B91 1 4C80 0B22      AIPLX BSC   I   PCENT       BR OUT OF SUBROUTINE SX  82212220
                      *                                                    82212230
                      *                                                    82212240
                      *                                                    82212250
```

```
                          *                DECIMAL CONVERT RTN
                          *
                          *               VALUE IN A # BINARY
                          *              VALUE TO BE CONVERTED.
                          *
                          *                    ALGORITHM
                          *
                          *             RANGE X 100 X VALUE # N1
                          *                N1/RSC # N2 & R1
                          *                N2 X 1000 # N3
                          *            R1 X 10/RSC # N4 & R2
                          *                N4 X 100 # N5
                          *             R2 X 100/RSC # N6
                          *             N3 & N5 & N6 # N7
                          *
0B93 0 0000               AIWC1 DC      0          EVL ADDR WD CNTR
0B94 0 0064               HUND  DC      100        CONSTANT 100
0B95 0 03E8               THOUS DC      1000       CONSTANT 1000
0B96 0 0000               PADDR DC      0          STORAGE FOR MAX & ADDR
0B97 0 0032               FIFTY DC      50         CONSTANT 50
0B98 0 0000               AIDCN DC      0                                 SE
0B99 0 D01A                     STO     AIWKI      SAVE VALUE
0B9A 1 C400 0A58                LD    L AIWKE      LOAD RANGE OF VALUE
0B9C 0 A0FA                     M       FIFTY      X 50
0B9D 0 1090                     SLT     16         SHIFT TO ACCUMULATOR
0B9E 0 A015                     M       AIWKI      X VALUE
0B9F 0 A818                     D       AISRC      / FULL SCALE
0BA0 0 D815                     STD     AIWKL      # N2 & R1
0BA1 0 A0F3                     M       THOUS      N2 X 1000
0BA2 0 1081                     SLT     1          X 2
0BA3 0 D810                     STD     AIWKI      # N3
0BA4 0 C012                     LD      AIWKL&1    R1
0BA5 0 A0D2                     M       AITEN      X 10
0BA6 0 1081                     SLT     1          X 2
0BA7 0 A810                     D       AISRC      / FULL SCALE
0BA8 0 D80D                     STD     AIWKL      # N4 & R2
0BA9 0 A0EA                     M       HUND       X 100 # N5
0BAA 0 8809                     AD      AIWKI      & N3
0BAB 0 D808                     STD     AIWKI      # N3 & N5
0BAC 0 C00A                     LD      AIWKL&1    R2
0BAD 0 A0E6                     M       HUND       X 100
0BAE 0 A809                     D       AISRC      / FULL SCALE # N6
0BAF 0 1890                     SRT     16
0BB0 0 8803                     AD      AIWKI      NO & N5 & N6
0BB1 0 D804                     STD     AIWKL      # N7
0BB2 1 4C80 0B98                BSC   I AIDCN      EXIT ROUTINE           SX
                          *
0BB4 0 0000 0000          AIWKI DEC     0          WORK AREA - I
0BB6 0 0000 0000          AIWKL DEC     0          WORK AREA - L
0BB8 0 4000               AISRC DC      /4000      CONSTANT FULL SCALE
                          *
                          *
                          *                ** I/O TABLES ROUTINE **
                          *
                          *             THIS ROUTINE IS ENTERED FROM THE
                          *             INITIALIZATION ROUTINE AND SETS UP
                          *             THE INPUT DATA TABLE FOR PROPER
                          *             CHAIN OPERATION. IT INSURES THAT
                          *             AT LEAST ONE POINT IS TO BE CHECKED
                          *             FOR PRECISION AND THAT TOO LARGE A
                          *             TABLE IS NOT SETUP. IT OUTPUTS AN
                          *             ERROR IF ONE IS FOUND WHICH CANNOT
                          *             BE CORRECTED AND FORCES ENTRY INTO
                          *             THE DATA ENTRY ROUTINE. *E006¤
                          *
                          *
0B96 0                    AITAS EQU     PADDR      DATA TBL ADDR WK AREA
0BB4 0                    AWKA1 EQU     AIWKI      WORK AREA FOR SETUP
```



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0BB5 0                    AWKB1 EQU     AIWKI&1    WORK AREA FOR SETUP
0BB6 0                    AWKC1 EQU     AIWKL      WORK AREA FOR SETUP
0BB7 0                    AWKE1 EQU     AIWKL&1    WORK AREA FOR SETUP
0BB9 0 C000               ACHNB DC      /C000      CHN-NG INT SCN BITS
0BBA 0 0001               ONEAI DC      1          CONSTANT 1
0BBB 0 FFFF               ATERM DC      /FFFF      TERMINATOR CONSTANT
                          *
0BBC 0 0000               AISTP DC      0                                 SF
0BBD 1 6700 0D20                LDX  L3 AIDRT-2    LOAD TBL START ADDR
0BBF 0 6BD6                     STX   3 AITAS      STORE IN WORD AREA
0BC0 0 6300                     LDX   3 0          INITIALIZE INDEX
0BC1 1 6500 0828                LDX  L1 AIIAT      # ADDR OF MPX ADDR
0BC3 0 6600 009E                LDX  L2 158        # TABLE LENGTH
0BC5 0 C102               AICHE LD    1 2          CHECK FOR LAST CHAIN
0BC6 0 F0F4                     EOR     ATERM
0BC7 0 D0EC                     STO     AWKA1
0BC8 0 C100                     LD    1 0          A # MPX ADDR
0BC9 0 18D0                     RTE     16         Q # MPX ADDR
0BCA 0 C101                     LD    1 1          A # WORD COUNT
0BCB 0 4818                     BSC     &-         CHECK FOR 0 WD CNT
0BCC 0 80ED                     A       ONEAI      ADD 1 IF ZERO
0BCD 0 D0E7                     STO     AWKB1      SAVE WORD COUNT
0BCE 0 80EB                     A       ONEAI      INCR TO INCL MPX ADDR
0BCF 1 7400 0BB4                MDX   L AWKA1,0    TEST FOR CHAIN
0BD1 0 E8E7                     OR      ACHNB      SET CH BIT ON-INT OFF
0BD2 1 D480 0B96                STO   I AITAS      SET IN DATA TABLE
0BD4 0 C0C1                     LD      AITAS      LOAD TABLE ADDR
0BD5 0 D0E1                     STO     AWKE1      SAVE DATA TABLE ADDR
0BD6 0 1090                     SLT     16         A#MPX ADDRESS
0BD7 1 7401 0B96                MDX   L AITAS,1
0BD9 1 D480 0B96                STO   I AITAS      STORE MPX ADDR IN TBL
0BDB 0 D0DA                     STO     AWKC1      SAVE MPX ADDR
0BDC 1 7401 0B96                MDX   L AITAS,1
0BDE 0 7102                     MDX   1 2
0BDF 0 C0D6               AICHC LD      AWKC1      LOAD MPX ADDR
0BE0 0 1003                     SLA     3          CHECK FOR RELAY
0BE1 1 4C28 0BE5                BSC   L *&2,&Z     SKIP IF SS
0BE3 1 7401 08C2                MDX   L AIRSY,1    SET RLY SW ON
0BE5 0 C0D0                     LD      AWKC1      LOAD MPX ADDR
0BE6 1 F700 0816                EOR  L3 AIMPX      CHECK FOR PREC ADDR
0BE8 1 4C20 0BEE                BSC   L AICHD,Z    BR IF NOT TO BE EVL
0BEA 0 C0AB                     LD      AITAS      LOAD TABLE ADDR
0BEB 1 D700 00D4                STO  L3 AIDTA      SAVE FOR EVALUATION
0BED 0 7301                     MDX   3 1
0BEE 1 7401 0BB6          AICHD MDX   L AWKC1,1    INCR TO NEXT ADDR
0BF0 1 7401 0B96                MDX   L AITAS,1
0BF2 0 72FF                     MDX   2 -1         CHECK FOR TBL LMT
0BF3 0 700D                     MDX     AICHF      BR IF OK
0BF4 1 74FF 0B96          AICHB MDX   L AITAS,-1
0BF6 0 C09F                     LD      AITAS      LOAD TABLE ADDRESS
0BF7 0 90BF                     S       AWKE1      FIND CORRECT WD CNT
0BF8 1 D480 0BB7                STO   I AWKE1      STO WD CNT-CH OFF-INT ON
0BFA 0 6B98               AICHH STX   3 AIWC1      # NO OF EVL ADDR FND
0BFB 0 7300                     MDX   3 0          CHECK FOR 0 EVL ADDR
0BFC 0 7002                     MDX     SUEXX      EXIT IF OK
0BFD 1 7401 0926          MPXER MDX   L AIERS,1    TURN ERROR SW ON
0BFF 1 4C80 0BBC          SUEXX BSC   I AISTP      EXIT ROUTINE           SX
                          *
0C01 1 74FF 0BB5          AICHF MDX   L AWKB1,-1   DECR WD CNT
0C03 0 70DB                     MDX     AICHC      CHECK REST OF CHAIN
0C04 1 7400 0BB4                MDX   L AWKA1,0    TEST FOR LAST CHAIN
0C06 0 7001                     MDX     AICHA      SET UP NEXT CHAIN
0C07 0 70F2                     MDX     AICHH      BR TO EXIT RTN
                          *
0C08 0 72FC               AICHA MDX   2 -4         CHECK FOR TBL LMT
0C09 0 7001                     MDX     AICHI      SET CAR CHECK
0C0A 0 70E9                     MDX     AICHB      BRANCH
                          *
```

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0C0B 0 C08A        AICHI LD      AITAS      LOAD TABLE ADDR                82213620
0C0C 0 80AD              A       ONEAI                                     82213630
0C0D 1 D480 0896         STO   I AITAS      STORE CAR WD ADDR              82213640
0C0F 0 0086              STO     AITAS                                     82213650
0C10 1 D480 0896         STO   I AITAS      STORE CAR CK WORD              82213660
0C12 1 7401 0896         MDX   L AITAS,1                                   82213670
0C14 0 7080              MDX     AICHE      SET UP NEXT CHAIN              82213680
                     *                                                     82213690
                     *                                                     82213700
                     *          ** TIMER ROUTINE **                        82213710
                     *                                                     82213720
                     *     THIS ROUTINE BEGINS A TIME DELAY                82213730
                     *     DETERMINED BY THE INCREMENT RATE                82213740
                     *     OF THE TIMER SELECTED, THE TIMER                82213750
                     *     COUNT SPECIFIED AND THE INTERRUPT               82213760
                     *     COUNT CONTAINED IN THE TIMER CALL.              82213770
                     *     AT THE START OF THE DELAY, THE WORD             82213780
                     *     SPECIFIED BY THE SWITCH ADDRESS IN              82213790
                     *     THE TIMER CALL IS SET TO A 6 VALUE.             82213800
                     *     AT THE END OF THE DELAY, THIS SWITCH            82213810
                     *     WORD IS SET TO ZERO.                            82213820
                     *     THE ROUTINE CAN OPERATE 3 UNIQUE                82213830
                     *     DELAYS SIMULTANEOUSLY, ANY ADDITIONAL           82213840
                     *     CALL OTHER THAN ONE OF THE THREE                82213850
                     *     OPERATING WILL NOT BE HONORED UNTIL             82213860
                     *     SPACE IS VACATED BY A DELAY TIMING              82213870
                     *     OUT. A SECOND CALL FOR AN OPERATING             82213880
                     *     DELAY WILL RE-ESTABLISH THE INITIAL             82213890
                     *     COUNT WITHOUT SETTING THE PROGRAM               82213900
                     *     SWITCH WORD TO ZERO.                            82213910
                     *                                                     82213920
                     *                                                     82213930
                     *     FOLLOWING TABLE LISTS CONSTANTS                 82213940
                     *      TO BE ENTERED BY THE OPERATOR                  82213950
                     *      FOR TIMER ONE BASE SPEED                       82213960
                     *                                                     82213970
                     *     THE FOLLOWING TABLE APPLIES TO                  82213980
                     *        A 4.0 MICRO SEC MACHINE                      82213990
                     *                                                     82214000
                     *     TIME BASE        CONSTANT ENTERED               82214010
                     *     OF TIMER A       IN HEX AT LABEL                82214020
                     *     IN MILLISEC         TIBT1                       82214030
                     *                                                     82214040
                     *     128.000             0001                        82214050
                     *      64.000             0002                        82214060
                     *      32.000             0004                        82214070
                     *      16.000             0007                        82214080
                     *       8.000             000E                        82214090
                     *       4.000             001B                        82214100
                     *       2.000             0036                        82214110
                     *       1.000             006B                        82214120
                     *        .500             00D6                        82214130
                     *        .250             01AB                        82214140
                     *                                                     82214150
                     *     THE FOLLOWING TABLE APPLIES TO                  82214160
                     *        A 2 MICRO SEC MACHINE                        82214170
                     *                                                     82214180
                     *     TIME BASE        CONSTANT ENTERED               82214190
                     *     OF TIMER A       IN HEX AT LABEL                82214200
                     *     IN MILLISEC         TIBT1                       82214210
                     *                                                     82214220
                     *      64.000             0002                        82214230
                     *      32.000             0004                        82214240
                     *      16.000             0007                        82214250
                     *       8.000             000E                        82214260
                     *       4.000             001B                        82214270
                     *       2.000             0036                        82214280
                     *       1.000             006B                        82214290
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```
                     *          .500             00D6                     82214300
                     *          .250             01AB                     82214310
                     *          .125             0356                     82214320
                     *                                                    82214330
                     *                                                    82214340
                     *                                                    82214350
                     *                                                    82214360
0C15 0 0000        TIMER DC      0                                   SE   82214370
0C16 1 0C00 0D00         XIO   L TSTOP      STOP TIMER 1                   82214380
0C18 1 C480 0C15         LD    I TIMER      LOAD TIME COUNT                82214390
0C1A 0 809F              A       ONEAI                                    82214400
0C1B 0 18D0              RTE     16         Q # TIME COUNT                 82214410
0C1C 1 7401 0C15         MDX   L TIMER,1    SET UP FOR PROG SW             82214420
0C1E 0 6306              LDX     3 6        INITIALIZE INDEX               82214430
0C1F 1 C700 0852   TIRNG LD    L3 TIM11-2   LOAD CALL SWITCH               82214440
0C21 1 4C18 0C2A         BSC   L TICNO,&-   BR IF CALL NOT USED            82214450
0C23 1 F480 0C15         EOR   I TIMER      SAME PROG SW TEST              82214460
0C25 1 4C18 0C2A         BSC   L TICNO,&-   USE CALL IF SAME SW           82214470
0C27 0 73FE              MDX     3 -2                                     82214480
0C28 0 70F6              MDX     TIRNG      SEARCH CALL TABLE              82214490
0C29 0 70F4              MDX     TIRNG-1    TIMER IS BUSY                  82214500
0C2A 1 C480 0C15   TICNO LD    I TIMER      LOAD PROG SW ADDR              82214510
0C2C 1 DF00 0852         STD   L3 TIM11-2   STORE CNT & ADDR              82214520
0C2E 1 D780 0852         STO   I3 TIM11-2   SET PROG SW ON                 82214530
0C30 0 73FE        TISRC MDX     3 -2                                     82214540
0C31 0 7006              MDX     *+6        TEST FOR DUP CALLS             82214550
0C32 1 7401 0C15   TEXIT MDX   L TIMER,1                                  82214560
0C34 1 0C00 0C66         XIO   L TSTRT      START TIMER 1                  82214570
0C36 1 4C80 0C15         BSC   I TIMER      EXIT ROUTINE                SX 82214580
0C38 1 C700 0852         LD    L3 TIM11-2   LOAD PROG CALL SW              82214590
0C3A 1 F480 0C15         EOR   I TIMER      TEST FOR DUP SW                82214600
0C3C 1 4C20 0C30         BSC   L TISRC,Z    BR IF NOT DUPLICATE            82214610
0C3E 0 10A0              SLT     32                                       82214620
0C3F 1 DF00 0852         STD   L3 TIM11-2   ZERO DUPLICATE CALL            82214630
0C41 0 70F0              MDX     TEXIT                                    82214640
                     *                                                    82214650
                     *          ** ERROR-LOG SETUP ROUTINE **             82214660
                     *                                                    82214670
                     *     THIS ROUTINE SETS UP THE CALL                  82214680
                     *     AND THE DATA STRING FOR MONITOR.               82214690
                     *     THE CALL ON THIS ROUTINE CONTAINS              82214700
                     *     THE MESSAGE ID, OPTION CONTROLS,               82214710
                     *     AND THE ADDRESSES OF THE DATA                  82214720
                     *     WORDS TO BE OUTPUTTED.                         82214730
                     *     THIS ROUTINE WILL CALL ON EITHER               82214740
                     *     LOG OR ERROR, DETERMINED BY THE                82214750
                     *     ENTRY USED.                                    82214760
                     *     THE ROUTINE ALLOWS LOG OR ERROR                82214770
                     *     TO BE BYPASSED BY HAVING THE BYPASS            82214780
                     *     BIT SPECIFIED IN THE CALL SET ON               82214790
                     *     IN BIT SW WORD 0.                              82214800
                     *                                                    82214810
                     *          LOG ENTRY                                 82214820
                     *                                                    82214830
0C42 0 0000        LOGCL DC      0                                   SE   82214840
0C43 1 6780 0C42         LDX   I3 LOGCL       LOAD STRING ADDR            82214850
0C45 0 6200              LDX     2 0                                      82214860
0C46 0 6A18              STX     2 LOGCS&4    RESET TERM ADDR             82214870
0C47 1 6600 094D         LDX   L2 AIRTM       LOAD RET TO MON ADDR        82214880
0C49 0 6A1A              STX     2 LGRTN&1    INIT RETURN ADDR       PRO6 82214890
0C4A 0 6600 012F         LDX   L2 LOG         LOAD CALL ADDR              82214900
0C4C 0 401B              BSI     ERLG1        SET UP STRING               82214910
0C4D 1 6E00 085A         STX   L2 TIERS       RESET TIMER ERR SW          82214920
0C4F 0 7009              MDX     LOGCK                                    82214930
                     *                                                    82214940
                     *                                                    82214950
                     *          ERROR ENTRY                               82214960
                     *                                                    82214970
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0C50 0 0000          ERRCL DC      0                                  SE    82214980
0C51 0 6600 0130           LDX   L2 ERROR      LOAD CALL ADDR                82214990
0C53 1 6780 0C50           LDX   I3 ERRCL      LOAD STRING ADDR              82215000
0C55 0 C300                LD    3 0           LOAD LOOP ADDR                82215010
0C56 0 D00B                STO      LOGCS&4    STORE LOOP ERR ADDR           82215020
0C57 0 7301                MDX   3 1           MODIFY FOR STRING             82215030
0C58 0 400F                BSI      ERLG1      SET UP STRING                 82215040
0C59 0 C300          LOGCK LD    3 0           LOAD BYPASS BITS              82215050
0C5A 1 E400 0802           AND   L  SWO        TEST FOR BYPASS BIT           82215060
0C5C 0 4FA0 FFFE           BSC   I3 -2,Z       EXIT IF BIT ON          SX    82215070
                     *                                                       82215080
                     *                                                       82215090
                     ********************************************            82215100
                     *                ** LOG OR ERROR **        *            82215110
0C5E 0 4480 0000     LOGCS BSI  I  0                             *    PM05  82215120
0C60   0C91                DC       MSTBL      ADDR OF MESSAGE TBL*          82215130
0C61 1 0C9B                DC       ERLGB      ADDR OF BUSY RTN   *          82215140
0C62 0 0000                DC       0          ADDR OF RETURN-LOOP*          82215150
                     *                                           *          82215160
                     ********************************************            82215170
0C63 0 4C00 0000     LGRTN BSC  L  0           EXIT ROUTINE          PM06  82215180
                     *                                                       82215190
                     *                                                       82215200
0C66   0000                BSS  E  0                                        82215210
0C66 0 8000          TSTRT DC       /8000      TIMER START IOCC              82215220
0C67 0 0420                DC       /0420                                    82215230
                     *                                                       82215240
                     *                                                       82215250
0C68 0 C000          ERLG1 DC       0                                  SE    82215260
0C69 0 6AF5                STX   2 LOGCS&1    SET CALL ADDR          PR05  82215270
0C6A 0 C303                LD    3 3          LD MSG.I.D.                $  82215280
0C6B 1 E400 09A6           AND   L  H0040                                $  82215290
0C6D 1 4C18 0C71           BZ       *+2                                  $  82215300
0C6F 0 C302                LD    3 2          LD RTRN.ADDR.              $  82215310
0C70 0 7006                B        ERLG3                                $  82215320
0C71 0 C302                LD    3 2          LD RTRN.ADDR               $  82215330
0C72 0 D0EF                STO      LOGCS&4    STORE TERM ADDR               82215340
0C73 0 C01C                LD       LNCNT      LOAD LINE COUNTER             82215350
0C74 1 7401 0C90           MDX   L  LNCNT,1    BUMP CNTR 1                   82215360
0C76 0 7002                MDX      ERLG5                                    82215370
                     *                                                       82215380
0C77 0 D0EC          ERLG3 STO      LGRTN&1    STORE RETURN ADDR      PR06  82215390
0C78 0 C017                LD       LNCNT      LOAD LINE COUNTER             82215400
0C79 0 1008          ERLG5 SLA      8                                        82215410
0C7A 0 8300                A     3 0          ADD WORD COUNT                82215420
0C7B 0 D015                STO      MSTBL      SET COUNTER LINE              82215430
0C7C 0 C300                LD    3 0          LD WORD COUNT                 82215440
0C7D 0 D008                STO      MSSWA&1    SAVE WORD COUNT        PR04  82215450
0C7E 0 C301                LD    3 1          LOAD HEX-DEC SW               82215460
0C7F 0 D012                STO      MSTBL&1    SET HEX-DEC SW LINE           82215470
0C80 0 C303                LD    3 3          LOAD MESSAGE ID               82215480
0C81 0 E00D                AND      HFFBF                                $  82215490
0C82 0 D010                STO      MSTB1      SET MESSAGE ID                82215500
0C83 0 7304                MDX   3 4          ADD 4 TO STRING               82215510
0C84 0 6B03                STX   3 ERLG6&1    SAVE STRING ADDR       PR01  82215520
0C85 0 6600 0000     MSSWA LDX  L2 0                              PM04  82215530
0C87 0 C680 0000     ERLG6 LD   I2 0           LD MESSAGE WORD    PM01  82215540
0C89 1 D600 0C93           STO   L2 MSTB1      SET MESS WD IN TABLE          82215550
0C8B 0 72FF                MDX   2 -1          SKIP ON ZERO                  82215560
0C8C 0 70FA                MDX      ERLG6      BRANCH                        82215570
0C8D 1 4C80 0C68           BSC   I  ERLG1      EXIT ROUTINE           SX     82215580
                     *                                                       82215590
0C8F 0 FFBF          HFFBF DC       /FFBF                                $  82215600
                     *                                                       82215610
0C90 0 0000          LNCNT DC       0          LINE COUNTER                  82215620
0C91   0002          MSTBL BSS      2          CONTROL LINES                 82215630
0C93   0008          MSTB1 BSS      8          ID AND MESSAGE                82215640
                     *                                                       82215650
```



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                     *                                                       82215660
                     *                  LOG BUSY ROUTINE                     82215670
0C9B 0 6905          ERLGB STX   1 LGLYR&1      SAVE INDEX REG 1       PR21  82215680
0C9C 0 C002                LD       LGERC      LOAD RETURN ADDR              82215690
0C9D 1 4C00 094B           BSC   L  AIEXX&3    EXIT TO MONITOR               82215700
                     *                                                       82215710
                     *                                                       82215720
0C9F 1 0CA0          LGERC DC       LGLYR      ENTRY ADDRESS                 82215730
0CA0 0 6500 0000     LGLYR LDX  L1 0           RESTORE INDEX REG 1    PM21  82215740
0CA2 0 6200                LDX   2 0           RESTORE X2 # 0                82215750
0CA3 0 70BA                MDX      LOGCS      BRANCH TO TRY AGAIN           82215760
                     *                                                       82215770
                     *                                                       82215780
                     *             ** VERIFY ENTERED DATA ROUTINE **         82215790
                     *                                                       82215800
                     *          THIS ROUTINE IS USED TO LOG ANY              82215810
                     *          DATA WHICH IS ENTERED INTO THE               82215820
                     *          TABLES, ALSO IT CAN BE USED TO               82215830
                     *          LOG ANY WORD OR GROUP OF WORDS               82215840
                     *          IN CORE.                                     82215850
                     *          THIS ROUTINE IS ENTERED BY SETTING           82215860
                     *          TABLE NUMBER, DISPLACEMENT, AND              82215870
                     *          WORD COUNT IN BIT SWITCH WORD 01             82215880
                     *          AND EXECUTING THE PROGRAM.                   82215890
                     *                                                       82215900
                     *                                                       82215910
0CA4 0 0000          AIVED DC       0                                  SE    82215920
0CA5 0 4038                BSI      AIBSA      GO TO SETUP ADDR              82215930
                     ********************************************            82215940
                     *                ** LOG CALL **            *            82215950
0CA6 0 4098                BSI      LOGCL      GO TO LOG CALL SBRT*          82215960
0CA7 0 0002                DC       2          WORD COUNT         *          82215970
0CA8 0 0000                DC       0          HEX-DEC SW %HEX0   *          82215980
0CA9 1 0CAE                DC       AITAE&1    RETURN ADDRESS     *          82215990
0CAA 0 AAAA          AIAAS DC       /AAAA      MESSAGE ID         *          82216000
0CAB 0 8000                DC       /8000      BYPASS BIT         *          82216010
0CAC 1 0CAD                DC       AITAE      ADDR OF WORD       *          82216020
0CAD 0 0000          AITAE DC       0          TBL ADDR STORAGE   *          82216030
                     ********************************************            82216040
0CAE 1 7401 0CAD           MDX   L  AITAE,1    ADD 1 TO ADDR                 82216050
0CB0 1 74FF 0CB9           MDX   L  AIDWC,-1   SUBT 1 FROM WORD CNT           82216060
0CB2 0 70F3                MDX      AIVED&2    BRANCH                        82216070
0CB3 0 6A0C                STX   2 LNCNT       RESET LINE CNTR               82216080
0CB4 1 6E00 0803           STX   L2 SW1        RESET BIT SW WORD 1           82216090
0CB6 1 4C80 0CA4           BSC   I  AIVED      EXIT ROUTINE           SX     82216100
                     *                                                       82216110
                     *                                                       82216120
                     *             ** DATA ENTRY ROUTINE **                  82216130
                     *                                                       82216140
                     *          THIS ROUTINE CAN BE USED BY THE              82216150
                     *          OPERATOR TO ENTER DATA INTO THE              82216160
                     *          DATA TABLES. ALSO ANY WORD IN                82216170
                     *          CORE CAN BE CHANGED BY FIRST                 82216180
                     *          USING THE ROUTINE TO ENTER THE               82216190
                     *          WORD ADDRESS INTO TABLE POSITION             82216200
                     *          NUMBER 8.                                    82216210
                     *          THIS ROUTINE IS ENTERED BY SETTING           82216220
                     *          TABLE NUMBER, DISPLACEMENT, AND              82216230
                     *          WORD COUNT IN BIT SWITCH WORD 02             82216240
                     *          AND EXECUTING THE PROGRAM.                   82216250
                     *                                                       82216260
                     *                                                       82216270
0CB8 0 007F          AIC7F DC       /007F      TERMINATOR CONSTANT           82216280
0CB9 0 0000          AIDWC DC       0          WORD COUNT STORAGE            82216290
0CBA 0 10A0          AIDER SLT      32                                   SE    82216300
0CBB 1 C400 0804           LD    L  SW2        LD BIT SW WORD 2              82216310
0CBD 1 4C18 0CC2           BSC   L  AIUSA,&-   BR IF BITSW WORD # 0           82216320
0CBF 0 401E                BSI      AIBSA                                    82216330
```

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0CC0 1 6E00 0804          STX  L2 SW2        RESET BIT SW WORD 2          82216340
0CC2 0 C0F6         AIUSA LD      AIDWC                                   82216350
0CC3 1 4C18 0CD8          BSC  L   AILRK,&-   BR IF END TBL               82216360
0CC5 0 F0F2               EOR      AIC7F                                  82216370
0CC6 1 4C18 0CFC          BSC  L   AIRST,&-   BR IF END DATA NTRY         82216380
0CC8 1 C400 0805          LD   L   SW3        LD BIT SW WORD 3             82216390
0CCA 0 B0DF               CMP      AIAAS      COMPARE TO TERMINATO         82216400
0CCB 0 7002               MDX      AISTW      BRANCH                       82216410
0CCC 0 7001               MDX      AISTW      BRANCH                       82216420
0CCD 0 700A               MDX      AILRK      BRANCH                       82216430
0CCE 1 D480 0CAD    AISTW STO  I   AITAE      SET DATA WORD IN TBL         82216440
0CD0 1 7401 0CAD          MDX  L   AITAE,1     ADD 1 TO TBL WD ADDR         82216450
0CD2 0 C0D7               LD       AIAAS                                  82216460
0CD3 1 D400 0805          STO  L   SW3        INITIALIZE BIT SW 3          82216470
0CD5 1 74FF 0CB9          MDX  L   AIDWC,-1   SUBT 1 FROM WORD CNT         82216480
0CD7 0 1000               SLA      0          WILL SKIP LAST PASS          82216490
0CD8 0 C803         AILRK LDD      RT06       LOAD ROUTINE 6               82216500
0CD9 1 4C00 0948          BSC  L   AIEXX      BRANCH TO EXIT        SX     82216510
                    *                                                      82216520
                    *                                                      82216530
0CDC    0000              BSS  E   0                                       82216540
0CDC 0 0006         RT06  DC       6          RT 06 - ENTER DATA           82216550
0CDD 1 0C8A               DC       AIDER      ENTRY ADDRESS                82216560
                    *                                                      82216570
0CDE 0 0000         AIBSA DC       0                             SE       82216580
0CDF 0 18CC               RTE      12                                      82216590
0CE0 0 D001               STO      AILAR&1    STO TBL ADDR          PR16   82216600
0CE1 0 6700 0000    AILAR LDX  L3  0                             PM16     82216610
0CE3 0 6200               LDX  2   0                                       82216620
0CE4 0 1010               SLA      16                                      82216630
0CE5 0 1085               SLT      5                                       82216640
0CE6 1 8700 0D14          A    L3  AIADT      ADD TABLE ADDR               82216650
0CE8 0 D0C4               STO      AITAE      STO TBL POSTN ADDR           82216660
0CE9 0 1010               SLA      16                                      82216670
0CEA 0 1087               SLT      7                                       82216680
0CEB 0 D0CD               STO      AIDWC      STO TBL WORD CNT             82216690
0CEC 1 4C80 0CDE          BSC  I   AIBSA      EXIT SUBROUTINE       SX     82216700
                    *                                                      82216710
                    *                                                      82216720
                    *                                                      82216730
                    *                                                      82216740
                    *                                                      82216750
                    *                                                      82216760
                    *          CONSTANT TABLES                             82216770
                    *                                                      82216780
0CEE 1 0DCA         AISUM DC       AISUX      ****                         82216790
0CEF 1 0DCC               DC       AISUX&2                       *        82216800
0CF0 1 0DCE               DC       AISUX&4    SUM TABLE ADDR TBL *         82216810
0CF1 1 0DD0               DC       AISUX&6                       *        82216820
0CF2 1 0DD2               DC       AISUX&8    ****                         82216830
0CF3 1 0E1E         AISPT DC       AISTB&54   ****                         82216840
0CF4 1 0E8B               DC       AISTB&163                     *        82216850
0CF5 1 0EF8               DC       AISTB&272  SPREAD TBL ADDR TBL*         82216860
0CF6 1 0F65               DC       AISTB&381                     *        82216870
0CF7 1 0FD2               DC       AISTB&490  ****                         82216880
                    *                GO PROGRAM ENTRY                      82216890
                    *                                                      82216900
                    *          THE PROGRAM IS ENTERED AT THIS POINT        82216910
                    *          ONLY AFTER LOADING                          82216920
                    *                                                      82216930
                    *                                                      82216940
0CF8 2 4480 012C    AIGO  BSI  I   BEGIN                                   82216950
0CFA 1 07FF               DC       PID        ADDR OF PID TBL              82216960
                    *                                                      82216970
                    *                                                      82216980
                    *                                                      82216990
                    *                                                      82217000
                    *              RESTART ENTRY                           82217010
```



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                    *                                                      82217020
                    *          ENTRY IS MADE AT THIS POINT AFTER           82217030
                    *          EXITING FROM THE DATA ENTRY ROUTINE.        82217040
                    *                                                      82217050
                    *                                                      82217060
0CFC    0000              BSS  E   0                                       82217070
                    *                                                      82217080
                    *                                                      82217090
0CFC 0 4005         AIRST BSI      AIEND      RESET PROGRAM                82217100
0CFD 1 4400 0899          BSI  L   RSAI       INITIALIZE                   82217110
0CFF 2 4C80 012D          BSC  I   START      RESTART PROGRAM              82217120
                    *                                                      82217130
0D01 0 0420               STCC DC        /0420      STOP TMR IOCC          82217140
0D00 0                    TSTOP EQU      STCC-1                           82217150
                    *                                                      82217160
                    *                                                      82217170
                    *             ** END PROGRAM ROUTINE **                82217180
                    *                                                      82217190
                    *          THIS ROUTINE IS ENTERED FROM MONITOR        82217200
                    *          WHENEVER THIS PROGRAM IS BEING              82217210
                    *          DESELECTED. IT IS THE ONLY ROUTINE          82217220
                    *          THAT RELEASES THE TIMERS.                   82217230
                    *                                                      82217240
                    *                                                      82217250
0D02 0 0000         AIEND DC       0                             SE       82217260
0D03 0 08FC               XIO      TSTOP      STOP TIMER                   82217270
0D04 0 6200               LDX  2   0                                       82217280
0D05 1 6E00 0920          STX  L2  AITMS      RESET TIME SWITCH            82217290
0D07 0 6A88               STX  2   LNCNT      RESET LINE COUNTER           82217300
0D08 0 6A80               STX  2   AIDWC      RESET DATA WORD CNTR         82217310
0D09 1 0C00 0918          XIO  L   AIBST      RESET AI                     82217320
0D0B 1 0C00 088C          XIO  L   CKDSW      RESET DSW                    82217330
                    ********************************************           82217340
                    *             ** RELEASE DEVICES **        *           82217350
0D0D 2 4480 0132          BSI  I   RELDV      GO TO REL DEVICES  *         82217360
0D0F 1 0811               DC       EDIT       ADDR OF AI DEV DEF *         82217370
0D10 1 0812               DC       EDIT&1     ADDR OF TM DEV DEF *         82217380
0D11 1 080A               DC       TERM       ADDR OF TERMINATOR *         82217390
                    *                                             *        82217400
                    ********************************************           82217410
0D12 1 4C80 0D02          BSC  I   AIEND      EXIT ROUTINE          SX     82217420
                    *                                                      82217430
                    *                                                      82217440
                    *             ADDRESS CONSTANT TABLES                  82217450
                    *                                                      82217460
                    *          FOR USE WITH THE DATA ENTRY AND THE         82217470
                    *          VERIFY ENTERED DATA ROUTINES.               82217480
                    *          THE TABLE NUMBER IS THE NUMBER BE-          82217490
                    *          TWEEN THE @DC@ AND @CONSTANT@. THIS         82217500
                    *          NUMBER IS ENTERED IN B0 - B3 OF             82217510
                    *          THE PROPER BIT SWITCH WORD.                 82217520
                    *                                                      82217530
                    *                                                      82217540
0D14 1 0813         AIADT DC       0 TIBT1     ADDR OF TMR CONSTANT         82217550
0D15 1 0815               DC       1 AICYC     CYCLE COUNT ADDRESS          82217560
0D16 1 0816               DC       2 AIMPX     MPX ADDR TBL ADDR            82217570
0D17 1 081C               DC       3 AIPRC     PREC RDING TBL ADDR          82217580
0D18 1 0822               DC       4 AIFRS     RESOLUTION TBL ADDR          82217590
0D19 1 0823               DC       5 RANGE     RANGE TABLE ADDRESS          82217600
0D1A 1 09EF               DC       6 AIHXS     HEX-DEC%A001B SW ADDR        82217610
0D1B 1 0D1C               DC       7 AIADT&8   AUX                          82217620
0D1C 1 0A46               DC       8 AICYR     AUX/CYCLE CNTR ADDR          82217630
0D1D 1 0828               DC       9 AIIAT     INPUT ADDR TBL ADDR          82217640
0D1E 1 0833               DC       A AIXSS     EXT SYNC SW ADDR             82217650
0D1F 1 0D20               DC       B AIDRT-2   INPUT DATA TBL ADDR          82217660
                    *                                                      82217670
                    *                                                      82217680
                    *             VARIABLE TABLES                          82217690
```

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                         *                                                82217700
0D20 0 0000                    DC       0           WORD CNT WORD         82217710
0D21 0 0000                    DC       0           FIRST MPX ADDR        82217720
0D22   00A8            AIDRT BSS        168         INPUT DATA TABLE      82217730
0DCA   000A            AISUX BSS    E   10          SUM TABLE             82217740
0DD4   0005            AIDTA BSS        5           DATA TBL ADDRESSES    82217750
0DD9   0005            AIGRD BSS        5           GOOD READING TABLE    82217760
0DDE   0005            AIOTR BSS        5           OUT OF TBL CNTR TBL   82217770
0DE3   0005            AIOVC BSS        5           OVERLOAD CNTR TBL     82217780
0DE8   0222            AISTB BSS        546         SPREAD TABLE          82217790
0FFC                   PARA  ORG        /7FD&PID    PATCH AREA            82217800
0FFC 0 FFF2            PEND  DC         PEND-PARA   ADDR OF LAST WORD     82217810
                         *                                                82217820
0FFE   0CF8                    END      AIGO                              82217830
  NO STATEMENTS FLAGGED IN THE ABOVE ASSEMBLY
```



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ACAI   087C   08D0 08E3 08F4
ACHNB  08B9   08D1
ACON1  080E   0B31
ACON2  080F   0B53
ACON3  0810   0B5B
AIAAS  0CAA   089A 0CCA 0CD2
AIADT  0D14   0CE6 0D1B
AIAPR  0821   0A0C 0A1A
AIBSA  0CDE   0CA5 0CBF 0CEC
AIBST  0918   08D2 0907 0973 0D09
AIBSY  08EE   08F2
AIB08  0922   08E7
AIB11  0923   08E2
AIB14  0921   08DB
AICHA  0C08   0C06
AICHB  08F4   0C0A
AICHC  08DF   0C03
AICHD  08EE   08E8
AICHE  08C5   0C14
AICHF  0C01   0BF3
AICHG  0B34   0B51 0B64 0B67
AICHH  0BFA   0C07
AICHI  0C0B   0C09
AICKB  096F   096E 0971
AICKC  095F   0984
AICKT  097D   095E
AICLM  0B04   0B0C 0B7A 0B7D
AICNC  09F9   09D9
AICNT  08B5   08B8
AICYC  0815   0A1D 0AD4 0D15
AICYR  0A46   08AC 08FB 09A0 09F8 0A1C 0A22 0D1C
AIC7F  0CB8   0CC5
AIDCN  0B98   09EA 0A33 0AE3 0BB2
AIDER  0CBA   092A 0989 0CDD
AIDRT  0D22   091C 0BBD 0D1F
AIDSW  0862   0874 087F
AIDTA  0DD4   098C 09C2 0A12 0BEB
AIDWC  0CB9   0CB0 0CC2 0CD5 0CEB 0D08
AIENS  095A   0959
AIEND  0D02   0808 0CFC 0D12
AIENX  0968   0960
AIEOT  0891   086B 0897
AIERC  098F   090D 0966 097A 0961 0990 099C 09A4 09B2
AIERL  0906   0996
AIERR  0873   085D 085E 085F 0860 0861 0864 0865 0866 0867 0868 0869 086A 087A
              0882 0893
AIERS  0926   0876 0880 08E9 09D6 099F 09A1 09B0 0BFD
AIEVL  09B0   096B 0978
AIEV1  09B9   0A0A
AIEXB  0947   0964 097F
AIEXT  0978   097C
AIEXX  0948   08EF 08F9 0917 0C9D 0CD9
AIFRS  0822   08D7 0AD3 0D18
AIGO   0CF8   0FFE
AIGRD  0DD9   09CB 09CE 0A66 0A6D 0A83 0A91
AIHIL  0B74   0B6B
AIHXS  09FF   0D1A
AIIAT  0828   098C 0BC1 0D1D
AIIBR  0885   088D
AIIBT  085C   088B
AIINP  0927   08FD 090A 0957
AIINX  0916   0938
AIIRD  091C   08E8 093D 096D
AIIST  0899   0881 0885 088A
AIIZZ  093D   0934
AIJO   08F0   08C1
AILAR  0CE1   0CE0
AILOL  0B76   0B70
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6208

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AILRK   0CD8  0CC3 0CCD
AIMBR   0B79  0B3B
AIMCT   0B1A  0AAB 0AD1 0AD9 0AE2 0AEE 0AF0 0B20 0B2A 0B44 0B46 0B4A 0B4D 0B56
              0B5E 0B7B 0B7F 0B83 0B84
AIMOD   0814  09B9
AIMPC   0A58  09E2 0A2D 0A60
AIMPX   0816  098D 09E0 0A28 0BE6 0D16
AIMP1   0A62  0A5A 0A63
AINTR   087D  0887
AINXT   0AF0  0ADF 0AE9
AIOA4   0A1C  0A0E
AIOA5   0A1F
AIONE   0A4A  09CD 09DD 0A02 0A98
AIOTR   0DDE  09DB 09DE 0AC7
AIOVC   0DE3  0A00 0A03 0AC4
AIOVL   0A00  098E
AIPAS   0890  0880
AIPLX   0B91  0B21
AIPRC   081C  09D2 09E3 0A15 0A31 0A35 0AA8 0AAF 0D17
AIRAC   08FA  086E 08EC 0A1F 0B00
AIRAX   0B1C  0AA7 0AB1 0AD7 0B06
AIRDD   08E3  08DF 08E1
AIREQ   08CF
AIRG    08E0  08DC
AIRL    08E2  08DD
AIRSC   0A46  0A74 0A7C 0A8B
AIRST   0CFC  0CC6
AIRSY   08C2  08AB 0883 0933 0BE3
AIRTB   0ADD  0AF4 0B2E 0B6E
AIRTM   094D  0C47
AISPR   0A12  0A18
AISPT   0CF3  09FA 0B23 0B2B
AISRC   0BB8  0B86 088A 0B9F 0BA7 0BAE
AISRT   0907
AISRX   0AA6  0A9F
AISTB   0DE8  08A4 0CF3 0CF4 0CF5 0CF6 0CF7
AISTP   0BBC  0881 0BFF
AISTW   0CCE  0CC6 0CCC
AISUM   0CEE  09C7 09C9 0A64
AISUX   0DCA  08A4 08A7 0CEE 0CEF 0CF0 0CF1 0CF2
AITAE   0CAD  0CA9 0CAC 0CAE 0CCE 0CD0 0CE8
AITAS   0B96  0BBF 0BD2 0BD4 0BD7 0BD9 0BDC 0BEA 0BF0 0BF4 0BF6 0C0B 0C0D 0C0F
              0C10 0C12
AITCN   0B1B  0ADB 0AF7 0AF9 0B37 0B38
AITEN   0378  0907 0BA5
AITLM   0B1D  0B74 0B76
AITMS   09C0  0936 093C 0D05
AITRP   0879  0879 7002
AIUSA   0CC2  0CBD
AIVED   0CA4  092E 0CB2 0CB6
AIWC1   0B93  0A08 0A10 0AFA 0BFA
AIWKA   0B12  0AAC 0AD2 0B87 0B8D
AIWKB   0B16  0AE1 0AEF 0B26 0B35 0B3D 0B41 0B49 0B4C 0B4E 0B55 0B57 0B5D 0B5F
              0B62 0B65 0B69 0B6D 0B79
AIWKC   0B11  0AAE 0ABE 0AC6 0AD5
AIWKD   0B14  0A97 0A9E 0AAD 0AB3 0ABD 0AC9 0AD6 0B08 0B1F 0B8C 0B8F 0B90
AIWKE   0A58  09E8 0A30 0A41 0A72 0B9A
AIWKF   0A50  0A06 0A07 0A75 0A7B 0A81 0A85 0A8F
AIWKG   0A52  0A38 0A42 0A43 0A79 0A7F 0A80 0A87 0A88 0A8D 0A8E 0A94 0A9D 0AA2
              0AA5 0AA6
AIWKH   0A54  09E5 09F3 09F4 0A40 0A5F 0A68 0A6B 0A78 0A7A 0A82
AIWKI   0BB4  0B27 0B42 0B7C 0B7E 0B82 0B99 0B9E 0BA3 0BAA 0BAB 0BB0
AIWKJ   098F  09C5 09D1 09E9 09F5
AIWKL   0BB6  09F6 09F7 0A44 0A45 0AEC 0AED 0BA0 0BA4 0BA8 0BAC 0BB1
AIXSS   0833  08E5 0940 0D1E
AIYP1   0A2B  0AFC
AIZX1   0A05  09F0 09FF
AI108   0B18  0B2F
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6209


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AI3     0A64  0A3D
AI4     0AC4  0ABA
AI5     0AD7  0ACE
AONE    0863  0842 08D5
ATERM   0BBB  0BC6
AWKA1   0BB4  0BC7 0BCF 0C04
AWKB1   0BB5  0BCD 0C01
AWKC1   0BB6  0BD8 0BDF 0BE5 0BEE
AWKE1   0BB7  0BD5 0BF7 0BF8
A1000   0A47  0A24
BEGIN   012C  0CF8
BLTRP   0970  7003 7004
BRLOC   0B43  0B0F 0B10 0B32 0B3F 0B54 0B5C
BSYBT   098E  095F
CKDSW   08BC  0875 087E 08D6 0908 0974 099E 09A2 0D0B
CONTL   091F  08D1
C0997   0A56  0A23
DEVIA   0B84  0B80
EDIT    0811  08C6 08F3 0912 09B6 0D0F 0D10
END     012E  0914 0B02
ENDAI   0910  09AB
EPA     0808
ERCAI   09A1  0999
ERDSW   0918  090C 0965 0979 0980 099D
ERLGB   0C9B  0C61
ERLG1   0C68  0C4C 0C58 0C8D
ERLG3   0C77  0C70
ERLG5   0C79  0C76
ERLG6   0C87  0C84 0C8C
ERMID   099A  0993
ERMPX   0985  08EA
ERRCL   0C50  0994 0C53
ERROR   0130  0C51
FIFTY   0B97  0B9C
FIVE    0A57  0A9A
FTFOR   0B17  09D7 0AD8 0B2D
HALT    0133
HFFBF   0C8F  0C81
HIINC   0B62  0B0F
HILMT   0B52  0B58 0B75
HUND    0B94  0B85 0BA9 0BAD
HC940   09A6  0992 0C6B
INTSW   C8BB  0892 0896 093E 0952 095C
IPA     0806
IRD     0925  08E4
LGERC   0C9F  0C9C
LGLYR   0CA0  0C9B 0C9F
LGRTN   0C63  0C49 0C77
LGTER   09A7  0932
LNCNT   0C90  0AF5 0C73 0C74 0C78 0CB3 0D07
LBG     012F  0C4A
LOGCK   0C59  0C4F
LOGCL   0C42  0985 09A7 09EC 0A39 0AB6 0ACA 0AF5 0C43 0CA6
LOGCS   0C5E  0C46 0C56 0C69 0C72 0CA3
LOINC   0B65  0B10
LOLMT   0B5A  0B60 0B77
LOPAI   086C  0807 0871
LPA     0807
MDY04   09FD  09D4 09F9 09FC
MDY05   0B4C  0B48
MDY06   0B4E  0B4B
MEAN    0A4E  0A6A 0A70 0A71 0A96 0ABF 0AC0
MKPOS   0900  08CB 0904 09C0 09D5 0A98 0AA3 0BD9
MLSCF   0809  0870 08A2 094B
MPXER   0BFD
MSSWA   0C85  0C7D
MSTBL   0C91  0C60 0C7B 0C7F
MSTB1   0C93  0C82 0C89
```

6710

```
ONEAI   0B8A  0BCC 0BCE 0C0C 0C1A
PADDR   0B96  0B30 0B6A
PARA    100A  0FFC
PCENT   0B22  0AAA 0AB5 0B91
PEND    0FFC  080B 0FFC
PID     07FF  0CFA
POSWK   08FE  0901 0903
P9970   0A4B  0A25 0A29 0B39
RAD     0801
RANGE   0823  09E6 0A2E 0D19
RDDSW   091A  08D4 0909 094F 095A 095B 0970 0976 0983
RELDV   0132  0910 09B4 0D0D
REQAI   08ED  08CF 08F6 08FA
REQDV   0131  08C3 08F0
RID     0900  089F 0948
RSAI    0899  0806 086D 08B9 0CFD
RT01    08BE  089E 08F8
RT01A   08C0  08EE
RT03    0956  0916
RT04    0958  0947
RT06    0CDC  0CD8
SDSW    091E  08D3
START   012D  094D 0CFF
STCC    0D01
STRAD   0B19  0B05 0B25
SUEXX   08F?  08FC
SW0     0802  0968 0C5A
SW1     0803  092C 0CB4
SW2     0804  0928 0AFE 0CBB 0CC0
SW3     0805  089C 0CC8 0CD3
TEN     0A49  0A37 0A69 0A6C 0A76 0A7E 0A86 0A8A 0A90 0AB2
TENTH   0AC3  0A5E 0A73 0B1E
TERM    080A  08C8 08F5 0913 09B7 0D11
TEXIT   0C32  0C41
THOUS   0B95  0B89 0B8E 0BA1
TIBTL   0813  08C9 0D14
TICNO   0C2A  0C21 0C25
TICON   085C  0837 0889
TIDSW   085B  084F 09AE
TIERR   084F  0839
TIERS   085A  0850 0930 09AF 0C4D
TIEXX   084D
TIGOB   084B  0840 0845
TIINT   0835  084D 08C7
TIMER   0C15  0939 0943 0C18 0C1C 0C23 0C2A 0C32 0C36 0C3A
TIM11   0854  083E 0843 0847 0849 0C1? 0C2C 0C2E 0C38 0C3F
TIRNG   0C1F  0C28 0C29
TISRC   0C30  0C3C
TITRP   0852  0852 70C
TIWRK   083E  084C
TMBSY   08F8  08C5
TMCNT   0945  08AE 08B5 0950 0955
TMREQ   08C3  08BF
TMSSW   0924  0946 0962 097D
TSNSE   088E  0836 083A 08CC
TSTOP   0D00  0C16 0D03
TSTRT   0C66  0C34
VMEAN   0A4C  0A7D 0A89 0A95 0AC1 0AC2
WAWTC   0B68  0B34 0B50 0B72
XTSNC   094F  0942 0954
END OF ASSEMBLY
```

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

TABLE OF CONTENTS

1. PURPOSE

THE ANALOG-INPUT DATA CHANNEL SEQUENTIAL (AI DC SEQ) FUNCTION TEST IS DESIGNED TO TEST THE ANALOG INPUT FEATURE UNDER SINGLE CHANNEL CONTROL. A MAXIMUM OF 150 MULTIPLEX ADDRESSES CAN BE OPERATED ON AT ONE TIME. UP TO FIVE MULTIPLEX ADDRESSES CAN BE SELECTED FOR EVALUATION OF ACCURACY AND REPEATABILITY. UP TO FIVE TABLES CAN BE CHAINED TOGETHER TO A TOTAL WORD LENGTH OF 158 WORDS INCLUDING CHAIN ADDRESS AND CAR CHECK WORDS. RELAY-SOLID STATE OVERLAP CAN BE CHECKED BY CHAINING A SOLID STATE TABLE TO A RELAY TABLE AND VISA VERSA.

2. PREREQUISITES

2.1 PROGRAM PREREQUISITES

THE AI DC SEQ FUNCTION TEST MUST RUN UNDER CONTROL OF THE DIAGNOSTIC MONITOR.

2.2 EQUIPMENT PREREQUISITES

A. MONITOR PREREQUISITES
B. ANALOG-INPUT FEATURE

3. OPERATING PROCEDURE

3.1 PROGRAM LOADING

STANDARD LOADING PROCEDURE AS DESCRIBED IN THE DIAGNOSTIC MONITOR USE PROCEDURE.

3.2 PROGRAM OPERATION

STANDARD MONITOR OPERATING PROCEDURES APPLY.
THESE PROCEDURES ARE SUMMARIZED HERE. SEE DM USE PROCEDURE FOR DETAILS.

1. CLEAR STORAGE
2. LOAD DIAGNOSTIC MONITOR
3. SELECT MODE OF EXECUTION
4. SELECT MONITOR CONTROL OPTIONS
5. SELECT PROGRAM OPTIONS FROM TABLE 0 PROGRAM CONTROL FUNCTION.
6. INSTRUCT MONITOR TO EXECUTE (SEE SECTION 3.2.5 IN DIAGNOSTIC MONITOR DOCUMENTATION).

TABLE 0 CONTROL FUNCTION

```
******************  1. SET FUNCTION 00 IN SENSE/PROGRAM SWITCHES 0 AND 1.
*   SENSE/PROGRAM *  2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7.
* 0 1 2 3 4 5 6 7 *  3. SET DESIRED CONTROL OPTIONS IN DATA ENTRY SWITCHES 0-15.
* 0 0 1 0 0 0 1 0 *  4. PRESS CONSOLE INTERRUPT.
******************
```

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
. 1	BYPASS ALL LOG OUTPUT
. . . . . 1 .	BYPASS BLAST AI
. . . . . 1 . .	BYPASS EOXX OUTPUT
. . . . . 1 . . .	BYPASS ALL D001 OUTPUT
. . . . . 1	BYPASS D001 DISTRIBUTION TABLE
. . . . 1	BYPASS A001 OUTPUT
. . . 1	BYPASS ERROR (E00X) OUTPUT
. . 1	BYPASS SETUP ERROR (EC1X)
. 1	BYPASS TIMER DSW ERROR (C000)
1	BYPASS DATA VERIFY OUTPUT

3.3 PROGRAM HALTS

A DESCRIPTION OF EACH PROGRAM HALT CONDITION CAN BE FOUND AT THE BEGINNING OF THE PROGRAM LISTING.

3.4 PROGRAM TERMINATION

STANDARD MONITOR TERMINATION

3.5 SETUP OF DATA TABLE

EACH DATA TABLE IS INITIALLY SPECIFIED INTERNALLY WITHIN THE PROGRAM TO ESTABLISH THE PARAMETERS FOR EVALUATING THE BASIC OPERATIONS OF THE CE CALIBRATE POINT. AN EXPLANATION OF THIS INITIAL SETUP IS CONTAINED IN THE APPENDIX SECTION 6.1.

THE DATA TABLES CAN BE CHANGED EITHER BY CHANGING THE EDIT CARDS AND RELOADING OR DIRECTLY IN CORE USING THE DATA ENTRY SELECT FUNCTION.

1. EDIT CARDS.

THE PROGRAM EDIT FEATURE IS USED TO LOAD THE DATA TABLES WITH THE DESIRED INFORMATION. ANY OR ALL OF THE TABLE DATA CAN BE CHANGED OR MODIFIED BEFORE THE INITIAL LOADING OF THE PROGRAM. SEE FIGURE 1 FOR AN EXPLANATION OF EACH DATA TABLE.

2. DATA ENTRY ROUTINE.

ANY OR ALL OF THE TABLE DATA CAN BE CHANGED BY USING THE DATA ENTRY ROUTINE. THIS IS DONE ANYTIME AFTER THE PROGRAM IS IN CORE AND EXECUTING. FUNCTION 10-11 OF THE MONITOR READ BIT SWITCHES FEATURE IS USED. FUNCTION 10 IS USED TO SET UP THE ADDRESS OF THE WORD OR WORDS TO BE CHANGED. FUNCTION 11 IS USED TO ENTER THE NEW WORD. WORDS CAN BE ENTERED IN SEQUENCE BY SETTING THE DESIRED DATA INTO THE SWITCHES AND PRESSING CONSOLE INTERRUPT FOR EACH WORD TO BE ENTERED. SEE TABLE 2 AND 3.

A WORD COUNT EQUAL TO THE TERMINATOR (127) IS ENTERED AFTER A COMPLETE DATA ENTRY OPERATION (VIA FUNCTION 10). THIS RETURNS THE CONTROL TO THE OPERATING PROGRAM. AN EXPLANATION OF THE DATA TABLES IS CONTAINED IN FIGURE 1.

3. DATA VERIFY ROUTINE

IF IT IS NECESSARY TO PRINT THE CONTENTS OF AN AI TABLE IN CORE, TABLE 1 (DATA VERIFY) SHOULD BE USED. THE WORD COUNT (SWS. 9-15) INDICATES THE NUMBER OF WORDS TO BE PRINTED, TABLE DISPLACEMENT (SWS. 4-8) WILL SPECIFY THE FIRST WORD TO BE PRINTED FROM THE TABLE, AND TABLE NO. (SWS. 0-3) REFERS TO THE DESIRED TABLE (SEE THE DATA ENTRY ADDRESS TABLE LIST FOLLOWING TABLE 3).

FOR EXAMPLE, THERE IS AN AI TABLE IN STORAGE THAT HAS THE CONVERTED VALUES OF ALL THE ADDRESSES THAT ARE SPECIFIED IN THE AIIAT TABLE. (MAXIMUM OF 150 ADDRESSES) IF THE CE WISHES TO PRINT OUT THE FIRST 127 CONVERTED VALUES, THE FOLLOWING ENTRY SHOULD BE MADE USING TABLE 1. TABLE NO. IS 8 (SWS. 0-3), TABLE DISPLACEMENT IS 0 (SWS. 4-8) AND WORD COUNT IS 127 (SWS. 9-15).

TABLE 1 DATA VERIFY ROUTINE SELECT

SENSE/PROGRAM 0 1 2 3 4 5 6 7	
0 1 1 0 0 0 1 0	1. SET FUNCTION 01 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7. 3. SET DATA TABLE IDENTIFICATION IN DATA ENTRY SWITCHES 0-15. 4. PRESS CONSOLE INTERRUPT.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
X X X X X X X	WORD COUNT. 1-127
X X X X X	TABLE DISPLACEMENT. 0-31 BIT SWITCHES 4 THRU 8 ARE USED TO ALLOW ENTERING THE SELECTED TABLE AT ANY OF THE FIRST 32 WORDS.
X X X X	TABLE NUMBER. 0-F SEE THE DATA ENTRY ADDRESS TABLE LIST

TABLE 2 DATA ENTRY ROUTINE SELECT

SENSE/PROGRAM 0 1 2 3 4 5 6 7	
1 0 1 0 0 0 1 0	1. SET FUNCTION 10 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7. 3. SET DATA TABLE IDENTIFICATION IN DATA ENTRY SWITCHES 0-15. 4. PRESS CONSOLE INTERRUPT. NOTE- PROGRAM MUST BE EXECUTING.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
X X X X X X X	WORD COUNT OR TERMINATOR. 1-127 TERMINATOR = 127
X X X X X	TABLE DISPLACEMENT. 0-31 BIT SWITCHES 4 THRU 8 ARE USED TO ALLOW ENTERING THE SELECTED TABLE AT ANY OF THE FIRST 32 WORDS.
X X X X	TABLE NUMBER. 0-F SEE THE DATA ENTRY ADDRESS TABLE LIST

A WORD COUNT EQUAL TO THE TERMINATOR (127) IS ENTERED AFTER A COMPLETE DATA ENTRY OPERATION. THIS RETURNS CONTROL TO THE OPERATING PROGRAM.

TABLE 3 DATA ENTRY FUNCTION

SENSE/PROGRAM 0 1 2 3 4 5 6 7	
1 1 1 0 0 0 1 0	1. SET FUNCTION 11 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7. 3. SET DATA WORD INTO DATA ENTRY SWITCHES 0-15. 4. PRESS CONSOLE INTERRUPT. NOTE- PROGRAM MUST BE EXECUTING.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
X X X X X X X X X X X X X X X X	DATA WORD TO BE ENTERED INTO TABLE POSITION SELECTED BY FUNCTION 10. SEE TABLE 2.

DATA ENTRY ADDRESS TABLE LIST

FOR USE WITH THE DATA ENTRY AND THE VERIFY DATA ROUTINES.
THE TABLE NUMBER IS ENTERED IN B0-B3 OF THE DATA ENTRY SWITCHES.
SEE DATA VERIFY ROUTINE SELECT AND DATA ENTRY ROUTINE SELECT, TABLES 1 AND 2.

CORE TABLE NO.	TABLE SYMBOLIC ADDRESS	CORE TABLE NAME	TABLE LENGTH
0	TIBTI	TIMER A SPEED CONSTANT	1
1	AICYC	CYCLE COUNT	1
2	AIMPX	MULTIPLEX ADDRESS TABLE	6
3	AIPRC	PRECISION READING TABLE	6
4	AIFRS	RESOLUTION TABLE	1
5	RANGE	RANGE TABLE	5
6	AIHXS	HEX-DEC/(A001) SWITCH	1
7	AIADT+8	THIS WORD CONTAINS THE ADDRESS OF THE FOLLOWING WORD. BY SELECTING TABLE ADDRESS 7 IN DATA ENTRY FUNCTION 10 ANY CORE ADDRESS CAN BE ENTERED INTO TABLE ADDRESS 8 USING FUNCTION 11. THIS ADDRESS ENTERED DETERMINES THE STARTING POSITION OF THE CORE TABLE ADDRESSED BY POSITION 8 OF THE ADDRESS TABLE. BY SELECTING TABLE ADDRESS 8 FUNCTION 10, DATA CAN BE ENTERED INTO THIS CORE TABLE USING FUNCTION 11. THIS ALLOWS ANY 1-126 WORD TABLE IN CORE TO BE MODIFIED.	1
8	AICYR	CYCLE COUNTER -- ANY ADDRESS CAN BE ENTERED HERE	1-159
9	AIIAT	INPUT ADDRESS TABLE	11
A	AIXSS	EXTERNAL SYNC SWITCH	1
8	AIDRT-2	INPUT DATA TABLE	158

3.6 DATA TABLE EXPLANATION

FIGURE 1.

DATA TABLE EXPLANATION

NAME — **EXPLANATION**

TIBTI — ONE-WORD TABLE. A CONSTANT TO ESTABLISH THE INTERRUPT RATE OF TIMER A IS ENTERED IN THIS WORD. SEE TABLE IN LISTING.

AICYC — ONE-WORD TABLE. THIS COUNT DETERMINES THE NUMBER OF TIMES EACH SPECIFIED MULTIPLEX ADDRESS IS READ AND CONVERTED. THE COUNT MAY BE ANY NUMBER FROM 1 TO 32,000 (7D00 HEX) CYCLE COUNTS.

AIMPX — SIX-WORD (MAXIMUM) TABLE. THE MULTIPLEX ADDRESSES TO BE READ AND EVALUATED FOR ACCURACY AND REPEATABILITY ARE ENTERED IN THIS TABLE. THE LAST WORD MUST BE AN FFFF. SEE EXAMPLE 1.

AIPRC — FIVE-WORD TABLE. THE PRECISION DIGIT VALUE CORRESPONDING TO EACH MULTIPLEX ADDRESS IN THE AIMPX TABLE IS ENTERED IN THIS TABLE.

AIAPR — ONE-WORD SWITCH. A ONE BIT IN THIS WORD WILL CAUSE THE FIRST VALUE READ FOR EACH SELECTED MULTIPLEX ADDRESS TO BE ENTERED IN THE AIPRC TABLE. A ZERO WILL CAUSE THE AIPRC TABLE ENTRIES TO BE USED AS THEY ARE SPECIFIED. THIS SWITCH IS THE 6TH ENTRY OF THE AIPRC TABLE.

AIFRS — ONE-WORD TABLE. THE RESOLUTION FOR THE ADDRESSES IN THE AIMPX TABLE IS ENTERED IN THIS TABLE. 000E 14-BIT RESOLUTION, 000B 11-BIT RESOLUTION, AND 0008 8-BIT RESOLUTION.

RANGE — FIVE-WORD TABLE. THE RANGE CONSTANT CORRESPONDING TO EACH OF THE MULTIPLEX ADDRESSES IN THE AIMPX TABLE IS ENTERED IN THE CORRESPONDING LOCATION OF THIS TABLE. THE VARIOUS RANGES AND RANGE CONSTANTS ARE LISTED BELOW.

RANGE	HEX CONSTANT
500 MV	01F4
200 MV	00C8
100 MV	0064
50 MV	0032
20 MV	0014
10 MV	000A
5 VOLTS	0005

AIIAT — ELEVEN WORD TABLE. THE DATA USED TO SETUP THE MPX ADDRESSES TO BE READ IS ENTERED INTO THIS TABLE. THE STARTING MPX ADDRESS IS FOLLOWED BY A WORD COUNT TO DETERMINE THE LENGTH OF THE SEQUENCE. SEE EXAMPLE 2 FOR THE VARIOUS CONFIGURATIONS.

AIXSS — ONE WORD SWITCH. A ZERO IN THIS WORD SELECTS NORMAL MODE OF OPERATION. A ONE SELECTS EXTERNAL SYNC MODE. (NOTE A PULSE SOURCE MUST BE CONNECTED TO EXTERNAL SYNC INPUT IF EXTERNAL SYNC MODE IS SELECTED).

EXAMPLE 1

AIIAT	AIMPX	
1000	1000	*
0004 WC	1009	*
1008	0004	*
0002 WC	1011	*
0000	102A	*
0006 WC		
1010		
000A WC		
1020		
0020 WC		
FFFF		

* THE AIMPX TABLE IS USED TO SPECIFY TO FIVE ADDRESSES TO BE EVALUATED. THESE ADDRESSES MUST BE ENTERED IN THE SAME ORDER FOUND IN THE TABLES FORMED FROM THE AIIAT TABLE.

EXAMPLE 2
(EXAMPLE OF A TYPICAL AIIAT TABLE)

AIIAT ENTRY	DESCRIPTION
1000	TABLE 1
0004	4 SEQUENTIAL SS ADDRESSES 1000-1003
1008	TABLE 2
0002	2 SEQUENTIAL SOLID STATE ADDRESSES 1008-1009
0000	TABLE 3
0006	6 SEQUENTIAL RELAY ADDRESSES 0000-0005
1010	TABLE 4
000A	10 SEQUENTIAL SOLID STATE ADDRESSES 1010-1019
1020	TABLE 5
0020	32 SEQUENTIAL SOLID STATE ADDRESSES 1020-103F
FFFF	THE TERMINATOR CAN BE PLACED TO ALLOW CHAINING UP TO FIVE TABLES. THE ABOVE SETUP SHOWS FIVE.
	FOR NO CHAINING THE AIIAT TABLE SETUP IS AS FOLLOWS,
AIIAT	
1000	EACH SET OF TWO WORDS (AN ADDRESS AND WORD
0004	COUNT) FORM A TABLE.
FFFF	

4.0 PRINTOUTS

ALL OF THE MESSAGES OUTPUTTED BY THIS PROGRAM ARE IN THE STANDARD MONITOR FORMAT. THE FIRST FOUR WORDS OF THE MESSAGE ARE ALWAYS IN HEX AND ARE USED FOR IDENTIFICATION ONLY. THE MESSAGE EXPLANATIONS GIVEN BELOW DO NOT SHOW THE PROGRAM ID (PID).

THE REMAINDER OF THE MESSAGE CAN BE EITHER IN HEX OR DECIMAL. IN THE WORDS WHERE FRACTIONAL VALUES CAN APPEAR THE DECIMAL POINT POSITION IS INDICATED IN THE EXAMPLE. NO DECIMAL POINTS ARE LOGGED. A MINUS SIGN IS LOGGED PRECEEDING THE NEGATIVE DECIMAL VALUES.

```
MID  RID  RAD  MULTIPLEX PRECISION DIGIT     VOLTAGE    CYCLE
               ADDRESS   DIGIT     VALUE     VALUE      COUNT
                         VALUE     READ      READ
A001 000X XXXX XXXXXXXX  XXXXXXXX  XXXXXXXX  XXX.XXXXX  XXXXXXXX
```

THIS DECIMAL MESSAGE IS USED TO OUTPUT ANY DATA READ THAT IS OUT OF THE SAVE TABLE LIMITS, OVERLOADS EXCEPTED. THE SAVE TABLE INCLUDES THE PRECISION READING PLUS AND MINUS 54 DIGITS.

```
          ADDR WORD
          OF
          WORD
AAAA 000X XXXX XXXX XXXX
```

THIS HEX MESSAGE IS USED TO OUTPUT PROGRAM DATA TABLES AND SWITCHES TO VERIFY CONTENTS. SEE TABLE 1. THE MESSAGE MAY BE FROM 1-127 LINES.

```
          TIMR ERROR
          DSW  COUNT
C000 000X XXXX XXXX XXXX
```

THIS HEX MESSAGE IS USED TO LOG TIMER DSW ERRORS. AFTER THIS ERROR IS LOGGED THE PROGRAM IS ENDED. THE ERROR COUNT INDICATES THE NUMBER OF ERRORS COUNTED SINCE THE LAST LOG.

LINE 0

```
          MULTIPLEX RANGE     PRECISION PRECISION*
          ADDRESS             DIGIT     VOLTAGE
                              VALUE     VALUE
D001 0C0X XXXX XXXXXXXX  XXXXXXXX  XXXXXXXX  XXX.XXXXX
```

THIS DECIMAL MESSAGE IS USED TO LOG THE EVALUATION DATA FOR THE MULTIPLEX ADDRESSES SELECTED. THE SUMMARY DATA IS GIVEN IN THE FIRST THREE LINES AND THE DISTRIBUTION TABLE IS CONTAINED IN THE FOLLOWING 1-109 LINES.

LINE 1

```
          PERCENT    PERCENT    MEAN       MEAN*
          ACCURACY   REPEAT-    DIGITS     VOLTAGE
                     ABILITY
          XXXX.XXXX  XXXX.XXXX  XXXXXXX.X  XXX.XXXXX
```

LINE 2

```
          ACCURACY   REPEAT-    RESOLUTION CYCLES   OVERLOAD  OUT OF TABLE
          DEVIATION  ABILITY                         COUNTER   COUNTER
                     DEVIATION
          XXXXXXX.X  XXXXXXX.X  XXXXXXXX  XXXXXXXX  XXXXXXXX  XXXXXXXX
```

LINE 3 THROUGH LINE 112

```
          VOLTAGE*   DIGIT      COUNT
          VALUE      VALUE
          XXX.XXXXX  XXXXXXXX   XXXXXXXX
```

* VOLTAGE VALUES ARE GIVEN IN TERMS OF THE RANGE. SEE THE RANGE TABLE IN SECTION 3.1.


```
MID  RID  RAD  ERR  DSW  DSW  ERR  CYCLE
               ID   LAST LAST CNT  CNT
                    SNS  INT
E00X 0C0X XXXX XXXX XXXX XXXX XXXX XXXX
```

THIS HEX MESSAGE IS USED TO OUTPUT ERRORS OCCURRING DURING PROGRAM OPERATION.

E000 ERROR DETECTED DURING INTERRUPT.

E001 THE DSW WORD WONT RESET TO ZERO.

E003 END OF TABLE DIDN'T OCCUR

E007 BUSY STAYS ON OVER 100MS. THE SENSED DSW WORD IN THE MESSAGE CONTAINS ONLY BITS 8 AND 9 THE OTHER BITS IF ANY ARE ANDED OUT.

E008 THE DSW IS NOT RESET TO ZERO AFTER EXECUTING A BLAST AI OPERATION.

```
          1ST   1ST
          MPX   EVALUATION
          ADDR  ADDR
E010 0C0X XXXX XXXX XXXX
```

SET UP ERROR

THIS ERROR WILL OCCUR IF NO MULTIPLEX ADDRESSES ARE SELECTED TO BE READ AND EVALUATED. AFTER LOGGING IS COMPLETED THE PROGRAM CONTROL IS TRANSFERRED TO THE DATA ENTRY ROUTINE.

5. COMMENTS

5.1 THE AIDC SEQ FUNCTION TEST IS DESIGNED TO ALLOW THE CUSTOMER ENGINEER TO VERIFY THE OPERATION OF EACH FUNCTION OF THE ANALOG INPUT FEATURE USING THE SINGLE TABLE (SEQUENTIAL) MODE OF OPERATION.

5.2 AN INITIAL MULTIPLEX ADDRESS AND A WORD COUNT IS ENTERED INTO THE AIIAT TABLE FOR EACH ADDRESS TABLE DESIRED. CHAINING MAY BE SPECIFIED UP TO FIVE TABLES. ENTER THE BEGINNING MULTIPLEX ADDRESSES IN THE AIIAT TABLE IN SEQUENCE EACH FOLLOWED BY A WORD COUNT TO ESTABLISH EACH TABLE LENGTH. THE COMBINED TABLE LENGTH MUST NOT EXCEED 158 WORDS.

5.3 THE AIMPX TABLE IS USED TO SPECIFY UP TO FIVE ADDRESSES TO BE EVALUATED. THESE ADDRESSES MUST BE ENTERED IN THE SAME ORDER FOUND IN THE TABLES FORMED FROM THE AIIAT TABLE.

5.4 THE AIPRC TABLE IS USED TO PROVIDE A PRECISION DIGIT VALUE WHICH POSITIONS THE CENTER OF THE DISTRIBUTION TABLE. THIS ENABLES THE TABLE TO BE MOVED TO INCLUDE AN INCOMING DATA SPREAD OF 54 DIGITS ON EITHER SIDE OF THE PRECISION DIGIT VALUE ENTERED.

THE PRECISION DIGIT VALUES CAN BE AUTOMATICALLY SPECIFIED EQUAL TO THE FIRST VALUE READ FOR EACH SELECTED MULTIPLEX ADDRESS BY ENTERING A 1 IN THE AIAPR SWITCH, THE 6TH ENTRY IN THE AIPRC TABLE. THIS SWITCH IS RESET TO ZERO AFTER THE AIPRC TABLE IS INITIALLY SET UP.

5.5 DURING OPERATION, THE OUT-OF-TABLE READINGS FOR ANY OF THE FIVE SELECTED POINTS WILL BE TYPED OUT ALONG WITH THE CYCLE NUMBER. THESE TYPEOUTS CAN BE BYPASSED BY USING THE PROGRAMS CONTROL OPTIONS. SEE TABLE 1 SECTION 3.2.

5.6 AFTER COMPLETING THE SPECIFIED NUMBER OF CYCLES, THE MEAN ACCURACY AND REPEATABILITY ARE CALCULATED AND PRINTED OUT FOR EACH OF THE SELECTED MULTIPLEX ADDRESSES. ALL OF THE VARIABLE FACTORS USED TO PERFORM THE CALCULATIONS ARE PRINTED IN TABULAR FORM BELOW THE SELECTED POINT NUMBER TO PROVIDE A COMPLETE HISTORY OF THE DATA READ. THE DISTRIBUTION TABLE OR THE ENTIRE OUTPUT CAN BE OMITTED BY USING THE PROGRAMS CONTROL OPTIONS. SEE TABLE 1 SECTION 3.5.

5.7 THE NUMBER OF CYCLES CAN BE VARIED BY ENTERING THE NUMBER DESIRED IN THE CYCLE-COUNT WORD (AICYC). THE CYCLE COUNT CAN BE CHANGED DURING OPERATION USING THE DATA ENTRY ROUTINE SEE SECTION 3.5.

5.8 ERRORS THAT OCCUR DURING THE OPERATIONS ARE LOGGED, SEE SECTION 4 FOR THE POSSIBLE ERROR MESSAGES.

6. APPENDIX

6.1 EDIT CARD NUMBER 0 MUST BE IN THE CARD DECK TO ESTABLISH THE DEVICE ASSIGNMENTS AND THE TIMER A INTERVAL BEFORE LOADING THIS FUNCTION TEST. IF NO OTHER EDIT CARDS ARE INCLUDED, THE PROGRAM WILL PERFORM THE FOLLOWING FUNCTIONS-

A. 1000 CYCLES. THE FIRST CYCLE WILL ESTABLISH THE PRECISION DIGIT VALUES BY PLACING THE VALUES READ IN THE AIPRC TABLE.
B. THE CE MULTIPLEX ADDRESS (13E8) IS ENTERED 5 TIMES IN CHAINED TABLES.
C. THE CE MULTIPLEX ADDRESS IS SPECIFIED TO BE EVALUATED EACH TIME IT IS READ.
D. 14 BIT RESOLUTION.
E. 5 VOLT RANGE
F. NO EXTERNAL SYNC

THE TERMINATOR (END) EDIT CARD MUST ALWAYS BE THE LAST EDIT CARD.

6.1 EDIT PROCEDURE: THE FOLLOWING EDIT PROCEDURE IS FOR CARD INPUT. THE EDIT PROCEDURE FOR PAPER TAPE INPUT IS LOCATED IN THE PAPER TAPE EDIT UTILITY PROGRAM DOCUMENTATION. THE PROPER EDIT CARDS MUST BE THE LAST CARDS IN THIS PROGRAM DECK. THE FOLLOWING FORMS ARE PROVIDED TO AID IN MANUALLY PREPARING THESE EDIT CARDS OR UPDATING EXISTING EDIT CARDS. IF IT IS NECESSARY TO PREPARE OR MODIFY EDIT CARDS, FILL IN THE NECESSARY DATA IN THE FORMS PRIOR TO PUNCHING THE CARDS. CARD COLUMNS THAT ARE SHADED SHOULD BE LEFT BLANK.

DDEF STANDS FOR DEVICE DEFINITION EDIT FIELD. IT INCLUDES:
1. THE INTERRUPT LEVEL ASSOCIATED WITH THIS DEVICE (USE HEX NOTATION, 00-17).
2. THE ILSW BIT POSITION ASSOCIATED WITH THIS DEVICE (USE HEX NOTATION, 0-F).
3. THE CHANNEL ASSIGNED TO THIS DEVICE (0-8).

NOTE 1 THIS DDEF WILL BE FOR THE LOW PRIORITY DATA CHANNEL ASSIGNED TO AI. IF THE SYSTEM IS EQUIPPED WITH A SECOND SET OF AI ADAPTERS, ONLY ONE LOW PRIORITY DATA CHANNEL CAN BE EXERCISED AT A TIME.

TIBTI TABLE

THE FOLLOWING TABLE LISTS CONSTANTS TO BE ENTERED BY THE OPERATOR FOR TIMER A TIME BASE.

TIME BASE OF TIMER A IN MILLISEC.	CONSTANT ENTERED IN HEX AT LABEL TIBTI
128.000	0001
64.000	0002
32.000	0004
16.000	0007
8.000	000E
4.000	001B
2.000	0036
1.000	006B
.500	00D6
.250	01AB
.125	0356

	DDEF NOTE 1			INT. TIMER DDEF			TIBTI	AI MOD	
COLUMN	1 2 3 4 5 6	7 8 9 10 11	12 13 14 15 16	17 18 19 20 21	22 23 24 25 26	27 28 29 30 31	32 33 34 35 36	37 38 39 40 41	42 43 44 45 46
	PROGRAM I.D.	CARD SEQUENCE NUMBER	NUMBER OF EDIT ENTRIES	INTERRUPT LEVEL (HEX) / ILSW BIT (HEX) / CHANNEL (OR F)	INTERRUPT LEVEL (HEX) / ILSW BIT (HEX) / CHANNEL (OR F)	INTERVAL TIMER CONSTANT SEE TIBTI TABLE FOR CONSTANTS	A.U.C. MOD. MOD 1 = 0000 MOD 2 = 0001		
CARD 0	E 2 2 0 0	E D 0 0	0 0 0 4		F		0 0 0		

	47 48 49 50 51	52 53 54 55 56	57 58 59 60 61	62 63 64 65 66	67 68 69 70 71	72 73 74 75
COLUMN						
CARD 0						

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID						CARD SEQUENCE NUMBER			NUMBER OF EDIT ENTRIES						AICYC THE NUMBER OF CYCLES TO BE RUN 1-7D00														
CARD 1	E	2	2	0	0		E	D	0	1		0	0	0	1																

SEE SEC. 3.1 FIGURE 1

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
CARD 2	E	2	2	0	0		E	D	0	2		0	0	0	6										F	F	F	F				

PROGRAM ID

CARD SEQUENCE NUMBER

NUMBER OF EDIT ENTRIES

AIMPX TABLE

THE MULTIPLEX ADDRESSES TO BE EVALUATED ARE ENTERED HERE IN THE DESIRED ORDER. (1 TO 5 ADDRESSES) WHEN LESS THAN 5 ADDRESSES ARE SPECIFIED, FILL THE REMAINDER OF THE TABLE WITH FFFF WORDS. SEE SEC. 3.6 FIGURE 1

TERMINATOR

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	56	61	66	71
CARD 3	E	2	2	0	0		E	D	0	3		0	0	0	6												

PROGRAM ID

CARD SEQUENCE NUMBER

NUMBER OF EDIT ENTRIES

AIPRC TABLE

THE PRECISION DIGIT VALUE FOR EACH MULTIPLEX ADDRESS IN THE AIMPX TABLE IS ENTERED IN THIS TABLE. WHEN LESS THAN 5 ADDRESSES ARE ENTERED, FILL THE REMAINING TABLE ENTRIES TO 0000.

AIAPR

0000 = NORMAL
0001 = AIPRC TABLE IS FILLED WITH 1ST VALUE READ FOR EACH ADDRESS.

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID						CARD SEQUENCE NUMBER				NUMBER OF EDIT ENTRIES					AIFRS RESOLUTION CONSTANT 14 BIT = E 11 BIT = B 8 BIT = 8															
CARD 4	E	2	2	0	0		E	D	0	4		0	0	0	1		0	0	0													

SEE SEC. 3.1 FIGURE 1

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID							CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES		RANGE TABLE															
CARD 5	E	2	2	0	0		E	D	0	5		0	0	0	5		0				0		C		0		0				

A RANGE CONSTANT IS ENTERED FOR EACH MULTIPLEX ADDRESS IN THE AIMPX TABLE. SEE SECTION 3.6 FOR A LIST OF THE RANGE CONSTANTS. WHEN LESS THAN 5 CONSTANTS ARE ENTERED, FILL ALL REMAINING TABLE ENTRIES TO 0000.

EDIT PROCEDURE (CONTINUED)

			AIIAT TABLE									
			TABLE 1		TABLE 2		TABLE 3		TABLE 4		TABLE 5	
	PROGRAM ID	CARD SEQUENCE NUMBER	NUMBER OF EDIT ENTRIES	STARTING MPX ADDRESS OF FIRST TABLE	FIRST TABLE WORD COUNT (NO. OF ADDRESSES)	STARTING MPX ADDRESS OF SECOND TABLE	SECOND TABLE WORD COUNT (NO. OF ADDRESSES)	STARTING MPX ADDRESS OF THIRD TABLE	THIRD TABLE WORD COUNT (NO. OF ADDRESSES)	STARTING MPX ADDRESS OF FOURTH TABLE	FOURTH TABLE WORD COUNT (NO. OF ADDRESSES)	STARTING MPX ADDRESS OF FIFTH TABLE	FIFTH TABLE WORD COUNT (NO. OF ADDRESSES)	TERMINATOR
COLUMN	1 2 3 4 5	7 8 9 10	12 13 14 15	17 18 19 20	21	26	31	36	41	46	51	56	61	66	71
CARD 6	E 2 2 0 0	E D 0 6	0 0 0 8											F F F F	

*WHEN LESS THAN 5 TABLES ARE DESIRED FILL THE REMAINDER OF THE TABLE WITH FFFF WORDS. WHEN MORE THAN 1 TABLE IS SPECIFIED THE TABLES ARE CHAINED TOGETHER AND INTERRUPT ONLY AT THE END OF THE COMPLETE OPERATION. THE SUM OF ALL THE WORD COUNTS MUST NOT EXCEED 150.

EDIT PROCEDURE (CONTINUED)

THE LAST CARD IS THE "END EDIT CARD". THE INFORMATION IN THIS CARD INCLUDES:

1. AN "E" IN COLUMN 1.
2. THE PID FOR THIS PROGRAM (CCL. 2-3).
3. A TERMINATOR WORD OF "FFFF" (COL. 7-10).

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID					CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES					AiXSS EXTERNAL SYNC SWITCH 0001 = EXT SYNC 0000 = NORMAL															
CARD 7	E	2	2	0	0		E	D	0	7		0	0	0	1		0	0	0													
END	E	2	2	0	0		F	F	F	F																					

5F17


```
                    *
                    *
                    *
                    *               ***** *** ****  ****  *****
                    *               *   *  *  *   * *   * *
                    *               *****  *  *   * ****  *
                    *               *   *  *  *   * *     *
                    *               *   * *** ****  *     *****
                    *
                    *
                    *
                    *   ***** *   * *   * ***** ***** *** ***** *   *
                    *   *     *   * **  * *       *    *  *   * **  *
                    *   ***   *   * * * * *       *    *  *   * * * *
                    *   *     *   * *  ** *       *    *  *   * *  **
                    *   *     ***** *   * *****   *   *** ***** *   *
                    *
                    *
                    *                 ***** ***** ***** *****
                    *                   *   *     *       *
                    *                   *   ***   *****   *
                    *                   *   *         *   *
                    *                   *   ***** *****   *
                    *
                    *
                    *
                    *
                    *
                    *********************************************
                    *
                    *
07FF                      ORG     *+2047
                    *                  EQUATE TABLES
                    *
012C 0              BEGIN EQU     300
012D 0              START EQU     BEGIN&1
012E 0              END   EQU     START&1
012F 0              LOG   EQU     END&1
0130 0              ERROR EQU     LOG&1
0131 0              REQDV EQU     ERROR&1
0132 0              RELDV EQU     REQDV&1
0133 0              HALT  EQU     RELDV&1
                    *
                    *
                    *
                    *
                    *
                    *
                    *
07FF 0 2300         P.ᐤ   DC      /2300       PROGRAM ID
0800 0 0000         RID   DC      0           ROUTINE ID
0801 0 0000         RAD   DC      0           ROUTINE ADDRESS
0802 0 0000         SW0   DC      0           BIT SWITCH WORD 0
0803 0 4864         SW1   DC      /4864       BIT SWITCH WORD 1
0804 0 0000         SW2   DC      0           BIT SWITCH WORD 2
0805 0 0000         SW3   DC      0           BIT SWITCH WORD 3
0806 1 085B         IPA   DC      RSAI        INITIALIZATION ADᴊR
0807 1 083F         LPA   DC      AILOP       LOOP PROGRAM ADDR
0808 1 100A         EPA   DC      AIEND       END PROGRAM ADDR
0809 0 0000         MLSCF DC      0           MLSCF TABLE
080A 0 FFFF         TERM  DC      /FFFF       TERMINATOR
080B 1 1022               DC      PEND        ADDR OF LAST WORD
080C 0 0000               DC      0           MONITOR WORK AREA
080D 0 0000               DC      0           MONITOR WORK AREA
080E 0 4864         K4864 DC      /4864       PHASE 3 CONSTANT
080F 0 0000         ONLIN DC      *-*         ONLINE SWITCH
0810 0 8002               DC      /8002       ONLINE AND ONLINE DEVICE
                    *
```


5F18


```
                    *
                    *
                    *                        TBL LOADED BY OPERATOR
                    *
0811 0 0000         EDIT  DC        0          DDEF FOR AI
0812 0 0000               DC        0          DDEF FOR TIMER
0813 0 0356         TIBT1 DC      0 /356       TIMER CONSTANT
0814 0 0000         AIMOD DC        0 # MOD1   ADC MOD CONSTANT
0815 0 03E8         AICYC DC      1 1000       CYCLES TO BE RUN
0816 0 13E8         AIMPX DC      2 5096           ****
0817 0 13E8               DC        5096
0818 0 13E8               DC        5096       MPX ADDR TABLE
0819 0 13E8               DC        5096
081A 0 13E8               DC        5096
081B 0 FFFF               DC        /FFFF      TERMINATOR
081C 0 0000         AIPRC DC      3 0              ****
081D 0 0000               DC        0                               *
081E 0 0000               DC        0          PREC READING TBL     *
081F 0 0000               DC        0                               *
0820 0 0000               DC        0              ****
0821 0 0001         AIAPR DC        1          AUTO PREC RDNG SW
0822 0 000E         AIFRS DC      4 14             ****
0823 0 000E               DC        14                              *
0824 0 000E               DC        14         RESOLUTION TABLE     *
0825 0 000E               DC        14                              *
0826 0 000E               DC        14             ****
0827 0 0005         RANGE DC      5 5              ****
0828 0 0005               DC        5                               *
0829 0 0005               DC        5          RANGE TABLE          *
082A 0 0005               DC        5                               *
082B 0 0005               DC        5              ****
082C 0 0000         AISQS DC      9 0          RANDOM SEQUENTIAL SW
082D 0 0000         AIXSS DC      A 0          EXTERNAL SYNC SW
082E 0 0005         AIWC1 DC      B 5          NO OF POINTS
                    *
                    *
                    *
                    *
                    *                    DSW XFER VECTOR
082F 0 0000         AIIBT DC        0          NOT USED
0830 1 0CD2               DC        AIERR      ERROR ENTRY
0831 1 0CD2               DC        AIERR      ERROR ENTRY
0832 1 0CD2               DC        AIERR      ERROR ENTRY
0833 1 0CD2               DC        AIERR      ERROR ENTRY
0834 1 0CD2               DC        AIERR      ERROR ENTRY
0835 0 0000               DC        0          NOT USED
0836 0 0000               DC        0          NOT USED
0837 1 0CD2               DC        AIERR      ERROR ENiRY
0838 1 0CD2               DC        AIERR      ERROR ENTRY
0839 1 0CD2               DC        AIERR      ERROR ENTRY
083A 1 0CD2               DC        AIERR      ERROR ENTRY
083B 1 0CD2               DC        AIERR      ERROR ENTRY
083C 1 0A74               DC        AIIRY      RELAY ENTRY
083D 1 0A6E               DC        AIISS      SOLID STATE ENTRY
083E 1 0CD2               DC        AIERR      ERROR ENTRY
                    *
                    *
                    *
                    *                    LOOP PROGRAM ENTRY
                    *
                    *               THE PROGRAM IS ENTERED AT THIS POINT
                    *               FROM MONITOR AFTER COMPLETING EACH
                    *               PASS IF THE MONITOR CONTROL IS SET
                    *               TO LOOP. ALSO RESTARTS FROM THE
                    *               PROGRAM CAUSE ENTRY AT THIS POINT.
                    *
                    *
                    *
```

5F19


```
083F 0 0000       AILOP DC       0                                   SE
0840 0 401A             BSI      RSAI        GO TO INITIALIZE RTN
0841 1 6700 0905        LDX   L3 AILPE       LD LOOP RE-ENTRY ADR
0843 0 68C5             STX    3 MLSCF       SET RTRN ADDRESS
0844 1 4C80 083F        BSC   I  AILOP       EXIT ROUTINE            SX
                  *
                  *              ROUTINE SELECT SUBROUTINE
                  *
                  *        THIS SUBROUTINE IS USED TO LOAD
                  *        THE ADDR OF THE NEXT ROUTINE TO
                  *        BE EXECUTED INTO THE MLSCF AND
                  *        ALSO THE RID WORD AND RAD WORD.
                  *
                  *
0846 0 0000       AIRSL DC       0
0847 0 D888             STD      RID         SET RTN NO AND ADDR
0848 0 1090             SLT      16
0849 0 D08F             STO      MLSCF       SETUP RTRN ADDRES
084A 1 4C80 0846        BSC   I  AIRSL
                  *
                  *
                  *              TIMER DSW ERROR CALL
                  *
                  *        TIMER DSW ERRORS ARE LOGGED BY
                  *        THIS CALL, AFTER LOGGING THE
                  *        PROGRAM IS ENDED AND CONTROL
                  *        RETURNED TO MONITOR. %C000¤
                  *
                  *
                  ***********************************************
                  *                   ** LOG CALL **            *
084C 1 4400 0D07  LGTER BSI   L  LOGCL         GO LOG ERROR     *
084E 0 0002             DC       2             WORD COUNT       *
084F 0 0000             DC       0             HEX-DEC SW %HEX¤ *
0850 1 0919             DC       ENDAI         RETURN ADDR      *   $
0851 0 C000             DC       /C000         MESSAGE ID       *
0852 0 4005             DC       /4005         BYPASS BITS      *
0853 1 0988             DC       TIDSW         ADDR OF DSW      *
0854 1 0989             DC       TIERS         ADDR OF ERROR SW *
                  ***********************************************
                  *
                  *
                  *          ** INITIALIZATION ROUTINE **
                  *
                  *        THIS ROUTINE PERFORMS THE REQUIRED
                  *        INITIALIZATION FOR RESTART OF THE
                  *        PROGRAM. AND LOADS THE INITIAL
                  *        ENTRY ADDRESS INTO THE MAIN LINE
                  *        SEQUENCE CONTROL FIELD.
                  *
                  *
                  *              RESTART ENTRY
                  *
                  *        ENTRY IS MADE AT THIS POINT AFTER
                  *        EXITING FROM THE DATA ENTRY ROUTINE
                  *
0855 1 4400 100A  AIRST BSI   L  AIEND         GO RELEASE DEVICES
0857 0 4003             BSI      RSAI          GO TO INITIALIZATION
0858 0 7061             MDX      AIRTM         BRANCH TO RTN TO MON
                  *
                  *
0859 0 0000       INLSW DC       0             INITIAL PASS SW - PIII
085A 0 0700       SDSW  DC       /0700         SENSE DSW CONSTANT
                  *
085B 0 0000       RSAI  DC       0
085C 0 6600 0240        LDX   L2 AIEND-2-AISUX
085E 0 10A0             SLT      32                               *
085F 1 DE00 0DC6        STD   L2 AISUX-2                          *
```


5F20


```
0861 0 72FE             MDX    2 -2          ZERO WORK AREAS     *
0862 0 70FC             MDX      RSAI&4                          *
0863 1 D400 0D6B        STO   L  AIDWC       RESET DATA WORD COUNT
0865 0 6201             LDX    2 1
0866 1 6E00 0A24        STX   L2 AIRIT&1     SET WORD CNT # 1
0868 1 6E00 0B29        STX   L2 AICYR       INITIALIZE CYC CNTR
086A 1 6780 082E        LDX   I3 AIWC1       LOAD WORD COUNT
086C 0 7300             MDX    3 0           TEST FOR ZERO
086D 0 7002             MDX      *&2         SKIP IF NOT ZERO
086E 1 7401 0CDF        MDX   L  AIERS,1     SET ERROR SW ON
0870 0 73FB             MDX    3 -5          TEST FOR MORE THAN 5
0871 0 6300             LDX    3 0           SET X3 # 0
0872 0 7305             MDX    3 5           RESTORE X3 TO COUNT
0873 0 1000             SLA      0           MDX MAY SKIP
0874 0 6BB9             STX    3 AIWC1       STORE CORRECTED COUNT
0875 0 C0B6             LD       AISQS       LD R-S SWITCH
0876 1 4C18 0883        BSC   L  AIRDM,-&    BR IF RANDOM MODE
0878 0 C0B5             LD       AIWC1       LD WORD COUNT
0879 1 D400 0A24        STO   L  AIRIT&1     SET WORD COUNT
087B 1 6780 082E        LDX   I3 AIWC1
087D 0 8098             A        AIMPX       FORM HIGHEST ADDR
087E 0 900F       AISSE S        RT01
087F 1 D700 0815        STO   L3 AIMPX-1     SET MPX ADDR
0881 0 73FF             MDX    3 -1          SKIP OUT X3 # 0
0882 0 70FB             MDX      AISSE       BRANCH
0883 0 C80A       AIRDM LDD      RT01        LD ENTRY 1 ADDRESS
0884 0 40C1             BSI      AIRSL       GO TO RTN SEL SUBRTN
0885 0 68D3             STX      INLSW       SET 1ST PASS - PHASE III
0886 1 4C80 085B        BSC   I  RSAI        RETURN TO MONITOR
                  *
                  *
                  *
                  *                 ENTRY B
                  *
                  *        THE MONITOR TRANSFERS MAIN LINE
                  *        CONTROL TO THE PROGRAM STARTING
                  *        AT ENTRY B FOLLOWING A BUSY RETURN
                  *        TO MONITOR. A BUSY RETURN TO
                  *        MONITOR IS MADE ONLY IF THE NEXT
                  *        OPERATION CANNOT BE STARTED
                  *        BECAUSE OF AN ADC BUSY.
                  *
                  *
                  *
0888 0 00C0       BSYBT DC       /00C0       BUSY BITS 8 & 9
0889 0 0400       CONTL DC       /0400       CONTROL FUNTION
088A 0 0000 0000  AIBST DEC      0           BLAST IOCC
088C 0 0000 0000  RDDSW DEC      0           SENSE DSW IOCC
                  *
                  *
                  *
088E 0 0001       RT01  DC       1           RID
088F 1 08F5             DC       AISRT       RAD
0890 0 0002       RT02  DC       2           RID
0891 1 089B             DC       AIENB       RAD
0892 0 0005       RT05  DC       5           RID
0893 1 09E8             DC       AIRAC       RAD
0894 0 0007       RT07  DC       7           RID
0895 1 099C             DC       AIREQ+1     RAD
0896 0 0000       AISPS DC       *-*         INT TIMER SWITCH
                  *
0897 1 6E00 0CDF  AIERL STX   L2 AIERS       RESET ERROR SW
0899 1 4C00 0913        BSC   L  LPRTN
089B 1 7400 080F  AIENB MDX   L  ONLIN.0
089D 0 7001             MDX      *+1         ONLINE BRANCH
089E 0 7006             MDX      AIENC       OFFLINE BRANCH
089F 1 74FF 0896        MDX   L  AISPS,-1
```

5F21

```
08A1 0 1000                NOP
08A2 1 74FF 08F4           MDX  L  AITMS,-1
08A4 0 1000                NOP
08A5 0 6500 0000   AIENC   LDX  L1 0          RESTORE INDEX 1
08A7 0 6200                LDX   2 0          ZERO INDEX REG 2
08A8 1 7400 0989           MDX  L  TIERS,0    TEST FOR TIMER ERROR
08AA 0 70A1                MDX     LGTER      GO LOG INTR ERROR
08AB 0 08E0                XIO     RDDSW      SENSE DSW FOR BUSY
08AC 0 D046                STO     DSW        SAVE DSW WORD
08AD 0 E0DA                AND     BSYBT      BUSY BITS 8 & 9
08AE 1 D400 0964           STO  L  AIBYS      SET BUSY SW
08B0 0 C0E5                LD      AISPS      LD INTRRPT TIMER SW
08B1 1 4C18 09D2           BSC  L  AIECK,&-   BR IF TIMER SW OFF
08B3 0 08D8        AIRRT   XIO     RDDSW      SENSE DSW FOR BUSY
08B4 0 1008                SLA     8
08B5 1 4C10 08C2           BSC  L  AIEVV,-    BR IF NOT SS BUSY
08B7 0 C8D8        AIEXB   LDD     RT02       LD ENTRY 2 ADDRESS
08B8 0 69ED                STX   1 AIENC+1    STORE X1 BEFORE EXIT
08B9 0 408C        AIEXX   BSI     AIRSL      GO TO RTN SEL SUBRTN
08BA 2 4C80 012D   AIRTM   BSC  I  START      RETURN TO MONITOR .
                   *
                   *
                   *                  ENTRY FIVE
                   *
                   *          THE PROGRAM IS ENTERED AT THIS POINT
                   *          AFTER A COMPLETED CYCLE.
                   *
                   *
08BC 1 7401 0B29   AILDB   MDX  L  AICYR,1    ADD 1 TO CYCLE CNTR
08BE 0 C8D3                LDD     RT05       LD ENTRY 5 ADDRESS
08BF 0 70F9                MDX     AIEXX      BRANCH - EXIT
                   *
08C0 0 C8D3        AIBSY   LDD     RT07       LD ENTRY 7 ADDRESS
08C1 0 70F7                MDX     AIEXX
                   *
                   *
                   *
08C2 1 C400 0A46   AIEVV   LD   L  AISSW      LOAD INTRPT SWITCH
08C4 1 EC00 0A45           OR   L  AIRSW      OR RLY INTRPT SW
08C6 1 4C20 08B7           BSC  L  AIEAB,Z    BR IF EITHER SW ON
08C8 1 4400 09C7           BSI  L  RELES      BR TO RELEASE DEVICE
08CA 0 10A0                SLT     32         CLR A AND Q
08CB 1 C400 0804           LD   L  SW2        LD BIT SWITCH WORD 2
08CD 1 4C20 0D6C           BSC  L  AIDER,Z    BR TO CHANGE TBL DATA
08CF 1 C400 0803           LD   L  SW1        LD BIT SWITCH WORD 1
08D1 1 4420 0DA9           BSI  L  AIVED,Z    BR TO VERIFY DATA
08D3 0 6956                STX   1 CKDSW      STORE INDEX REG 1
08D4 0 C055                LD      CKDSW      FETCH INDEX REG 1 VALUE
08D5 1 F400 082E           EOR  L  AIWC1      CK IF = NO. OF POINTS
08D7 1 4C20 09FA           BSC  L  AIENT,Z    BR IF MORE POINTS
08D9 1 C400 0802           LD   L  SW0
08DB 0 1009                SLA     9
08DC 1 EC00 080F           OR   L  ONLIN      ADD BIT ZERO
08DE 1 4C28 0AAD           BSC  L  AIEVL,&Z   BYPASS BLAST AI
08E0 1 0C00 0A7E           XIO  L  AIWRT      START OPERATION
08E2 0 4002                BSI     AICKB      PREVENT INTERRUPT
08E3 1 4C00 0AAD   HERE    BSC  L  AIEVL      BRANCH
                   *
08E5 0 0000        AICKB   DC      0                                  SE
08E6 0 08A5                XIO     RDDSW      SENSE DSW
08E7 1 4418 08E5           BSI  L  AICKB,&-   LOOP IF BUSY NOT ON
08E9 0 08A0                XIO     AIBST      RESET OPERATION
08EA 0 083F                XIO     CKDSW      RESET PENDING INTER
08EB 0 08A0                XIO     RDDSW      SENSE DSW
08EC 0 D006                STO     DSW        SAVE DSW
08ED 1 4420 0CE2           BSI  L  AIERC,Z    ERROR IF NOT ZERO
08EF 0 E008                AND     *&8        MID FOR BLAST FAILING
08F0 0 70F2                MDX     HERE       BRANCH   EXIT        SX
```

82302740 82302750 82302760 82302770 82302780 82302790 82302800 82302810 82302820 82302830 82302840 82302850 82302860 82302870 82302880 82302890 82302900 82302910 82302920 82302930 82302940 82302950 82302960 82302970 82302980 82302990 82303000 82303010 82303020 82303030 82303040 82303050 82303060 82303070 82303080 82303090 82303100 82303110 82303120 82303130 82303140 82303150 82303160 82303170 82303180 82303190 82303200 82303210 82303220 82303230 82303240 82303250 82303260 82303270 82303280 82303290 82303300 82303310 82303320 82303330 82303340 82303350 82303360 82303370 82303380 82303390 82303400 82303410

5F22

```
                   *
                   *
08F1 0 C89C        TMBSY   LDD      RT01      LD ENTRY 1 ADDRESS
08F2 0 70C6                MDX      AIEXX     BRANCH - EXIT
                   *
                   *
                   *
                   *                  START ENTRY
                   *
                   *          MAIN LINE CONTROL IS TRANSFERRED
                   *          TO THIS ENTRY POINT FOLLOWING
                   *          THE COMPLETION OF INITIALIZATION.
                   *
                   *
                   *
08F3 0 0000        DSW     DC       *-*       DSW STORAGE
08F4 0 0000        AITMS   DC       0         RLY DELAY SWITCH
                   *
08F5 1 7400 080F   AISRT   MDX  L   ONLIN,0
08F7 0 700D                MDX      AILPE
                   ********************************************
                   *                ** REQUEST DEVICE **      *
08F8 2 4480 0131           BSI  I   REQDV     GO TO REQUEST TMRS *
08FA 1 08F1                DC       TMBSY     ADDR OF TIMER BSY R*
08FB 1 0812                DC       EDIT&1    ADDR OF TIMER DDEF *
08FC 1 0967                DC       ACTI      ADDR TIMER DVA
08FD 1 080A                DC       TERM      ADDR OF TERMINATOR *
                   ********************************************
08FE 1 C400 0813           LD   L   TIBT1     LOAD TIMER CONSTANT
0900 1 4400 0CB0           BSI  L   MKPOS     GO TO CHANGE SIGN
0902 0 0063                STO      TICT1     SETUP TIMER CONSTANT
0903 0 D400 0004           STO  L   4         INITIALIZE TIMER WD
0905 1 4400 0998   AILPE   BSI  L   AIREQ     GO TO REQ AI SUBRTN
0907 1 C400 0CBA           LD   L   ACAI      LD AREA CODE
0909 1 EC00 0889           OR   L   CONTL     OR CONTROL FUNCTION
090B 1 D400 088B           STO  L   AIBST+1   SET IN IOCC WORD
090D 1 EC00 085A           OR   L   SDSW      OR IN FUNCTION
090F 1 D400 088D           STO  L   RDDSW+1   SETUP IOCC NO RESET
0911 0 E853                OR       TIONE     OR IN BIT 15
0912 0 D019                STO      CKDSW&1   SETUP IOCC B 15 ON
0913 0 0816        LPRTN   XIO      CKDSW     CHECK FOR ZERO DSW
0914 1 0C00 088C           XIO  L   RDDSW     SENSE DSW
0916 1 4C18 09EA           BSC  L   AIDOK,&-  BR IF DSW # 0
0918 0 D0DA                STO      DSW       SAVE DSW WORD
                   *
                   *
                   ********************************************
                   *                ** RELEASE AI **          *
0919 1 4480 09C7   ENDAI   BSI  I   RELES     GO TO RELEASE AI   *
                   ********************************************
091B 1 4400 0CE2           BSI  L   AIERC     GO TO CALL ON ERROR
091D 0 E001                AND      *+1
091E 2 4C80 012E   ABORT   BSC  I   END       END PROGRAM
                   *
                   *
                   *
                   *
                   *             ** TIMER ROUTINE **
                   *
                   *          THIS ROUTINE BEGINS A TIME DELAY
                   *          DETERMINED BY THE INCREMENT RATE
                   *          OF THE TIMER SELECTED, THE TIMER
                   *          COUNT SPECIFIED AND THE INTERRUPT
                   *          COUNT CONTAINED IN THE TIMER CALL.
                   *          AT THE START OF THE DELAY THE WORD
                   *          SPECIFIED BY THE SWITCH ADDRESS IN
                   *          THE TIMER CALL IS SET TO A 5 VALUE.
                   *          AT THE END OF THE DELAY THIS SWITCH
```

82303420 82303430 82303440 82303450 82303460 82303470 82303480 82303490 82303500 82303510 82303520 82303530 82303540 82303550 82303560 82303570 82303580 82303590 82303600 82303610 82303620 82303630 82303640 82303650 82303660 82303670 82303680 82303690 82303700 82303710 82303720 82303730 82303740 82303750 82303760 82303770 82303780 82303790 82303800 82303810 82303820 82303830 82303840 82303850 82303860 82303870 82303880 82303890 82303900 82303910 82303920 82303930 82303940 82303950 82303960 82303970 82303980 82303990 82304000 82304010 82304020 82304030 82304040 82304050 82304060 82304070 82304080 82304090

5F23

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*
*
*
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097C 1 D700 0923          STO  L3 TIM11-1   RESET CALL                        82305460
097E 0 73FE         TIGOB MDX   3 -2                                          82305470
097F 0 70F1               MDX     TIWRK     CHECK REST OF CALLS               82305480
0980 1 4C80 0968    TIEXX BSC  I  TIINT     EXIT ROUTINE          IX          82305490
0982 0 D005         TIERR STO     TIDSW     SAVE DSW                          82305500
0983 1 7401 0989          MDX  L  TIERS,1   ADD 1 TO ERROR SW                  82305510
0985 0 70FA               MDX     TIEXX     BRANCH TO EXIT                    82305520
0986 0 70FF         TITRP MDX     TITRP     INTR ON SOLID - TRAP              82305530
                    *                                                         82305540
0987 0 0140         KAITM DC      320       TIME DELAY CONSTANT               82305550
0988 0 0000         TIDSW DC      0         TIMER DSW STORAGE                 82305560
0989 0 0000         TIERS DC      0         TIMER DSW ERROR SW                82305570
                    *                                                         82305580
                    *                                                         82305590
                    *                                                         82305600
098A 1 C500 0816    AIRZZ LD   L1 AIMPX     LD RLY ADDR                       82305610
098C 0 D0D6               STO     AIRMX     SAVE RLY ADDR                     82305620
098D 1 7400 080F          MDX  L  ONLIN,0                                     82305630
098F 0 7007               MDX     MOD3                                        82305640
                    ***************************************                   82305650
                    *          ** TIMER **                *                  82305660
0990 1 4400 092C          BSI  L  TIMER     GO TO TIMER RTN   *               82305670
0992 0 0003               DC      3         INTERRUPT COUNT   *               82305680
0993 1 08F4               DC      AITMS     ADDR OF PROG SW   *               82305690
                    ***************************************                   82305700
0994 1 7401 0A45    AIRSS MDX  L  AIRSW,1   SET RLY INTR SW ON                82305710
0996 0 7070               MDX     AIINP     BRANCH                            82305720
0997 0 C0EF         MOD3  LD      KAITM     GET CONSTANT                      82305730
0998 1 D400 08F4          STO  L  AITMS                                       82305740
099A 0 70F9               MDX     AIRSS                                       82305750
                    *                                                         8230576
                    *                                                         82305770
099B 0 0000         AIREQ DC      0                             SE            82305780
099C 1 C400 082E          LD   L  AIWC1     FETCH NO. OF POINTS               82305790
099E 1 7400 082C          MDX  L  AISQS,0   SK IF RANDOM MODE                 82305800
09A0 0 7001               MDX     *+1       ELSE BRANCH                       82305810
09A1 0 C0C3               LD      TIONE     FETCH CONST 1                     82305820
09A2 1 D400 0CB9          STO  L  INTRS     SET ONLINE INT SWITCH             82305830
                    ***************************************                   82305840
                    *          ** REQUEST DEVICE **       *                  82305850
09A4 2 4480 0131    ARQST BSI  I  REQDV     GO TO REQUEST AI  *               82305860
09A6 1 08C0               DC      AIBSY     ADDR OF AI BUSY RTN*              82305870
09A7 1 0811               DC      EDIT      ADDR OF AI DDEF   *               82305880
09A8 1 0CBA               DC      ACAI      ADDR OF AI DVA    *               82305890
09A9 1 080A               DC      TERM      ADDR OF TERMINATOR *              82305900
                    ********** ********************************               82305910
09AA 1 7400 0859          MDX  L  INLSW,0   SK IF NOT INITIAL ENTRY           82305920
09AC 0 7002               MDX     *+2       ELSE BRANCH                       82305930
09AD 1 4C80 09C8    ARQXT BSC  I  AIREQ     EXIT ROUTINE                      82305940
09AF 1 6500 080F          LDX  L1 ONLIN     SET REFERENCE VALUE               82305950
09B1 0 1010               SLA     16        CLEAR...                          82305960
09B2 0 D14A               STO   1 INLSW-ONLIN  INITIAL PASS SW                82305970
09B3 1 D400 08F4          STO  L  AITMS       CLEAR RELAY DELAY SWITCH        82305980
                    *                                                         82305990
                    *    RELEASE DEVICE                                       82306000
                    *                                                         82306010
09B5 0 4011               BSI     RELES     GO RELEASE AI                     82306020
                    *                                                         8230603
09B6 0 C100               LD    1 ONLIN-ONLIN  TEST ONLINE                    82306040
09B7 0 4818               BSC     +-          YES, SKIP                     82306050
09B8 0 7004               MDX     MOD1        NO, GO INITIALIZE             82306060
09B9 0 C400 FFD7          LD   L  ONOFF       TEST DEVICE ONLINE            82306070
09BB 1 4C20 1023          BSC  L  BB000,Z       AND GO TO ONLINE DFT        82306080
09BD 1 C400 0DB0    MOD1  LD   L  AIAAS                                       82306090
09BF 0 D0A3               STO     AIRMX     INITIALIZE ADDR WORD            82306100
09C0 0 D1F6               STO   1 SW3-ONLIN   AND WORD 3 FOR AI DPC           82306110
09C1 0 C1F4               LD    1 SW1-ONLIN   FETCH SW WRD 1                  82306120
09C2 0 F1FF               EOR   1 K4864-ONLIN  CK IF PHASE 3 CONST            82306130
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09C3 0 4820               BSC     Z           SK IF IT IS                   82306140
09C4 0 7001               MDX     *+1         BR IF NOT                     82306150
09C5 0 D1F4               STO   1 SW1-ONLIN   ZERO SW WORD 1                 82306160
09C6 0 70E6               MDX     ARQXT       BR TO EXIT                    82306170
                    *                                                       82306180
                    *                                                       82306190
09C7 0 0000         RELES DC      *-*         RELEASE ENTRY                 82306200
09C8 1 C400 0811          LD   L  EDIT        FETCH EDIT WORD               82306210
09CA 0 4810               BSC     -           SK IF AI ASSIGNED             82306220
09CB 0 7004               MDX     RELXT       ELSE EXIT                     82306230
09CC 2 4480 0132          BSI  I  RELDV       CALL RELEASE DEVICE           82306240
09CE 1 0811               DC      EDIT        EDIT LOCATION                 82306250
09CF 1 080A               DC      TERM        TERMINATOR LOCATION           82306260
09D0 1 4C80 09C7    RELXT BSC  I  RELES       EXIT                          82306270
                    *                                                       82306280
                    *                                                       82306290
                    *                                                       82306300
                    *                                                       82306310
                    *                                                       82306320
                    *                                                       82306330
                    *         THIS SEQUENCE TESTS FOR ERROR                 82306340
                    *         CONDITIONS RESULTING FROM LOST                82306350
                    *         INTERRUPTS, EITHER SS OR RLY.                 82306360
                    *         THE @AND@ FOLLOWING EACH BSI IS               82306370
                    *         A MESSAGE ID WORD USED IN THE                 82306380
                    *         ERROR MESSAGE.                                82306390
                    *                                                       82306400
                    *                                                       82306410
09D2 0 C091         AIECK LD      AIBYS       LD BUSY SWITCH                82306420
09D3 0 1008               SLA     8                                         82306430
09D4 1 4428 0CE2          BSI  L  AIERC,Z&    BR IF SS BUSY ON              82306440
09D6 0 E002               AND     *&2         MESSAGE ID                    82306450
09D7 0 C06E               LD      AISSW                                     82306460
09D8 1 4420 0CE2          BSI  L  AIERC,Z     BR IF INTR SW ON              82306470
09DA 0 E003               AND     *&3         MESSAGE ID                    82306480
09DB 0 6A6A               STX   2 AISSW       RESET INTRPT SW # 0           82306490
09DC 0 C068               LD      AIRSW                                     82306500
09DD 1 4420 0CE2          BSI  L  AIERC,Z     BR IF RLY INTR SW ON          82306510
09DF 0 E004               AND     *&4         MESSAGE ID                    82306520
09E0 0 6A64               STX   2 AIRSW       RESET RLY INT SW # 0          82306530
09E1 0 C082               LD      AIBYS       LOAD BUSY SWITCH              82306540
09E2 0 1009               SLA     9                                         82306550
09E3 1 4428 0CE2          BSI  L  AIERC,Z&    BR IF RLY BUSY ON             82306560
09E5 0 E005               AND     *&5         MESSAGE ID                    82306570
09E6 1 6400 08B3          LDX  L  AIRXT       BRANCH                        82306580
                    *                                                       82306590
09E8 0 6100         AIRAC LDX   1 0           RESET INDEX REG 1             82306600
09E9 0 7010               MDX     AIENT                                     82306610
                    *                                                       82306620
                    *                                                       82306630
09EA 0 6100         AIDOK LDX   1 0           INITIALIZE INDEX              82306640
09EB 0 6959               STX   1 AIRSW       INIT RLY INTR SW              82306650
09EC 1 C400 0CDF          LD   L  AIERS       LOAD ERROR SWITCH             82306660
09EE 1 6D00 0CDF          STX  L1 AIERS       RESET ERROR SWITCH            82306670
09F0 1 4C18 09FA          BSC  L  AIENT,&-    EDIT ERROR IF ON              82306680
                    ***************************************                 82306690
                    *          ** LOG CALL **             *                82306700
09F2 1 4400 0D07          BSI  L  LOGCL       GO LOG ERROR  *               82306710
09F4 0 0001               DC      1           WORD COUNT    *               82306720
09F5 0 0000               DC      0           HEX-DEC %HEX0 *               82306730
09F6 1 0D6C               DC      AIDER       RETURN ADDR   *             $ 82306740
09F7 0 E010               DC      /E010       MESSAGE ID    *               82306750
09F8 0 2001               DC      /2001       BYPASS BITS   *               82306760
09F9 1 082E               DC      AIWC1       ADDR OF NO EVAL ADD*          82306770
                    ***************************************                 82306780
09FA 0 6906         AIENT STX   1 AIABC&1     SAVE INDEX 1                  82306790
09FB 1 7500 0816          MDX  L1 AIMPX       GET ADDR OF MPX ADDR          82306800
09FD 0 6923               STX   1 AIOCC       SET INTO IOCC                 82306810
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09FE 0 6100               LDX  1  0                                           82306820
09FF 0 6946               STX  1  AISSW         INITIALIZE INTR SW            82306830
0A00 0 6500 0000    AIABC LDX L1  0             RESTORE INDEX 1               82306840
0A02 1 C480 0A21          LD  I   AIOCC         LD MPX ADRS                   82306850
0A04 0 1003               SLA     3             SS TEST                       82306860
0A05 1 4C10 0956          BSC L   AIRLY,-       BR IF NOT SS                  82306870
0A07 0 6904         AIINP STX  1  AIENS&1       SAVE INDEX 1                  82306880
0A08 1 7500 0DD2          MDX L1  AIRDV         SET READ ADDR                 82306890
0A0A 0 6918               STX  1  AIRIT                                       82306900
0A0B 0 6500 0000    AIENS LDX L1  0             RESTORE INDEX 1               82306910
                    *                                                         82306920
                    *                                                         82306930
                    *             THE RESOLUTION SETUP SEQUENCE               82306940
                    *             PROVIDES THE INPUT ROUTINE WITH             82306950
                    *             THE BITS TO SELECT THE REQUESTED            82306960
                    *             RESOLUTION. %EITHER 14 BIT, 11 BIT          82306970
                    *             OR 8 BIT RESOLUTION□                        82306980
                    *                                                         82306990
                    *                                                         82307000
                    *                                                         82307010
0A0D 1 C500 0822          LD  L1  AIFRS         LD RESOLUTION WORD            82307020
0A0F 0 100E               SLA     14                                          82307030
0A10 0 180E               SRA     14                                          82307040
0A11 0 B037               CMP     AIB14         COMPARE FOR BIT 14            82307050
0A12 0 7004               MDX     AIRG          BR TO SET UP 11 BIT           82307060
0A13 0 7006               MDX     AIRL          BR TO SET UP 08 BIT           82307070
0A14 0 1002               SLA     2                                           82307080
0A15 0 D031               STO     AIRES         SETUP 14 BIT RSLTN            82307090
0A16 0 7005               MDX     AIRDD         BR TO READ ADC                82307100
                    *                                                         82307110
0A17 0 1010         AIRG  SLA     16                                          82307120
0A18 0 D02E               STO     AIRES         SETUP 11 BIT RSLTN            82307130
0A19 0 7002               MDX     AIRDD         BRANCH TO READ ADC            82307140
                    *                                                         82307150
                    *                                                         82307160
0A1A 0 C02D         AIRL  LD      AIB11                                       82307170
0A1B 0 D02B               STO     AIRES         SETUP 08 BIT RSLTN            82307180
0A1C 1 7401 0A46    AIRDD MDX L   AISSW,1       SET INTERRUPT SW ON           82307190
                    ********************************************************  82307200
                    *                  ** READ ADC **                      *  82307210
0A1E 0 4028               BSI     INPUT         GO TO INPUT RTN            *  82307220
0A1F 1 0CBA               DC      ACAI          ADDR OF AREA CODE          *  82307230
0A20 0 0100               DC      /0100         FUN & MOD IOCC WR          *  82307240
0A21 0 0000         AIOCC DC      0             TAG IOCC WR                *  82307250
0A22 0 0200               DC      /0200         FUN & MOD IOCC RD          *  82307260
0A23 1 0DD2         AIRIT DC      AIRDV         TAG IOCC RD                *  82307270
0A24 0 0000               DC      0             WORD COUNT                 *  82307280
                    ********************************************************  82307290
0A25 1 7400 082C          MDX L   AISQS,0       SKIP IF NOT SEQNTL            82307300
0A27 0 7002               MDX     AIALD         BRANCH                        82307310
0A28 0 7101               MDX  1  1             ADD 1 TO INDEX                82307320
0A29 0 7002               MDX     AISTC         BRANCH                        82307330
0A2A 1 6580 082E    AIALD LDX I1  AIWC1         SET INDEX * WC                82307340
0A2C 1 7400 082D    AISTC MDX L   AIXSS,0       CHECK FOR EXT SYNC            82307350
0A2E 0 700E               MDX     XTSNC         BRANCH FOR EXT SYNC           82307360
0A2F 1 7400 080F    AIOLC MDX L   ONLIN,0       SK IF OFFLINE                 82307370
0A31 0 7006               MDX     MOD2                                        82307380
                    ********************************************************  82307390
                    *                  ** TIMER CALL **                    *  82307400
0A32 1 4400 092C          BSI L   TIMER         GO START TIMER             *  82307410
0A34 0 0001         TMCNT DC      1             TIME COUNT.                *  82307420
0A35 1 0896               DC      AISPS         PROG SWITCH ADDR           *  82307430
                    ********************************************************  82307440
0A36 1 6400 08A7    MOD4  LDX L   AIENC+2       BRANCH TO ENTRY B             82307450
0A38 1 C400 0B38    MOD2  LD  L   TEN           GET CONSTANT                  82307460
0A3A 1 D400 0896          STO L   AISPS                                       82307470
0A3C 0 70F9               MDX     MOD4                                        82307480
                    *                                                         82307490
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                    *                                                         82307500
0A3D 1 0C00 088C    XTSNC XIO L   RDDSW         READ DSW                      82307510
0A3F 1 4C20 0A2F          BSC L   AIOLC,Z       WAIT UNTIL BUSY ON            82307520
0A41 1 7400 0A46          MDX L   AISSW,0       CHECK FOR INTER               82307530
0A43 0 70F9               MDX     XTSNC                                       82307540
0A44 0 70EA               MDX     AIOLC         EXIT IF INTERRUPT OFF         82307550
                    *                                                         82307560
                    *                                                         82307570
0A45 0 0000         AIRSW DC      *-*           RELAY INTR SWITCH             82307580
0A46 0 0000         AISSW DC      *-*           SS INTR SWITCH                82307590
0A47 0 0000         AIRES DC      0             RESOLUTION SWITCH             82307600
0A48 0 0010         AIB11 DC      /0010         BIT 11 CONSTANT               82307610
0A49 0 0002         AIB14 DC      /0002         BIT 14 CONSTANT               82307620
                    *                                                         82307630
                    *                                                         82307640
                    *               ** INPUT ROUTINE **                       82307650
                    *                                                         82307660
                    *             THE INPUT ROUTINE ASSEMBLES THE             82307670
                    *             IOCC WORDS FOR BOTH THE WRITE               82307680
                    *             AND THE READ OPERATIONS AND                 82307690
                    *             PERFORM THE WRITE OPERATION. THE            82307700
                    *             WORD COUNT CONTAINED IN THE CALL            82307710
                    *             IS THE NUMBER OF READS TO BE DONE           82307720
                    *             FOLLOWING THE WRITE. THIS                   82307730
                    *             ESTABLISHES THE MODE EITHER RANDOM          82307740
                    *             OR SEQUENTIAL. THE WORD COUNT IS            82307750
                    *             SETUP FOR THE CALL DURING                   82307760
                    *             INITIALIZATION.                             82307770
                    *                                                         82307780
                    *                                                         82307790
                    *                                                         82307800
0A4A 0 0000         INPUT DC      0                                      SE   82307810
0A4B 1 6780 0A4A          LDX I3  INPUT                                       82307820
0A4D 0 C780 0000          LD  I3  0             LD AREA CODE                  82307830
0A4F 0 EB01               OR   3  1             OR FUN & MODIFIER             82307840
0A50 0 E8F6               OR      AIRES         OR RESOLUTION                 82307850
0A51 1 7400 082D          MDX L   AIXSS,0       SKIP IF NOT EXT SYNC          82307860
0A53 0 E827               OR      AIB08         SET EXT SYNC BIT ON           82307870
0A54 0 1890               SRT     16                                          82307880
0A55 0 C302               LD   3  2             LOAD TAG                      82307890
0A56 0 D827               STD     AIWRT         STD IOCC FOR WRITE            82307900
0A57 0 C780 0000          LD  I3  0             LD AREA CODE                  82307910
0A59 0 EB03               OR   3  3             OR FUN & MODIFIER             82307920
0A5A 0 D022               STO     AIRCC&1       SET IOCC FOR READ             82307930
0A5B 0 C780 0002          LD  I3  2             LOAD MPX ADRS                 82307940
0A5D 0 1003               SLA     3                                           82307950
0A5E 0 4810               BSC     -             SKIP IF SOLID STATE           82307960
0A5F 0 7003               MDX     AITNP         BRANCH                        82307970
0A60 0 C304               LD   3  4             LD IN DATA TBL ADDR           82307980
0A61 0 D00F               STO     AISIA         SET TBL ADDR FOR SS           82307990
0A62 0 7002               MDX     AIIOP         BRANCH                        82308000
0A63 0 C304         AITNP LD   3  4             LD IN DATA TBL ADDR           82308010
0A64 0 D012               STO     AIRIA         SET TBL ADDR FOR RLY          82308020
0A65 0 C305         AIIOP LD   3  5             LD WORD COUNT                 82308030
0A66 0 D013               STO     AIWDC         SET WORD COUNT                82308040
0A67 1 4400 099B          BSI L   AIREQ         GO REQUEST AI                 82308050
0A69 0 0814               XIO     AIWRT         SET MPX ADDR                  82308060
0A6A 1 7406 0A4A          MDX L   INPUT,6       SET RETURN ADRS               82308070
0A6C 1 4C80 0A4A          BSC I   INPUT         BR OUT OF ROUTINE        SX   82308080
                    *                                                         82308090
                    *                                                         82308100
                    *                                                         82308110
                    *                                                         82308120
                    *                                                         82308130
                    *             ** AI INTERRUPT SERVICE ROUTINE **          82308140
                    *                                                         82308150
                    *             THIS ROUTINE READS THE INPUT DATA           82308160
                    *             INTO CORE IN EITHER SEQUENTIAL OR           82308170
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5F29


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                    *              RANDOM MODE. THE MODE IS DETERMINED
                    *              BY THE WORD COUNT IN THE INPUT CALL.
                    *              THE WORD COUNT INDICATES THE NUMBER
                    *              OF READS TO BE EXECUTED AFTER EACH
                    *              WRITE.
                    *              THERE ARE TWO ENTRIES TO THIS
                    *              ROUTINE, THE ENTRY USED IS
                    *              DETERMINED BY THE BIT IN THE DSW
                    *              WORD.
                    *              EXTRA INTERRUPTS WILL BE TRAPPED
                    *              SHOULD THEY OCCUR.
                    *
                    *
                    *
                    *                   SOLID STATE ENTRY
                    *
0A6E 0 0000         AIISS DC       0                               IE
0A6F 0 6300               LDX   3 0          SET ENTRY SW TO SS
                    ********************************************
0A70 0 400F               BSI      AIINT     GO TO AI READ RT    *
0A71 0 0000         AISIA DC       0                             *
                    ********************************************
0A72 1 4C80 0A6E          BSC   I  AIISS     RETURN TO MONITOR     IX
                    *
                    *                  RELAY ENTRY
                    *
0A74 0 0000         AIIRY DC       0                               IE
0A75 0 6301               LDX   3 1          SET ENTRY SW TO RLY
                    ********************************************
0A76 0 4009               BSI      AIINT     GO TO AI READ RT    *
0A77 0 0000         AIRIA DC       0                             *
                    ********************************************
0A78 1 4C80 0A74          BSC   I  AIIRY     RETURN TO MONITOR     IX
                    *
0A7A 0 0000         AIWDC DC       *-*       WD COUNT STORAGE
0A7B 0 0080         AIB08 DC       /0080     BIT 08 CONSTANT
0A7C 0 0000 0000    AIRCC DEC      0         READ IOCC STORAGE
0A7E 0 0000 0000    AIWRT DEC      *-*       STORAGE AREA
                    *
0A80 0 0000         AIINT DC       0                               IE
0A81 1 C480 0A80          LD    I  AIINT     LD DATA ADDR
0A83 0 D0F8               STO      AIRCC     SET TAG WORD IN IOCC
0A84 1 74FF 0A7A          MDX   L  AIWDC,-1  SUBT 1 FROM WORD CNT
0A86 0 701E               MDX      AIINL     BRANCH IF SEQUENTIAL
0A87 0 7300               MDX   3 0          SKIP IF ENT SW # SS
0A88 0 7004               MDX      AITSR     BRANCH
0A89 0 C0BC               LD       AISSW     LD INTERRUPT SW
0A8A 1 4C18 0AA8          BSC   L  INTRE,&-  GO TO SETUP ERROR
0A8C 0 7003               MDX      AITND     BRANCH
0A8D 0 C037         AITSR LD       AIRSW     LD RLY INTRPT SW
0A8E 1 4C18 0AA8          BSC   L  INTRE,&-  GO TO SETUP ERROR
0A90 0 1010         AITND SLA      16
0A91 0 D0B4               STO      AISSW     RESET INTERRUPT SW
0A92 0 7300               MDX   3 0          SKIP IF ENT SW # SS
0A93 0 D0B1               STO      AIRSW     RESET RLY INTRPT SW
0A94 0 C0E8               LD       AIRCC&1   LD IOCC WORD
0A95 0 1808               SRA      8
0A96 0 1008               SLA      8         SET BIT 8 OFF
0A97 0 D0E5         AIRNL STO      AIRCC&1   SET IOCC WORD
0A98 0 08E3               XIO      AIRCC     READ WORD INTO CORE
0A99 1 6780 0A7C          LDX  I3  AIRCC
0A9B 0 7301               MDX   3 1          ADD 1 TO DATA ADDR
0A9C 1 6F80 0A80          STX  I3  AIINT     SET NEXT DATA ADDR
0A9E 1 7401 0A80    INTRX MDX   L  AIINT,1   SET RETURN ADDR
0AA0 1 74FF 0CB9          MDX   L  INTRS,-1
0AA2 0 1000               NOP
0AA3 1 4C80 0A80          BSC   I  AIINT     EXIT SUBROUTINE       IX
                    *
```


5F30


```
0AA5 0 C0D7         AIINL LD       AIRCC&1
0AA6 0 E8D4               OR       AIB08     SET BIT 8 ON
0AA7 0 70EF               MDX      AIRNL
                    *
0AA8 1 4400 0CD2    INTRE BSI   L  AIERR     BRANCH TO ERROR
0AAA 0 70F3               MDX      INTRX     BRANCH TO EXIT
                    *
                    *
                    *        ** DATA EVALUATION ROUTINE **
                    *
                    *        THIS ROUTINE IS ENTERED AFTER EACH
                    *        CYCLE TO EVALUATE, SORT AND SAVE
                    *        THE INPUT DATA FOR THE CALCULATIONS.
                    *        DATA WHICH IS NOT WITHIN THE LIMITS
                    *        TO BE SAVED FOR CALCULATIONS IS
                    *        OUTPUTTED FOR IMMEDIATE OBSERVATION.
                    *        THIS OUTPUT MESSAGE CAN BE OMITTED
                    *        BY SETTING BIT 12 OF BITSW WORD 0
                    *        ON.
                    *
                    *
                    *
0AAB 0 0000         AIWKJ DC       0         WORK AREA - J
0AAC 0 0000         AIWKK DC       0         WORK AREA - K
                    *
                    *
0AAD 1 C400 0CDF    AIEVL LD    L  AIERS     LD ERROR SW
0AAF 1 4420 0CE2          BSI   L  AIERC,Z   INTR ERROR IF ON
0AB1 0 E000               AND      *&0       MID FOR INTR ERROR
0AB2 0 6100               LDX   1 0          SET POINTER TO ZERO
0AB3 1 C400 0814    AIEV1 LD    L  AIMOD     LD ADC MOD SWITCH
0AB5 0 1090               SLT      16        SET CARRY ZERO Q
0AB6 1 C500 0DD2          LD   L1  AIRDV     LD VALUE READ
0AB8 1 4C04 0AFB          BSC   L  AIOVL,E   BR IF OVERLOAD
0ABA 1 4402 0CB0          BSI   L  MKPOS,C   BR IF CARRY ON
0ABC 1 D500 0DD2          STO  L1  AIRDV     RESTORE NEW VALUE
0ABE 0 1881               SRT      1
0ABF 0 D0EB               STO      AIWKJ     SAVE VALUE READ
0AC0 0 1890               SRT      16        SHIFT RDNG TO Q
0AC1 1 8D80 0DBE          AD   I1  AISUM     TO BE ADDED TO SUM
0AC3 1 DD80 0DBE          STD  I1  AISUM     TOTAL OF GOOD RDGNS
0AC5 1 C500 0DD7          LD   L1  AIGRD     LD GOOD READING CNTR
0AC7 0 8071               A        AIONE     AD 1 TO GRDING CNTR
0AC8 1 D500 0DD7          STO  L1  AIGRD     STO GOOD RDING CNTR
0ACA 0 10A0               SLT      32        CLEAR A & Q
0ACB 0 C0DF               LD       AIWKJ     LD VALUE READ
0ACC 1 9500 081C          S    L1  AIPRC     SUBT PREC READING
0ACE 0 D0DD               STO      AIWKK     STO DIFF IN WK - K
0ACF 1 4428 0CB0          BSI   L  MKPOS,&Z  GO TO MAKE POSITIVE
0AD1 1 9400 0C0C          S     L  FTFOR     SUBT TABLE LIMIT
0AD3 1 4C08 0AF4          BSC   L  AICNC,&   BR IF WITHIN LIMIT
0AD5 1 C500 0DDC          LD   L1  AIOTR     LD OUT OF TABLE CNTR
0AD7 0 8061               A        AIONE     AD 1 TO OUT OF TBL
0AD8 1 D500 0DDC          STO  L1  AIOTR     SET OTC # OTC&1
0ADA 1 C500 0816          LD   L1  AIMPX
0ADC 1 4400 0CFA          BSI   L  AIMPC
0ADE 1 C500 081C          LD   L1  AIPRC
0AE0 0 D056               STO      AIWKH&1   SAVE PREC RDNG
0AE1 1 C500 0827          LD   L1  RANGE     LD RANGE
0AE3 0 D04D               STO      AIWKE     SAVE RANGE
0AE4 0 C0C6               LD       AIWKJ     LD VALUE READ
0AE5 1 4400 0C94          BSI   L  AIDCN     GO TO DEC CNVRT RTN
                    ********************************************
                    *            ** LOG CALL **                =
0AE7 1 4400 0D07          BSI   L  LOGCL     GO TO LOG CALL SBRT=
0AE9 0 0006               DC       6         WORD COUNT         =
0AEA 0 1001         AIHXS DC       /1001     HEX-DEC SW %DEC    =
0AEB 1 0800               DC       AIZX1     RETURN ADDR        =    $
```

5F31


```
0AEC 0 A001                DC        /A001       MESSAGE ID           *
0AED 0 0805                DC        /0805       BYPASS BITS          *
0AEE 1 0836                DC        AIWKH       POINT NUMBER         *
0AEF 1 0837                DC        AIWKH&1     PRECISION READING    *
0AF0 1 0AAB                DC        AIWKJ       VALUE READ %DEC¤     *
0AF1 1 0C8C                DC        AIWKL       DECIMAL VALUE        *
0AF2 1 0C8D                DC        AIWKL&1     DECIMAL VALUE        *
0AF3 1 0829                DC        AICYR       CYCLE COUNTER        *
                    ******************************************************
                    *
                    *
0AF4 0 C0B7         AICNC  LD        AIWKK       LOAD DIFFERANCE
0AF5 1 8500 0DC3           A     L1  AISPT       ADD SPT ADDR TO DIFF
0AF7 0 D001                STO       MDY04&1     SET ADDR OF RD CNT   PR01
0AF8 0 7401 0000    MDY04  MDX   L   0,1         SET RD CNT#RD CNT&1  PM01
0AFA 0 7005                MDX       AIZX1       BRANCH
0AFB 1 C500 0DE1    AIOVL  LD    L1  AIOVC       LD OVERLOAD CNTR
0AFD 0 8038                A         AIONE       ADD 1 TO OVERLOAD
0AFE 1 D500 0DE1           STO   L1  AIOVC       STO OVERLOAD CNTR
0B00 0 7101         AIZX1  MDX    1  1
0B01 0 6930                STX    1  AIWKF       STO X1 IN WK AREA
0B02 0 C02F                LD        AIWKF       LD WK AREA
0B03 1 F400 082E           EOR   L   AIWC1       EOR NUMBER OF POINTS
0B05 1 4C20 0AB3           BSC   L   AIEV1,Z     BR TO CK NEXT PT
0B07 1 C400 0821           LD    L   AIAPR       LD AUTO PREC SW
0B09 1 4C18 0B17           BSC   L   AIOA4,&-    BR IF SW # OFF
0B0B 1 6720 082F           LDX   I3  AIWC1       COMPARE #
0B0D 1 C700 0DD1    AISPR  LD    L3  AIRDV-1     LOAD VALUE READ
0B0F 0 1881                SRT       1
0B10 1 D700 081B           STO   L3  AIPRC-1     SET INTO PREC TBL
0B12 0 73FF                MDX    3  -1          SUBT 1 FROM INDEX
0B13 0 70F9                MDX       AISPR       BRANCH
0B14 0 1010                SLA       16
0B15 1 D400 0821           STO   L   AIAPR       ZERO AUTO PREC SW
0B17 0 C011         AIOA4  LD        AICYR       LD CYCLE COUNT
0B13 1 F400 0815           EOR   L   AICYC
0B1A 1 4C20 088C    AIOA5  BSC   L   AILDB,Z     BRANCH IF MORE CYCLES
                    *
                    *
                    *               PERCENT CONSTANT SETUP
                    *                      SEQUENCE
                    *
                    *               CONSTANT # 99.7 PCENT OF CYCLES
                    *
0B1C 0 6100                LDX    1  0           RESET X1 # ZERO
0B1D 0 C00B                LD        AICYR       LD CYCLE CNTR
0B1E 0 A009                M         C0997       X 997
0B1F 1 AC00 0C92           D     L   THOUS       DIVIDE BY 1000
0B21 0 D00E                STO       P9970       STO 99.70 PERCENT
0B22 0 1090                SLT       16          SHIFT Q TO A
0B23 1 4C18 0B27           BSC   L   *&2,&-      BRANCH IF NO REMAINR
0B25 1 7401 0830           MDX   L   P9970,1     ADD 1 TO 99.70 PCNT
0B27 0 7012                MDX       AIYP1       BR TO COMPUTE RTN
                    *
                    *
0B28 0 03E5         C0997  DC        997         CONSTANT 997
0B29 0 0000         AICYR  DC        0           CYCLE COUNTER
0B2A 0 4000         AIRSC  DC        /4000       CONSTANT FULL SCALE
0B2B 0 0005         FIVE   DC        5           CONSTANT FIVE
0B2C 0 0000 0000    VMEAN  DEC       0           MEAN IN VOLTAGE
0B2E 0 0000 0000    MEAN   DEC       0           MEAN IN DIGITS
0B30 0 0000         P9970  DC        0           99.70 PCENT VALUE
0B31 0 0000         AIWKE  DC        0           WORK AREA - E
0B32 0 0000 0000    AIWKF  DEC       0           WORK AREA - F
0B34 0 0000 0000    AIWKG  DEC       0           WORK AREA - G
0B36 0 0000 0000    AIWKH  DEC       0           WORK AREA - H
0B38 0 000A         TEN    DC        10
0B39 0 0001         AIONE  DC        1           CONSTANT 1
```


5F32


```
                    *
                    *
                    *
                    *
                    *          THIS SEQUENCE IS ENTERED WHEN THE
                    *          SPECIFIED NUMBER OF CYCLES IS
                    *          COMPLETED. THE CALCULATIONS PERFORMED
                    *          IN THIS SEQUENCE ARE - MEAN, VOLTAGE
                    *          MEAN, ACCURACY PERCENT, AND
                    *          REPEATABILITY PERCENT.
                    *
                    *
                    *
0B3A 1 C500 0816    AIYP1  LD    L1  AIMPX       LD MPX ADDR
0B3C 1 4400 0CFA           BSI   L   AIMPC
0B3E 1 C500 0827           LD    L1  RANGE       LOAD RANGE
0B40 0 D0F0                STO       AIWKE       SAVE FOR LOG
0B41 1 C500 081C           LD    L1  AIPRC
0B43 1 4400 0C94           BSI   L   AIDCN       GO TO DEC CNVRT RT
0B45 1 C500 081C           LD    L1  AIPRC
0B47 0 A0F0                M         TEN
0B48 0 D8EB                STD       AIWKG       SAVE PREC READING
                    ******************************************************
                    *                ** LOG CALL **                      *
0B49 1 4400 0D07           BSI   L   LOGCL       GO TO LOG CALL SBRT*
0B4B 0 0006                DC        6           WORD COUNT          *
0B4C 0 2801                DC        /2801       HEX-DEC SW %DEC¤    *
0B4D 1 0B56                DC        AI3         RETURN ADDR         *
0B4E 0 D001                DC        /D001       MESSAGE ID          *
0B4F 0 0204                DC        /0204       BYPASS BITS         *
0B50 1 0B36                DC        AIWKH       POINT NO            *
0B51 1 0B31                DC        AIWKE       RANGE               *
0B52 1 0B34                DC        AIWKG       PRECISION READING   *
0B53 1 0B35                DC        AIWKG&1     PRECISION READING   *
0B54 1 0C8C                DC        AIWKL       DECIMAL VALUE       *
0B55 1 0C8D                DC        AIWKL&1     DECIMAL VALUE       *
                    ******************************************************
                    *
                    *
                    *                MEAN CALCULATION
                    *                   ALGORITHM
                    *
                    *               SUM/GRD # R1 & N1
                    *                 N1 X 10 # N2
                    *               R1 X 10/GRD # N3
                    *              N2 & N3 # MEAN X 10
                    *
0B56 1 CD80 0DBE    AI3    LDD   I1  AISUM       SUM OF READINGS
0B58 1 AD00 0DD7           D     L1  AIGRD       / NO OF GOOD READINGS
0B5A 0 D8DB                STD       AIWKH       # N1 & R1
0B5B 0 A0DC                M         TEN         X 10
0B5C 0 D801                STD       MEAN        # N2
0B5D 0 C0D9                LD        AIWKH&1     RL
0B5E 0 A0D9                M         TEN         X 10
0B5F 1 AD00 0DD7           D     L1  AIGRD       / GOOD READINGS # N3
0B61 0 1890                SRT       16
0B62 0 88CB                AD        MEAN        & N2
0B63 0 D8CA                STD       MEAN        # MEAN X 10
                    *
                    *
                    *               VMEAN CALCULATION
                    *                   ALGORITHM
                    *
                    *               SUM/GRD # N1 & R1
                    *         RANGE X 10000/RSC # N2 & R2
                    *                 N2 X 10 # N3
                    *                 N3 X N1 # N6
                    *             N1 X R2/RSC # N4 & R3
```

5F33

```
                          *                N4 X 10 # N7
                          *          N2 X R1/GRD # N5 & R4
                          *                N5 X 10 # N8
                          *              R3 X 10/RSC # N9
                          *              R4 X 10/GRD # N10
                          *           N6 & N7 & N8 & N9 & N10 # VMEAN IN
                          *        TERMS OF INPUT RANGE %XXX.XXXXX□
                          *
                          *
0B64 0 C0CC                     LD       AIWKE       LOAD RANGE
0B65 1 A400 0C93                M     L  TENTH       X 10000
0B67 0 A8C2                     D        AIRSC       / FULL SCALE
0B68 0 D8C9                     STD      AIWKF       # N2 & R2
0B69 0 A0CE                     M        TEN         # N3
0B6A 0 1090                     SLT      16
0B6B 0 A0CA                     M        AIWKH       X N1
0B6C 0 D8C7                     STD      AIWKG       # N6
0B6D 0 C0C8                     LD       AIWKH       N1
0B6E 0 A0C4                     M        AIWKF&1     X R2
0B6F 0 A8BA                     D        AIRSC       / FULL SCALE
0B70 0 D8BB                     STD      VMEAN       # N4 & R3
0B71 0 A0C6                     M        TEN         # N7
0B72 0 88C1                     AD       AIWKG       & N6
0B73 0 D8C0                     STD      AIWKG       # N6 & N7
0B74 0 C0BD                     LD       AIWKF       N2
0B75 0 A0C1                     M        AIWKH&1     X R1
0B76 1 AD00 0DD7                D     L1 AIGRD       / NO OF GOOD READNGS
0B78 0 D8B9                     STD      AIWKF       # N5 & R4
0B79 0 ACBE                     M        TEN         # N8
0B7A 0 88B9                     AD       AIWKG       & N6 & N7
0B7B 0 D8B8                     STD      AIWKG       # N6 & N7 & N8
0B7C 0 C0B0                     LD       VMEAN&1     R3
0B7D 0 A0BA                     M        TEN         X 10
0B7E 0 A8A4                     D        AIRSC       / FULL SCALE # N9
0B7F 0 1890                     SRT      16
0B80 0 88B3                     AD       AIWKG       & N6 & N7 & N8
0B81 0 D8B2                     STD      AIWKG       # N6 &N7 &N8 &N9
0B82 0 C0B0                     LD       AIWKF&1     R4
0B83 0 A0B4                     M        TEN         X 10
0B84 1 AD00 0DD7                D     L1 AIGRD       / GOOD READNGS # N10
0B86 0 1890                     SRT      16
0B87 0 88AC                     AD       AIWKG       & N6 &N7 &N8 &N9
0B88 0 D8A3                     STD      VMEAN       # MEAN IN VOLTS
0B89 0 C8A4                     LDD      MEAN        LD MEAN VALUE X 10
0B8A 0 D87F                     STD      AIWKD       SAVE MEAN X 10
0B8B 1 4428 0CB0                BSI   L  MKPOS,&Z    GO TO MAKE POS RT
0B8D 0 A89D                     D        FIVE        DIVIDE BY FIVE
0B8E 0 80AA                     A        AIONE       ADD ONE
0B8F 0 1881                     SRT      1           DIVIDE BY TWO
0B90 0 D0A3                     STO      AIWKG       SAVE RESULT RMEAN &
0B91 0 C078                     LD       AIWKD       LD MEAN X 10
0B92 1 4C10 0B99                BSC   L  AISRX,-     BR IF NOT NEGATIVE
0B94 0 10A0                     SLT      32          CLEAR A & Q
0B95 0 C09E                     LD       AIWKG       LD RMEAN POSITIVE
0B96 1 4400 0CB0                BSI   L  MKPOS       GO TO MK NEGATIVE
0B98 0 D09B                     STO      AIWKG       SAVE RESULT RMEAN -
0B99 0 C09A               AISRX LD       AIWKG       LD RMEAN
0B9A 0 D075                     STO      AIRAX       SET RMEAN FOR CALC
0B9B 1 9500 081C                S     L1 AIPRC       SUBT PREC READING
0B9D 0 4076                     BSI      PCENT       BR TO PCENT ROUTINE
0B9E 0 C06F                     LD       AIMCT       LD DEVIATION
0B9F 0 D067                     STO      AIWKA&1     SAVE DEVIATION
0BA0 0 C869                     LDD      AIWKD       LD REPEATABILITY
0BA1 0 1090                     SLT      16
0BA2 0 D066                     STO      AIWKC       SAVE REPEATABILITY
0BA3 1 C500 081C                LD    L1 AIPRC       LD PREC READING
0BA5 0 D06A                     STO      AIRAX       STO PREC READING
0BA6 0 A091                     M        TEN
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5F34

```
0BA7 0 D862                     STD      AIWKD       STO PREC X 10 TO LOG
0BA8 0 1010                     SLA      16
0BA9 0 406A                     BSI      PCENT       BR TO PCENT ROUTINE
                          *******************************************
                          *             ** LOG CALL **                *
0BAA 1 4400 0D07                BSI   L  LOGCL       GO TO LOG CALL SBRT*
0BAC 0 0006                     DC       6           WORD COUNT         *
0BAD 0 2801                     DC       /2801       HEX-DEC SW %DEC□   *
0BAE 1 0BB7                     DC       AI4         RETURN ADDR        *
0BAF 0 D001                     DC       /D001       MESSAGE ID         *
0BB0 0 0204                     DC       /0204       BYPASS BITS        *
0BB1 1 0C0B                     DC       AIWKD&1     ACCURACY           *
0BB2 1 0C09                     DC       AIWKC       REPEATABILITY      *
0BB3 1 0B2E                     DC       MEAN        MEAN IN DIGITS     *
0BB4 1 0B2F                     DC       MEAN&1      MEAN IN DIGITS     *
0BB5 1 0B2C                     DC       VMEAN       MEAN IN VOLTAGE    *
0BB6 1 0B2D                     DC       VMEAN&1     MEAN IN VOLTAGE    *
                          *******************************************
0BB7 1 C500 0822          AI4   LD    L1 AIFRS       LD RESOLUTION
0BB9 0 D04E                     STO      AIWKB       SAVE RESOLUTION
0BBA 1 C500 0DE1                LD    L1 AIOVC
0BBC 0 D04C                     STO      AIWKC       SAVE OVERLOAD CNTR
0BBD 1 C500 0DDC                LD    L1 AIOTR
0BBF 0 D04A                     STO      AIWKD       SAVE OUT OF TBL CNTR
                          *******************************************
                          *             ** LOG CALL **                *
0BC0 1 4400 0D07                BSI   L  LOGCL       GO TO LOG CALL SBRT*
0BC2 0 0006                     DC       6           WORD COUNT         *
0BC3 0 0001                     DC       /0001       HEX-DEC SW %DEC□   *
0BC4 1 0BCD                     DC       AI5         RETURN ADDR        *
0BC5 0 D001                     DC       /D001       MESSAGE ID         *
0BC6 0 0204                     DC       /0204       BYPASS BITS        *
0BC7 1 0C0E                     DC       AIMCT       ACCURACY DEVIATION *
0BC8 1 0C07                     DC       AIWKA&1     REPEATABILITY DVTN *
0BC9 1 0C08                     DC       AIWKB       RESOLUTION         *
0BCA 1 0815                     DC       AICYC       CYCLES             *
0BCB 1 0C09                     DC       AIWKC       OVERLOAD COUNTER   *
0BCC 1 0C0A                     DC       AIWKD       OUT OF TBL COUNTER *
                          *******************************************
0BCD 1 C500 081C          AI5   LD    L1 AIPRC       LD PREC READING
0BCF 0 803C                     A        FTFOR       ADD  54
0BD0 0 D03D                     STO      AIMCT       SET HIGH TBL VALUE
0BD1 0 7101                     MDX    1 1           SET X1 # X1&1
0BD2 0 693C                     STX    1 AITCN       SAVE X1 IN WK AREA
0BD3 0 616C                     LDX    1 108         SET X1 # 108
0BD4 0 C500 0000          AIRTB LD    L1 0           LD CNT FROM TBL        PM51
0BD6 1 4C18 0BE7                BSC   L  AINXT,-&    BR IF COUNT # 0
0BD8 0 D02F                     STO      AIWKB       SAVE COUNT
0BD9 0 C034                     LD       AIMCT
0BDA 1 4400 0C94                BSI   L  AIDCN       GO TO DEC CNVRT RT
                          *******************************************
                          *             ** LOG CALL **                *
0BDC 1 4400 0D07                BSI   L  LOGCL       GO TO LOG CALL SBRT*
0BDE 0 0004                     DC       4           WORD COUNT         *
0BDF 0 8001                     DC       /8001       HEX-DEC SW %DEC□   *
0BE0 1 0BE7                     DC       AINXT       RETURN ADDR        *
0BE1 0 D001                     DC       /D001       MESSAGE ID         *
0BE2 0 0604                     DC       /0604       BYPASS BITS        *
0BE3 1 0C8C                     DC       AIWKL       DECIMAL VALUE      *
0BE4 1 0C8D                     DC       AIWKL&1     DECIMAL VALUE      *
0BE5 1 0C0E                     DC       AIMCT       VALUE              *
0BE6 1 0C08                     DC       AIWKB       COUNT              *
                          *******************************************
0BE7 1 74FF 0C0E          AINXT MDX   L  AIMCT,-1    SUBT 1 FROM VALUE
0BE9 0 7000               ACON1 MDX      *           BRANCH CONSTANT OR NOP
0BEA 0 71FF                     MDX    1 -1          SKIP IF X1 # ZERO
0BEB 0 70E8                     MDX      AIRTB       BRANCH
0BEC 1 6E00 0D64                STX   L2 LNCNT       RESET LINE CNTR
```

```
0BEE 1 6580 0C0F          LDX  I1 AITCN     RESTORE X1                        82312260
0BF0 0 C01E               LD       AITCN    LD INDEX CNT                      82312270
0BF1 1 F400 082E          EOR  L   AIWC1    EOR NUMBER OF POINTS              82312280
0BF3 1 4C20 0B3A          BSC  L   AIYP1,Z  BR TO CALC NEXT PNT                82312290
0BF5 1 C400 0804          LD   L   SW2      LD SW WORD 2                      82312300
0BF7 1 4C20 08C0          BSC  L   AIBSY,Z  INSURE DATA ENTRY                 82312310
0BF9 2 4C80 012E          BSC  I   END      EXIT TO MONITOR END               82312320
                          *                                                   82312330
                          *                                                   82312340
0BFB 0 0000               AICLM DC     0                              SE      82312350
0BFC 0 9010                     S      STRAD                                  82312360
0BFD 0 8012                     A      AIRAX                                  82312370
0BFE 0 A04C                     M      AITEN                                  82312380
0BFF 0 980A                     SD     AIWKD                                  82312390
0C00 1 4428 0CB0                BSI  L MKPOS,&Z                               82312400
0C02 0 1090                     SLT    16                                     82312410
0C03 1 4C80 0BFB                BSC  I AICLM                          SX      82312420
                          *                                                   82312430
                          *                                                   82312440
0C05 0 006C               AI108 DC     108       CONSTANT 108                 82312450
0C06 0 0000 0000          AIWKA DEC    0         WORK AREA - A                82312460
0C08 0 0000               AIWKB DC     0         WORK AREA - B                82312470
0C09 0 0000               AIWKC DC     0         WORK AREA - C                82312480
0C0A 0 0000 0000          AIWKD DEC    0         WORK AREA - D                82312490
0C0C 0 0036               FTFOR DC     54        CONSTANT 54                  82312500
0C0D 0 0000               STRAD DC     0         INITIAL ADDR                 82312510
0C0E 0 0000               AIMCT DC     0         POSITIVE M CNTR              82312520
0C0F 0 0000               AITCN DC     0         COUNTER                      82312530
0C10 0 0000               AIRAX DC     0         MEAN OR PREC RDNG            82312540
0C11 0 0000               PADDR DC     0       STORAGE FOR MAX & ADD          82312550
0C12 0 701F               ACON2 MDX  X HIINC-BRLOC-1    BR CONSTNT           82312560
0C13 0 7022               ACON3 MDX  X LOINC-BRLOC-1    BR CONSTNT           82312570
                          *                                                   82312580
                          *                                                   82312590
                          *              PERCENT SUBROUTINE                   82312600
                          *                                                   82312610
                          *         THIS SUBROUTINE PERFORMS THE TABLE        82312620
                          *         SEARCHES AND CALCULATES THE PERCENT       82312630
                          *         ACCURACY AND PERCENT REPEATABILITY.       82312640
                          *                                                   82312650
                          *                                                   82312660
                          *                                                   82312670
0C14 0 0000               PCENT DC     0                              SE      82312680
0C15 1 8500 0DC3                A    L1 AISPT     ADD TBL CENTER               82312690
0C17 0 D0F5                     STO     STRAD     SAVE INITIAL ADDR            82312700
0C18 0 D0EF                     STO     AIWKB                                  82312710
0C19 0 D070                     STO     AIWKI                                  82312720
0C1A 0 10A0                     SLT     32          INITIALIZE COUNTERS        82312730
0C1B 0 D8F2                     STD     AIMCT                                  82312740
0C1C 1 C500 0DC3                LD   L1 AISPT     FIND AND STORE               82312750
0C1E 0 90ED                     S       FTFOR     HI AND LO ADDR               82312760
0C1F 0 D0B5                     STO     AIRTB&1   LIMITS OF TABLE       PR51  82312770
0C20 0 80E4                     A       AI108       IN USE                     82312780
0C21 0 D0EF                     STO     PADDR                                  82312790
0C22 0 C0C6                     LD      ACON1     INITALIZE BRANCH             82312800
0C23 0 D010                     STO     BRLOC                          PR06    82312810
0C24 0 6200                     LDX  2  0         INITIALIZE X2 # 0            82312820
0C25 0 4034               AICHG BSI       WAWTC   GO TO CHECK LMT X2 # 0       82312830
0C26 1 C480 0C08                LD    I AIWKB     LD COUNT FROM TABLE          82312840
0C28 0 80E6                     A       AITCN     ADD TO CNT SUM               82312850
0C29 0 D0E5                     STO     AITCN     SAVE TOTAL                   82312860
0C2A 1 9400 0B30                S    L  P9970                                  82312870
0C2C 1 4C10 0C6F                BSC  L  AIMBR,-   BR IF TOTAL # 99.7 PCNT      82312880
0C2E 1 C480 0C08                LD   I  AIWKB                                  82312890
0C30 1 4C08 0C34                BSC  L  BRLOC,&   BR IF CNT # 0                82312900
0C32 0 C0D5                     LD      AIWKB                                  82312910
0C33 0 D056                     STO     AIWKI                                  82312920
0C34 0 7000               BRLOC MDX     *         MDX WILL CHANGE  NOP-BR      82312930
```


5F35


```
0C35 1 7401 0C0E          MDX  L   AIMCT,1   ADD 1 TO INC WORD                82312940
0C37 0 C0D6               LD       AIMCT                                      82312950
0C38 0 4804               BSC      E         SKIP IF INC WD EVEN              82312960
0C39 0 7003               MDX      MDY05     BRANCH                           82312970
0C3A 0 C0CD               LD       AIWKB                                      82312980
0C3B 0 80D2               A        AIMCT     ADD INC WD TO ADDR               82312990
0C3C 0 7002               MDX      MDY06     BRANCH                           82313000
                          *                                                   82313010
0C3D 0 C0CA               MDY05 LD      AIWKB                                 82313020
0C3E 0 90CF                     S       AIMCT     SUBT INC FROM ADDR           82313030
0C3F 0 D0C8               MDY06 STO     AIWKB     SET NEXT TBL WORD ADDR       82313040
0C40 0 6201                     LDX  2  1                                      82313050
0C41 0 4018                     BSI     WAWTC     GO CHECK LMT  X2 # 1         82313060
0C42 0 70E1                     MDX     AICHG-1   BRANCH                       82313070
                          *                                                   82313080
0C43 0 0000               HILMT DC      0                              SE      82313090
0C44 0 C0CD                     LD      ACON2                                  82313100
0C45 0 D0EE                     STO     BRLOC     SET BR CONSTNT               82313110
0C46 0 C0C1                     LD      AIWKB                                  82313120
0C47 0 90C6                     S       AIMCT                                  82313130
0C48 0 D0BF                     STO     AIWKB     SET NEXT TBL WD ADDR         82313140
0C49 1 4C80 0C43                BSC  I  HILMT     EXIT                   SX      82313150
                          *                                                   82313160
0C4B 0 000A               AITEN DC      10        CONSTANT                     82313170
                          *                                                   82313180
0C4C 0 0000               LOLMT DC      0                              SE      82313190
0C4D 0 C0C5                     LD      ACON3                                  82313200
0C4E 0 D0E5                     STO     BRLOC     SET BR CONSTNT               82313210
0C4F 0 C0B8                     LD      AIWKB                                  82313220
0C50 0 80BD                     A       AIMCT                                  82313230
0C51 0 D0B6                     STO     AIWKB     SET NEXT TBL WD ADDR         82313240
0C52 1 4C80 0C4C                BSC  I  LOLMT     EXIT                   SX      82313250
                          *                                                   82313260
0C54 1 74FF 0C08          HIINC MDX  L  AIWKB,-1  INC HIGH TBL ADDR            82313270
0C56 0 70CD                     MDX     AICHG-1   BRANCH                       82313280
                          *                                                   82313290
0C57 1 7401 0C08          LOINC MDX  L  AIWKB,1   INC LOW TBL ADSR             82313300
0C59 0 70CA                     MDX     AICHG-1   BRANCH                       82313310
                          *                                                   82313320
                          *          WORKING ADDRESS WITHIN TBL CK            82313330
                          *                                                   82313340
                          *                                                   82313350
0C5A 0 0000               WAWTC DC      0                              SE      82313360
0C5B 0 C0AC                     LD      AIWKB                                  82313370
0C5C 0 90B4                     S       PADDR                                  82313380
0C5D 1 46B0 0C66                BSI  I2 AIHIL,-Z  BR IF HIGH LMT               82313390
0C5F 0 C0A8                     LD      AIWKB                                  82313400
0C60 1 9400 0BD5                S    L  AIRTB&1                                82313410
0C62 1 46A8 0C68                BSI  I2 AILOL,&Z  BR IF LOW LMT                82313420
0C64 1 4C80 0C5A                BSC  I  WAWTC     EXIT                   SX      82313430
                          *                                                   82313440
0C66 1 0C6A               AIHIL DC      AITLM     BR VECTOR                    82313450
0C67 1 0C43                     DC      HILMT     BR VECTOR                    82313460
0C68 1 0C6A               AILOL DC      AITLM     BR VECTOR                    82313470
0C69 1 0C4C                     DC      LOLMT     BR VECTOR                    82313480
                          *                                                   82313490
                          *                                                   82313500
0C6A 0 0000               AITLM DC      0                                    82313510
0C6B 0 C827                     LDD     TENTH     LD FLAG CONSTNT              82313520
0C6C 0 D89D                     STD     AIWKD                                  82313530
0C6D 0 D0A0                     STO     AIMCT     SET 10000 DEVIATION          82313540
0C6E 0 7018                     MDX     AIPLX     BRANCH                       82313550
                          *                                                   82313560
                          *                                                   82313570
                          *          PCENT CALCULATION                        82313580
                          *                                                   82313590
                          *       MEAN X 10 OR PREC X 10 IN WKD               82313600
                          *            PREC IN RAX                            82313610
```


5F36

5F37


```
                      *                 END TBL ADDR IN WKB
                      *              MDY # STRTNG TBL ADDR
                      *
                      *                   ALGORITHM
                      *
                      *            WKB - MDY & RAX - WKD X 10 # N 5
                      *                N5 # ABSOLUTE DEVIATION
                      *                N5 X 100 / RSC # N6 & R6
                      *                R6 X 1000 / RSC # N7
                      *                N6 X 1000 # N8
                      *                N7 & N8 # XX.XXXX PCENT
                      *
0C6F 0 C098           AIMBR LD      AIWKB      LD END TBL ADDR
0C70 0 408A                 BSI     AICLM      GO TO GET DEVIATION
0C71 0 D09C                 STO     AIMCT      # N5
0C72 0 C017                 LD      A.WKI
0C73 0 4087                 BSI     AICLM      GO TO GET DEVIATION
0C74 0 D016                 STO     AIWKI&1
0C75 0 9098                 S       AIMCT
0C76 1 4C28 0C7A            BSC  L  DEVIA,&Z   BR IF 1ST DEV GREAT
0C78 0 C012                 LD      AIWKI&1
0C79 0 D094                 STO     AIMCT      # N5
0C7A 0 C093           DEVIA LD      AIMCT      N5
0C7B 0 A015                 M       HUND       X5 X 100
0C7C 0 A60C                 D       AISRC      / FULL SCALE
0C7D 0 D088                 STO     AIWKA      # N6 & R6
0C7E 0 1090                 SLT     16
0C7F 0 A012                 M       THOUS      R6 X 1000
0C80 0 A808                 D       AISRC      / FULL SCALE # N7
0C81 0 1890                 SRT     16
0C82 0 D887                 STD     AIWKD      # N7
0C83 0 C082                 LD      AIWKA      # N6
0C84 0 A00D                 M       THOUS      N6 & 1000 # N8
0C85 0 8884                 AD      AIWKD      N7 & N8 # REPEAT OR
0C86 0 D883                 STD     AIWKD           ACCURACY
0C87 1 4C80 0C14      AIPLX BSC  I  PCENT      BR OUT OF SUBROUTINE SX
                      *
                      *
                      *
                      *                DECIMAL CONVERT RTN
                      *
                      *                VALUE IN A # BINARY
                      *               VALUE TO BE CONVERTED.
                      *
                      *                   ALGORITHM
                      *
                      *                RANGE X 100 X VALUE # N1
                      *                  N1/RSC # N2 & R1
                      *                  N2 X 1000 # N3
                      *               R1 X 10/RSC # N4 & R2
                      *                  N4 X 100 # N5
                      *                R2 X 100/RSC # N6
                      *                N3 & N5 & N6 # N7
                      *
0C89 0 4000           AISRC DC      /4000      CONSTANT FULL SCALE
0C8A 0 0000 0000      AIWKI DEC     0          WORK AREA - I
0C8C 0 0000 0000      AIWKL DEC     0          WORK AERA - L
0C8E 0 0000 0000      POSWK DEC     *-*        WORK AREA
0C90 0 0032           FIFTY DC      50         CONSTANT 50
0C91 0 0064           HUND  DC      100        CONSTANT 100
0C92 0 03E8           THOUS DC      1000       CONSTANT 1000
0C93 0 2710           TENTH DC      10000      CONSTANT 10000
                      *
0C94 0 0000           AIDCN DC      0                                SE
0C95 0 D0F4                 STO     AIWKI      SAVE VALUE
0C96 1 C400 0831            LD   L  AIWKE      LOAD RANGE
0C98 0 A0F7                 M       FIFTY      X 50
0C99 0 1090                 SLT     16         SHIFT TO ACCUMULATOR
```


5F38


```
0C9A 0 A0EF                 M       AIWKI      X VALUE
0C9B 0 A8ED                 D       AISRC      / FULL SCALE
0C9C 0 D8EF                 STD     AIWKL      # N2 & R1
0C9D 0 A0F4                 M       THOUS      N2 X 1000
0C9E 0 1081                 SLT     1          X 2
0C9F 0 D8EA                 STD     AIWKI      # N3
0CA0 0 C0EC                 LD      AIWKL&1    R1
0CA1 0 A0A9                 M       AITEN      X 10
0CA2 0 1081                 SLT     1          X 2
0CA3 0 A8E5                 D       AISRC      / FULL SCALE
0CA4 0 D8E7                 STD     AIWKL      # N4 & R2
0CA5 0 A0EB                 M       HUND       X 100 # N5
0CA6 0 88E3                 AD      AIWKI      & N3
0CA7 0 D8E2                 STD     AIWKI      # N3 & N5
0CA8 0 C0E4                 LD      AIWKL&1    R2
0CA9 0 A0E7                 M       HUND       X 100
0CAA 0 A8DE                 D       AISRC      / FULL SCALE # N6
0CAB 0 1890                 SRT     16
0CAC 0 88DD                 AD      AIWKI      NO & N5 & N6
0CAD 0 D8DE                 STD     AIWKL      # N7
0CAE 1 4C80 0C94            BSC  I  AIDCN      EXIT ROUTINE          SX
                      *
                      *
                      *
                      *          ** CHANGE SIGN SUBROUTINE **
                      *
                      *          THIS SUBROUTINE CHANGES THE SIGN
                      *          OF THE VALUE IN A&Q AND RETURNS
                      *          WITH THE NEW VALUE IN A&Q. THE
                      *          VALUE CAN BE A ONE WORD VALUE IN A
                      *          BUT Q MUST # ZERO.
                      *
                      *
                      *
                      *
0CB0 0 0000           MKPOS DC      0                                SE
0CB1 0 D8DC                 STD     POSWK
0CB2 0 10A0                 SLT     32
0CB3 0 98DA                 SD      POSWK
0CB4 1 4C80 0CB0            BSC  I  MKPOS                            SX
                      *
                      *
                      *
                      *          ** INTERRUPT ROUTINE **
                      *
                      *          THE MONITOR ENTERS THIS ROUTINE
                      *          AFTER DETECTING AN AI INTERRUPT.
                      *          THE ROUTINE SENSES AND EVALUATES
                      *          THE DSW WORD AND TRANSFERS TO THE
                      *          SUBROUTINE TO PERFORM THE REQUIRED
                      *          SERVICE. MISSING OR EXTRA DSW BITS
                      *          WILL BE OUTPUTTED IN AN ERROR MESS-
                      *          AGE.
                      *
                      *
                      *
0CB6 0 8000           AISWC DC      /8000      BIT ZERO CONSTANT
0CB7 0 0000           AIIST DC      0          TEMPORY STORAGE
0CB8 0 0000           AIDSW DC      0          DSW STORAGE AREA
0CB9 0 0000           INTRS DC      *-*        ONLINE INTERRUPT SWITCH
0CBA 0 0000           ACAI  DC      0          AI DVA
0CBB 0 0000           AINTR DC      0                                IE
0CBC 1 0C00 092A            XIO  L  CKDSW      SENSE-RESET AI DSW
0CBE 0 D0F9                 STO     AIDSW      SAVE DSW WORD
0CBF 0 E01E                 AND     AIPAS      TURN OFF PASS BITS
0CC0 0 D0F6                 STO     AIIST      STORE DSW
0CC1 0 6A0D                 STX   2 AIIXS&1    SAVE INDEX REG 2
0CC2 1 4418 0CD2            BSI  L  AIERR,&-   GO TO ERROR ZERO DSW
```

```
OCC4 0 620F          LDX   2 15                                    82314980
OCC5 0 C0F1   AIIBR  LD    AIIST                                   82314990
OCC6 0 1240          SLCA  2 0                                     82315000
OCC7 1 4C18 OCCE     BSC  L AIIXS,&-   EXIT RTN IF DONE            82315010
OCC9 0 F0EC          EOR    AISWC                                  82315020
OCCA 0 D0EC          STO    AIIST                                  82315030
OCCB 1 4680 082F     BSI  I2 AIIBT     GO TO RT                    82315040
OCCD 0 70F7          MDX    AIIBR      BRANCH                      82315050
OCCE 0 6600 0000 AIIXS LDX  L2 0       RESTORE INDEX REG 2         82315060
OCD0 1 4C80 0CBB     BSC  I AINTR      EXIT ROUTINE          IX    82315070
                     *                                             82315080
                     *                                             82315090
                     *                                             82315100
                     *                ERROR ENTRY                  82315110
OCD2 0 0000   AIERR  DC     0                               IE    82315120
OCD3 0 C0E4          LD     AIDSW                                  82315130
OCD4 0 D00B          STO    ERDSW      SAVE ERROR DSW              82315140
OCD5 1 7401 0CDF     MDX  L AIERS,1    SET ERROR SW ON             82315150
OCD7 0 7004          MDX    AITRP+1                                82315160
OCD8 1 7400 080F     MDX  L ONLIN,0                                82315170
OCDA 0 7001          MDX    AITRP+1                                82315180
OCDB 0 7CFF   AITRP  MDX    AITRP      INTR ON SOLID - TRAP        82315190
OCDC 1 4C80 0CD2     BSC  I AIERR      EXIT ROUTINE          IX    82315200
                     *                                             82315210
OCDE 0 FF3E   AIPAS  DC     /FF3E      INTERRUPT BITS              82315220
                     *                                             82315230
                     *                                             82315240
                     *                                             82315250
                     *          ** ERROR LOG ROUTINE **            82315260
                     *                                             82315270
                     *          THIS ROUTINE IS ENTERED FROM       82315280
                     *          SEVERAL POINTS IN THE PROGRAM.     82315290
                     *          ALL ERRORS WHICH OCCUR DURING      82315300
                     *          MAINLINE OPERATION HAVE AN UNIQUE  82315310
                     *          ID NUMBER AND EACH ONE IS OUTPUT-  82315320
                     *          TED UNLESS BYPASSED BY BIT 11 ON   82315330
                     *          IN BITSW 0.                        82315340
                     *          ERRORS DETECTED IN INTERRUPT WILL  82315350
                     *          BE COUNTED AND THE INFORMATION     82315360
                     *          FOR THE LAST ONE OCCURRING WILL    82315370
                     *          BE OUTPUTTED AFTER RETURN TO       82315380
                     *          MAINLINE. THE ERROR ID IS THE      82315390
                     *          WORD FOLLOWING THE BSI INSTRUCTION 82315400
                     *          TO THIS ROUTINE. &SPECIFIED AS     82315410
                     *          AND   *&X, X# ERROR NUMBER         82315420
                     *                                             82315430
                     *                                             82315440
                     *                                             82315450
                     *                                             82315460
OCDF 0 0000   AIERS  DC     0          ERROR SWITCH                82315470
OCE0 0 0000   ERDSW  DC     0          ERROR DSW                   82315480
OCE1 0 0040   K0040  DC     /0040                                  82315490
                     *                                             82315500
                     *                                             82315510
OCE2 0 0000   AIERC  DC     0                               SE    82315520
OCE3 1 C480 OCE2     LD   I AIERC      LD MESSAGE ID               82315530
OCE5 0 E8F8          OR     K0040                                  82315540
OCE6 0 D006          STO    ERMID      SET MESSAGE ID              82315550
                     ********************************************* 82315560
                     *          ** ERROR CALL **                 * 82315570
OCE7 1 4400 0D14     BSI  L ERRCL      GO TO ERR CALL SBRT*        82315580
OCE9 1 0897          DC     AIERL      LOOP RETURN ADDR   *        82315590
OCEA 0 0005          DC     5          WORD COUNT         *        82315600
OCEB 0 0000          DC     0          HEX-DEC SW %HEX    *        82315610
OCEC 1 0CE4          DC     ERCAI      RETURN ADDR        *      $ 82315620
OCED 0 0000   ERMID  DC     0          MESSAGE ID         *        82315630
OCEE 0 1081          DC     /1081      BYPASS BITS        *        82315640
OCEF 1 0CE2          DC     AIERC      ADDR OF ERROR ID   *        82315650
```



```
OCF0 1 08F3          DC     DSW        ADDR OF DSW WORD   *      82315660
OCF1 1 0CE0          DC     ERDSW      ERROR INTR DSW     *      82315670
OCF2 1 0CDF          DC     AIERS      ERROR SW           *      82315680
OCF3 1 0B29          DC     AICYR      CYCLE COUNTER      *      82315690
                     ********************************************* 82315700
OCF4 0 6AEA   ERCAI  STX    2 AIERS    RESET ERROR SW             82315710
OCF5 0 6AEA          STX    2 ERDSW    RESET ERROR DSW            82315720
OCF6 1 0C00 088A     XIO  L AIBST      RESET BLAST                82315730
OCF8 1 4C80 0CE2     BSC  I AIERC      EXIT ROUTINE          SX   82315740
                     *                                           82315750
                     *                                           82315760
                     *          ** CONVERT MPX ADDR ROUTINE **   82315770
                     *                                           82315780
                     *          THIS ROUTINE CONVERTS THE HEX MPX 82315790
                     *          ADDR TO THE FORM TO BE OUTPUTTED 82315800
                     *          0 - 9999 # RLY ADDRESS           82315810
                     *          10000 - UP # SS ADDRESS          82315820
                     *          THIS IS USED ONLY IN THE OUTPUT  82315830
                     *          MESSAGE.                         82315840
                     *                                           82315850
                     *                                           82315860
                     *                                           82315870
OCFA 0 0000   AIMPC  DC     0                               SI   82315880
OCFB 0 1003          SLA    3                                    82315890
OCFC 1 4C10 0D05     BSC  L AIMP1,-                              82315900
OCFE 0 1001          SLA    1                                    82315910
OCFF 0 1804          SRA    4                                    82315920
0D00 0 8092          A      TENTH                                82315930
0D01 1 D400 0B36     STO  L AIWKH      SAVE CONVERTED ADDR        82315940
0D03 1 4C80 0CFA     BSC  I AIMPC                          SX   82315950
0D05 0 1803   AIMP1  SRA    3                                    82315960
0D06 0 70FA          MDX    AIMP1-4                              82315970
                     *                                           82315980
                     *                                           82315990
                     *                                           82316000
                     *          ** ERROR-LOG SETUP ROUTINE **    82316010
                     *                                           82316020
                     *          THIS ROUTINE SETS UP THE CALL    82316030
                     *          AND THE DATA STRING FOR MONITOR. 82316040
                     *          THE CALL ON THIS ROUTINE CONTAINS 82316050
                     *          THE MESSAGE ID, OPTION CONTROLS, 82316060
                     *          AND THE ADDRESSES OF THE DATA    82316070
                     *          WORDS TO BE OUTPUTTED.           82316080
                     *          THIS ROUTINE WILL CALL ON EITHER  82316090
                     *          LOG OR ERROR, DETERMINED BY THE  82316100
                     *          ENTRY USED.                      82316110
                     *          THE ROUTINE ALLOWS LOG OR ERROR  82316120
                     *          TO BE BYPASSED BY HAVING THE BYPASS 82316130
                     *          BIT SPECIFIED IN THE CALL SET ON 82316140
                     *          IN BIT SW WORD 0.                82316150
                     *                                           82316160
                     *                LOG ENTRY                  82316170
                     *                                           82316180
0D07 0 0000   LOGCL  DC     0                               SE   82316190
0D08 1 6780 0D07     LDX   I3 LOGCL     LOAD STRING ADDR           82316200
0D0A 0 6200          LDX    2 0         INIT X2 TO 0               82316210
0D0B 0 6A19          STX    2 LOGCS&4   RESET TERM ADDR            82316220
0D0C 1 6600 08BA     LDX   L2 AIRTM     LOAD RET TO MON ADDR       82316230
0D0E 0 6A18          STX    2 LGRTN&1   INIT RETURN ADDR      PR06 82316240
0D0F 0 6201          LDX    2 1                                    82316250
0D10 0 4017          BSI      ERLG1     SET UP STRING              82316260
0D11 1 6E00 0989     STX   L2 TIERS     RESET TIMER ERR SW         82316270
0D13 0 7008          MDX      LOGCK                                82316280
                     *                                           82316290
                     *                                           82316300
                     *                ERROR ENTRY                82316310
                     *                                           82316320
0D14 0 0000   ERRCL  DC     0                               SE   82316330
```

5F41


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0D15 0 6203           LDX   2 3                                           82316340
0D16 1 6780 0014      LDX  I3 ERRCL       LOAD STRING ADDR                82316350
0D18 0 C300           LD      3 0         LOAD LOOP ADDR                  82316360
0D19 0 D008           STO      LOGCS&4    STORE LOOP ERR ADDR             82316370
0D1A 0 7301           MDX     3 1         MODIFY FOR STRING               82316380
0D1B 0 400C           BSI      ERLG1      SET UP STRING                   82316390
0D1C 0 C300    LOGCK  LD      3 0         LOAD BYPASS BITS                82316400
0D1D 1 E400 0802      AND  L  SWO         TEST FOR BYPASS BIT             82316410
0D1F 0 4FA0 FFFE      BSC  I3 -2,Z        EXIT IF BIT ON         SX       82316420
               *                                                          82316430
               *                                                          82316440
               ******************************************                 82316450
               *              ** LOG OR ERROR **        *                 82316460
0D21 0 4480 0000 LOGCS BSI  I  0                        * PM05            82316470
0D23 1 0D4D           DC       MSTBL      ADDR OF MESSAGE TBL*            82316480
0D24 1 0D57           DC       ERLGB      ADDR OF BUSY RTN   *            82316490
0D25 0 0000           DC       0          ADDR OF RETURN-LOOP*            82316500
               *                                        *                 82316510
               ******************************************                 82316520
0D26 0 4C00 0000 LGRTN BSC  L  0          EXIT ROUTINE           PM06     82316530
               *                                                          82316540
               *                                                          82316550
0D28 0 0000    ERLG1  DC       0                                 SE       82316560
0D29 1 C600 0D5E      LD   L2 CALL        GET TYPE OF CALL                82316570
0D2B 0 D0F6           STO      LOGCS+1                                    82316580
               *                                                          82316590
0D2C 0 C304           LD      3 4         GET BYPASS BITS                 82316600
0D2D 0 1010           SLA      16         SET CARRY IF LINE BIT ON        82316610
0D2E 0 C302           LD      3 2         LOAD RETURN ADDR                82316620
0D2F 1 4C02 0D36      BSC  L  ERLG3,C     BR IF LINE BIT ON               82316630
0D31 0 D0F3           STO      LOGCS&4    STORE TERM ADDR                 82316640
0D32 0 C031           LD       LNCNT      LOAD LINE COUNTER               82316650
0D33 1 7401 0D64      MDX  L  LNCNT,1     BUMP CNTR 1                     82316660
0D35 0 7002           MDX      ERLG5                                      82316670
               *                                                          82316680
0D36 0 D0F0    ERLG3  STO      LGRTN+1    STORE RETURN ADDRESS            82316690
0D37 0 C02C           LD       LNCNT      LOAD LINE COUNTER               82316700
0D38 0 1008    ERLG5  SLA      8                                          82316710
0D39 0 8300           A       3 0         ADD WORD COUNT                  82316720
0D3A 0 D012           STO      MSTBL      SET COUNTER LINE                82316730
0D3B 0 C300           LD      3 0         LD WORD COUNT                   82316740
0D3C 0 D007           STO      MSSWA&1    SAVE WORD COUNT        PR04     82316750
0D3D 0 C301           LD      3 1         LOAD HEX-DEC SW                 82316760
0D3E 0 D00F           STO      MSTBL&1    SET HEX-DEC SW LINE             82316770
0D3F 0 C303           LD      3 3         LOAD MESSAGE ID                 82316780
0D40 0 D00E           STO      MSTB1      SET MESSAGE ID                  82316790
0D41 0 7304           MDX     3 4         ADD 4 TO STRING                 82316800
0D42 0 6B03           STX     3 ERLG6&1   SAVE STRING ADDR       PR01     82316810
0D43 0 6600 0000 MSSWA LDX  L2 0                                 PM04     82316820
0D45 0 C680 0000 ERLG6 LD   I2 0          LD MESSAGE WORD        PM01     82316830
0D47 1 D600 0D4F      STO  L2 MSTB1       SET MESS WD IN TABLE            82316840
0D49 0 72FF           MDX     2 -1        SKIP ON ZERO                    82316850
0D4A 0 70FA           MDX      ERLG6      BRANCH                          82316860
0D4B 1 4C80 0D28      BSC  I  ERLG1       EXIT ROUTINE           SX       82316870
               *                                                          82316880
0D4D   0002    MSTBL  BSS      2          CONTROL WORDS                   82316890
0D4F   0008    MSTB1  BSS      8          ID AND MESSAGE                  82316900
               *                                                          82316910
               *                                                          82316920
               *             LOG BUSY ROUTINE                             82316930
0D57 0 690E    ERLGB  STX     1 LGLYR&1   SAVE INDEX REG 1       PR21     82316940
0D58 0 6A0F           STX     2 LGLYR&3   SAVE INDEX REG 2       PR22     82316950
0D59 0 C802           LDD      RT04       LD ENTRY 4 ADDRESS              82316960
0D5A 1 6400 08B9 ERLG8 LDX  L  AIEXX      BRANCH - EXIT          SX       82316970
               *                                                          82316980
               *                                                          82316990
               *                                                          82317000
0D5C   0000           BSS  E  0                                           82317010
```


5F42


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0D5C 0 0004      RT04  DC       4          RID                            82317020
0D5D 1 0D65            DC       LGLYR      RAD                            82317030
0D5E 2 4480 012F CALL  BSI  I   LOG                                       82317040
0D60 2 4480 0130       BSI  I   ERROR                                     82317050
0D62 0 0006      RT06  DC       6          RID                            82317060
0D63 1 0D6C            DC       AIDER      RAD                            82317070
0D64 0 0000      LNCNT DC       *-*        LINE COUNTER                   82317080
                 *                                                        82317090
0D65 0 6500 0000 LGLYR LDX  L1  0          RESTORE INDEX REG 1  PM21      82317100
0D67 0 6600 0000       LDX  L2  0          RESTORE INDEX REG 2  PM22      82317110
0D69 0 70B7            MDX      LOGCS      BRANCH TO TRY AGAIN            82317120
                 *                                                        82317130
                 *                                                        82317140
                 *                                                        82317150
                 *                                                        82317160
                 *             ** DATA ENTRY ROUTINE **                   82317170
                 *                                                        82317180
                 *      THIS ROUTINE CAN BE USED BY THE                   82317190
                 *      OPERATOR TO ENTER DATA INTO THE                   82317200
                 *      DATA TABLES. ALSO ANY WORD IN                     82317210
                 *      CORE CAN BE CHANGED BY FIRST                      82317220
                 *      USING THE ROUTINE TO ENTER THE                    82317230
                 *      WORD ADDRESS INTO TABLE POSITION                  82317240
                 *      NUMBER 8.                                         82317250
                 *      THIS ROUTINE IS ENTERED BY SETTING                82317260
                 *      TABLE NUMBER, DISPLACEMENT, AND                   82317270
                 *      WORD COUNT IN BIT SWITCH WORD 02                  82317280
                 *      AND EXECUTING THE PROGRAM.                        82317290
                 *                                                        82317300
0D6A 0 007F      AIC7F DC       /007F      TERMINATOR CONSTANT            82317310
0D6B 0 0000      AIDWC DC       0          WORD COUNT STORAGE             82317320
                 *                                                        82317330
0D6C 0 10A0      AIDER SLT      32                                        82317340
0D6D 1 C400 0804       LD   L   SW2        LD BITSW WORD 2                82317350
0D6F 1 4C18 0D74       BSC  L   AIUSA,-&   BR IF BITSW WORD # 0           82317360
0D71 0 4027            BSI      AIBSA                                     82317370
0D72 1 6E00 0804       STX  L2  SW2        ZERO BITSW WORD 2              82317380
0D74 0 C0F6      AIUSA LD       AIDWC                                     82317390
0D75 1 4C18 0D2A       BSC  L   AIRKK,&-   BR IF END TBL                  82317400
0D77 0 F0F2            EOR      AIC7F                                     82317410
0D78 1 4C18 0855       BSC  L   AIRST,&-   BR IF END DATA NTRY  SX        82317420
0D7A 1 C400 0805       LD   L   SW3        LD BITSW WORD 3                82317430
0D7C 0 B033            CMP      AIAAS      COMPARE TO TERMINATOR          82317440
0D7D 0 7002            MDX      AISTW      BRANCH                         82317450
0D7E 0 7001            MDX      AISTW      BRANCH                         82317460
0D7F 0 700A            MDX      AILRK      BRANCH                         82317470
0D80 1 D480 0DB3 AISTW STO  I   AITAE      SET DATA WORD IN TBL           82317480
0D82 1 7401 0DB3       MDX  L   AITAE,1    ADD 1 TO TBL WD ADDR           82317490
0D84 0 C02B            LD       AIAAS                                     82317500
0D85 1 D400 0805       STO  L   SW3        INITIALIZE BITSW WORD          82317510
0D87 1 74FF 0D6B       MDX  L   AIDWC,-1   SUBT 1 FROM WORD CNT           82317520
0D89 0 1000            SLA      0          WILL SKIP LAST PASS            82317530
0D8A 0 C8D7      AILRK LDD      RT06       LD ENTRY 6 ADDRESS             82317540
0D8B 0 70CE            MDX      ERLG8      BRANCH - EXIT        SX        82317550
                 *                                                        82317560
0D8C 1 0813      AIADT DC     0 TIBT1      ADDR OF TMR CONSTANT           82317570
0D8D 1 0815            DC     1 AICYC      CYCLE COUNT ADDRESS            82317580
0D8E 1 0816            DC     2 AIMPX      MPX ADDR TBL ADDR              82317590
0D8F 1 081C            DC     3 AIPRC      PREC RDING TBL ADDR            82317600
0D90 1 0822            DC     4 AIFRS      RESOLUTION TBL ADDR            82317610
0D91 1 0827            DC     5 RANGE      RANGE TABLE ADDRESS            82317620
0D92 1 0AEA            DC     6 AIHXS      HEX-DEC SW FOR A001            82317630
0D93 1 0D94            DC     7 AIADT&8    USED TO SET UP WD 9            82317640
0D94 1 0829            DC     8 AICYR      ANY ADDR CAN BE NTRD           82317650
0D95 1 082C            DC     9 AISQS      R-S SWITCH ADDRESS             82317660
0D96 1 082D            DC     A AIXSS      EXTERNAL SYNC SW ADDR          82317670
0D97 1 082E            DC     B AIWC1      NO OF POINTS ADDR              82317680
0D98 1 0DD2            DC     C AIRDV      INPUT DATA TBL ADDR            82317690
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5F43


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                          *                                                   82317700
0D99 0 0000               AIBSA DC        0                             SE    82317710
0D9A 0 18CC                     RTE       12                                  82317720
0D9B 0 0001                     STO       AILAR&1     STO TBL ADDR      PR01  82317730
0D9C 0 6700 0000          AILAR LDX   L3  0                             PM01  82317740
0D9E 0 6200                     LDX    2  0           ZERO INDEX REG 2        82317750
0D9F 0 1010                     SLA       16                                  82317760
0DA0 0 1085                     SLT       5                                   82317770
0DA1 1 8700 0D8C                A     L3  AIADT       ADD TABLE ADDR          82317780
0DA3 0 000F                     STO       AITAE       STO TBL POSTN ADDR      82317790
0DA4 0 1010                     SLA       16                                  82317800
0DA5 0 1087                     SLT       7                                   82317810
0DA6 0 00C4                     STO       AIDWC       STO TBL WORD CNT        82317820
0DA7 1 4C80 0D99                BSC   I   AIBSA       EXIT SUBROUTINE   SX    82317830
                          *                                                   82317840
                          *                                                   82317850
                          *                                                   82317860
                          *           ** VERIFY ENTERED DATA ROUTINE **       82317870
                          *                                                   82317880
                          *           THIS ROUTINE IS USED TO LOG ANY         82317890
                          *           DATA WHICH IS ENTERED INTO THE          82317900
                          *           TABLES, ALSO IT CAN BE USED TO          82317910
                          *           LOG ANY WORD OR GROUP OF WORDS          82317920
                          *           IN CORE.                                82317930
                          *           THIS ROUTINE IS ENTERED BY SETTING      82317940
                          *           TABLE NUMBER, DISPLACEMENT, AND         82317950
                          *           WORD COUNT IN BIT SWITCH WORD 01        82317960
                          *           AND EXECUTING THE PROGRAM.              82317970
                          *                                                   82317980
                          *                                                   82317990
                          *                                                   82318000
                          *                                                   8231801
0DA9 0 0000               AIVED DC        0                             SE    82318020
0DAA 0 40EE                     BSI       AIBSA       GO TO SETUP ADDR        82318030
                          ***************************************************** 82318040
                          *              ** LOG CALL **                  *    82318050
0DAB 1 4400 0D07                BSI   L   LOGCL       GO TO LOG CALL SBRT*    82318060
0DAD 0 0002                     DC        2           WORD COUNT         *    82318070
0DAE 0 0000                     DC        0           HEX-DEC SW %HEX□   *    82318080
0DAF 1 0DB4                     DC        AI6         RETURN ADDR        *    82318090
0DB0 0 AAAA               AIAAS DC        /AAAA       MESSAGE ID         *    82318100
0DB1 0 8000                     DC        /8000       BYPASS BIT         *    82318110
0DB2 1 0DB3                     DC        AITAE       ADDR OF WORD       *    82318120
0DB3 0 0000               AITAE DC        0           TBL ADDR STORAGE   *    82318130
                          ***************************************************** 82318140
0DB4 1 7401 0DB3          AI6   MDX   L   AITAE,1     ADD 1 TO ADDR           82318150
0DB6 1 74FF 0D6B                MDX   L   AIDWC,-1    SUBT 1 FROM WORD CNT    82318160
0DB8 0 70F2                     MDX       AIVED&2     BRANCH                  82318170
0DB9 1 6E00 0803                STX   L2  SW1         RESET BITSW WORD 1      82318180
0DBB 0 6AA8                     STX    2  LNCNT       RESET LINE CNTR         82318190
0DBC 1 4C80 0DA9                BSC   I   AIVED       EXIT ROUTINE      SX    82318200
                          *                                                   82318210
                          *                                                   82318220
                          *           CONSTANT TABLES                         82318230
                          *                                                   82318240
0DBE 1 0DC8               AISUM DC        AISUX            ****               82318250
0DBF 1 0DCA                     DC        AISUX&2                        *    82318260
0DC0 1 0DCC                     DC        AISUX&4     SUM TABLE ADDR TBL *    82318270
0DC1 1 0DCE                     DC        AISUX&6                        *    82318280
0DC2 1 0DD0                     DC        AISUX&8          ****               82318290
0DC3 1 0E1C               AISPT DC        AISTB&54         ****               82318300
0DC4 1 0E89                     DC        AISTB&163                      *    82318310
0DC5 1 0EF6                     DC        AISTB&272   SPREAD TBL ADDR TBL*    82318320
0DC6 1 0F63                     DC        AISTB&381                      *    82318330
0DC7 1 0FD0                     DC        AISTB&490        ****               82318340
                          *                                                   82318350
                          *                                                   82318360
                          *                                                   82318370
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5F44


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                          *                                                   82318380
                          *                                                   82318390
                          *                                                   82318400
                          *                                                   82318410
                          *           VARIABLE TABLES                         82318420
                          *                                                   82318430
0DC8   000A               AISUX BSS   E   10          SUM TABLE               82318440
0DD2   0005               AIRDV BSS       5           INPUT DATA TABLE        82318450
0DD7   0005               AIGRD BSS       5           GOOD READING TABLE      82318460
0DDC   0005               AIOTR BSS       5           OUT OF TBL CNTR TBL     82318470
0DE1   0005               AIOVC BSS       5           OVERLOAD CNTR TBL       82318480
0DE6   0222               AISTB BSS       546         SPREAD TABLE            82318490
1008 0 0000               TSTOP DC        *-*                                 82318500
1009 0 0420                     DC        /0420       STOP TIMER IOCC         82318510
                          *                                                   82318520
                          *                                                   82318530
                          *                                                   82318540
                          *           ** END ROUTINE **                       82318550
                          *                                                   82318560
                          *           THE END ROUTINE IS USED BY THE          82318570
                          *           MONITOR ONLY. ENTRY IS MADE AFTER       82318580
                          *           A CALL TO @END@IF THE LOOP PROGRAM      82318590
                          *           SWITCH IS OFF. ALSO ENTRY IS MADE       82318600
                          *           WHEN THIS PROGRAM IS DE-EXECUTED.       82318610
                          *                                                   82318620
                          *                                                   82318630
                          *                                                   82318640
100A 0 0000               AIEND DC        0                             SE    82318650
100B 0 1010                     SLA       16                                  82318660
100C 1 D400 0D64                STO   L   LNCNT       ZERO LINE COUNTER       82318670
100E 1 D400 08F4                STO   L   AITMS       RESET RLY TIMER SW      82318680
1010 1 7400 080F                MDX   L   ONLIN,0     IS TEST ON LINE         82318690
1012 0 7009                     MDX       AIEN1       YES, BRANCH             82318700
1013 0 08F4                     XIO       TSTOP                               82318710
1014 1 0C00 088A                XIO   L   AIBST       RESET AI                82318720
1016 1 0C00 092A                XIO   L   CKDSW       RESET PENDING INTER     82318730
                          ***************************************************** 82318740
                          *              ** RELEASE DEVICE **            *    82318750
1018 2 4480 0132                BSI   I   RELDV       GO TO RELEASE DEVS *    82318760
101A 1 0812                     DC        EDIT&1      ADDR OF TMR DDEF   *    82318770
101B 1 080A                     DC        TERM        ADDR OF TERMINATOR *    82318780
101C 1 4400 09C7          AIEN1 BSI   L   RELES       GO RELEASE AI           82318790
                          ***************************************************** 82318800
101E 1 4C80 100A                BSC   I   AIEND       EXIT              SX    82318810
                          *                                                   82318820
                          *                                                   82318830
                          *                                                   82318840
                          *              GO PROGRAM ENTRY                     82318850
                          *                                                   82318860
                          *           THE PROGRAM IS ENTERED AT THIS POINT    82318870
                          *           ONLY AFTER LOADING.                     82318880
                          *                                                   82318890
                          *                                                   82318900
                          *                                                   82318910
1020 2 4480 012C          AIGO  BSI   I   BEGIN                               82318920
1022 1 07FF               PEND  DC        PID         ADDRESS OF PID          82318930
                          *                                                   82318940
                          *                                                   82318950
                          *       PHASE III - ONLINE AI DFT - ENTRANCE        82318960
                          *                                                   82318970
                          *                                                   82318980
                          *       MPX AND MPXDM COMMUNICATION EQUATES         82318990
                          *                                                   82319000
007F 0                    CON   EQU       127         MPX FIXED AREA INDEX    82319010
002E 0                    $UMK1 EQU       046         UNMASK LEVELS 0-13      82319020
0030 0                    $UMK2 EQU       048         UNMASK LEVELS 14-23     82319030
0032 0                    $MK1  EQU       050         MASK LEVELS 0-13        82319040
0034 0                    $MK2  EQU       052         MASK LEVELS 14-23       82319050
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00FB 0              $PUTQ EQU    251          ENTRY ADDRESS MPX PUTQ      82319060
00FC 0              $GETQ EQU    252          ENTRY ADDRESS MPX GETQ      82319070
FFD2 0              REF   EQU    /FFD2        MPXDM COMMON AREA INDEX     82319080
FFD3 0              DTADR EQU    /FFD3        DEVICE TABLE ADDRESS + 14   82319090
FFD7 0              ONOFF EQU    /FFD7        DEVICE ON/OFF IND. 0 = OFF  82319100
FFE1 0              TOIND EQU    /FFE1        TIME OUT (4-6 S) OCCURRED   82319110
FFE2 0              ARBSY EQU    /FFE2        ADDRESS OF AREA BUSY WORD   82319120
FFEC 0              BYICR EQU    /FFEC        AREA BUSY INCREMENTED IND.  82319130
FFEF 0              MSKON EQU    /FFEF        SYSTEM IS MASKED INDICATOR  82319140
                    *                                                     82319150
                    *                                                     82319160
1023 0 C870         BB000 LDD    RTOB         SET ROUTINE ID AND...       82319170
1024 1 DC00 0800          STD  L RID          ADDRESS INTO RID, RAD       82319180
1026 0 6307               LDX  3 7            XR3=STORAGE INDEX           82319190
1027 1 C400 0CBA    BB001 LD   L ACAI         PLACE AREA CODE             82319200
1029 1 EF00 1096          OR   L3 BBIOW       AND RESTORE                 82319210
102B 1 D700 1096          STO  L3 BBIOW                                   82319220
102D 0 73FE               MDX  3 -2           TEST LOOP COMPLETED         82319230
102E 0 70F8               MDX    BB001        NO, REPEAT                  82319240
                    *                                                     82319250
                    *     CHECK REPETITION                                82319260
                    *                                                     82319270
                    *                                                     82319280
                    *     CONVERT CONTROL PARAMETERS                      82319290
                    *                                                     82319300
102F 0 63FD         BB200 LDX  3 -3           XR3=LOOP COUNT              82319310
1030 1 6600 10A9          LDX  2 BBCHK        XR2=TABLE ADDRESS POINTER   82319320
1032 1 C700 0806    BB201 LD   L3 SW1+3       LOAD PARAMETERS             82319330
                    *                                                     82319340
                    *                                                     82319350
                    *     FOUR DIGIT DECIMAL TO HEX                       82319360
                    *                                                     82319370
                    *          CONVERSION ROUTINE                         82319380
                    *                                                     82319390
                    *                                                     82319400
                    *                                                     82319410
                    *   RETURN-                                           82319420
                    *   (A) =  HEXIDECIMAL                                82319430
                    *                                                     82319440
                    *                                                     82319450
                    *                                                     82319460
                    *                                                     82319470
                    *                                                     82319480
1034 0 6104               LDX  1 4            XR1=LOOP COUNT              82319490
1035 0 1890               SRT    16           SAVE DECIMAL CHARS IN Q     82319500
1036 0 1010               SLA    16            AND INITIALIZE             82319510
1037 0 1001         BB202 SLA    1            MULTIPLY                    82319520
1038 0 D061               STO    BBIOC         VALUE                      82319530
1039 0 1002               SLA    2              BY                        82319540
103A 0 805F               A      BBIOC          10                        82319550
103B 0 D060               STO    BBIOS        SAVE MULTIPLIED VALUE       82319560
103C 0 1010               SLA    16           CLEAR A                     82319570
103D 0 1084               SLT    4             FOR NEXT DECIMAL CHAR      82319580
103E 0 805C               A      BBIOS          AND ACCUMULATE            82319590
103F 0 71FF               MDX  1 -1           TEST LOOP COUNT DONE        82319600
1040 0 70F6               MDX    BB202        NO, REPEAT                  82319610
                    *                                                     82319620
                    *     EXIT                                            82319630
                    *                                                     82319640
1041 0 4820               BSC    Z            TEST C.E. OPTION (=0) OR    82319650
1042 0 B200               CMP  2 BBCHK-BBCHK  TEST PAR.-TOO LARGE         82319660
1043 0 C206               LD   2 BBIO-BBCHK     YES, LOAD DEFAULT VALUE   82319670
1044 0 1000               NOP                                             82319680
1045 1 D780 10AF          STO  I3 BBADR+3     STORE                       82319690
1047 0 7201               MDX  2 1            MODIFY ADDRESS POINTER      82319700
1048 0 7301               MDX  3 1            TEST LOOP COUNT DONE        82319710
1049 0 70E8               MDX    BB201        NO, DO NEXT PARAMETER.      82319720
104A 0 C05C               LD     BBMPR                                    82319730
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104B 0 D056               STO    BBMSG+3      STORE MPXR ADD IN ADDNL L   82319740
104C 0 C056               LD     BBMSG+4      RELOAD CONVERTED RANGE      82319750
104D 0 1890               SRT    16           POSITION INTO Q             82319760
104E 0 A86E               D      BBDIV        DIVIDE AND TEST             82319770
104F 0 4818               BSC    +-           RANGE SIZE FOR VOLTS        82319780
1050 0 1090               SLT    16           NO, RESTORE MV RANGE        82319790
1051 1 D400 0B31          STO  L AIWKE         AND STORE FOR AIDCN         82319800
                    *                                                     82319810
                    *     REQUEST EXECUTION IN QUEUE                      82319820
                    *                                                     82319830
1053 0 61D2         BB500 LDX  1 -46          XR1='REF' ADDRESS           82319840
1054 0 C101               LD   1 DTADR-REF    ADDRESS OF D.T.+14          82319850
1055 0 D007               STO    BB501        STORED IN PUTQ CALL         82319860
1056 1 4400 09C7          BSI  L RELES        CK FOR REQ RELEASE          82319870
1058 0 627F               LDX  2 CON          XR2=CONSTANT AREA           82319880
1059 0 0AB3               XIC  2 $MK1-CON     MASK ALL                    82319890
105A 0 0AB5               XIO  2 $MK2-CON      INTERRUPT LEVELS           82319900
                    *                                                     82319910
105B 0 4480 00FB    BB501 BSI  I $PUTQ        REQUEST IOCR EXECUTION      82319920
105D 0 0000               DC     *-*          D.T.+14 PARAMETER           82319930
105E 1 1100               DC     LIST         CONTROL LIST                82319940
105F 0 0000               DC     0                                        82319950
                    *                                                     82319960
                    *                                                     82319970
1060 1 44I8 10D2          BSI  L BB600,+-     CALL IOCR, PUTQ REFUSAL     82319980
                    *                                                     82319990
1062 0 7400 FFEC          MDX  L BYICR,0      TEST AREA BUSY              82320000
1064 0 7005               MDX    BB502         INCREMENTED                82320010
1065 0 C110               LD     1 ARBSY-REF  NO, GET AREA BUSY           82320020
1066 0 D001               STO    **1           ADDRESS AND                82320030
1067 0 7401 0000          MDX  L *-*,1          INCREMENT                 82320040
1069 0 D11A               STO    1 BYICR-REF  SET INCREMENTED IND         82320050
106A 0 0AAF         BB502 XIO    2 $UMK1-CON  UNMASK                      82320060
106B 0 0AB1               XIO    2 $UMK2-CON   INTERRUPT LEVELS           82320070
                    *                                                     82320080
                    *     TIMING LOOP ENTRANCE                            82320090
                    *                                                     82320100
106C 1 6700 106C    BB503 LDX  L3 BB503       SET TIMING LOOP             82320110
106E 1 6F00 0809          STX  L3 MLSCF       RETURN ADDRESS              82320120
1070 1 C400 1100          LD   L LIST         TEST LINK/BUSY              82320130
1072 1 4C20 107F          BSC  L BB504,Z      FOR OP COMPLETE             82320140
1074 1 C400 1106          LD   L LIST+6       TEST ERROR PARAMETER        82320150
1076 0 906C               S      BBONE        EQUAL NO ERRORS (=1)        82320160
1077 1 4C18 10B2          BSC  L BB101,+-     GO EVALUATE POINT           82320170
1079 0 9069               S      BBONE        TEST OFFLINE (=2)           82320180
107A 1 4C20 1053          BSC  L BB500,Z                                   82320190
                    ************************************************     82320200
107C 0 C02B               LD     BBOFF        DEVICE OFF LINE             82320210
107D 0 4060               BSI    BB700        MESSAGE LOG OUT             82320220
                    ************************************************     82320230
107E 0 700F               MDX    BB108                                    82320240
107F 0 C10F         BB504 LD     1 TOIND-REF  TEST TIME OUT INDICATOR      82320250
1080 2 4C98 0120          BSC  I START,+-     NO, CONTINUE LOOPING        82320260
                    *                                                     82320270
1082 0 4066               BSI    BB800        YES,CLEAR QUEUE             82320280
                    *                                                     82320290
                    ************************************************     82320300
1083 0 C01A               LD     BBER1        ERROR 1 =LOST INTERRUPT     82320310
1084 0 4059               BSI    BB700        MESSAGE LOG OUT             82320320
                    ************************************************     82320330
1085 1 4400 09C7          BSI  L RELES        GO RELEASE AI               82320340
1087 0 70CB               MDX    BB500        TRY AGAIN                   82320350
                    *                                                     82320360
                    *     LOOP ADDRESS                                    82320370
                    *                                                     82320380
1088 1 74FF 109A    BB107 MDX  L BBIOC,-1     TEST DELAY OVER             82320390
108A 0 7041               MDX    BB106        NO, RETURN TO MONITOR       82320400
108B 1 74FF 10A1          MDX  L BBREP,-1     TEST CYCLES DONE            82320410
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5F47


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108D 0 70C5               MDX    BB500     NO, GO DO AGAIN
                    ******************************************
108E 0 C004         BB108 LD     BBSLC     SELECT NEXT OPTION
108F 0 404E               BSI    BB700     MESSAGE LOG OUT
                    ******************************************
1090 1 6500 1090    BB100 LDX L1 BB100     SET START RETURN
1092 0 7038               MDX    BB106+2   BRANCH FOR START EXIT
                    *
                    *     CONSTANTS - TEMPORARY STORAGE
                    *
1093 0 C001         BBSLC DC     /C001     SELECT OPTION - MSG ID
1094   0000               BSS E  0
1094 0 0008         RTOB  DC     /0008
1095 1 1023               DC     BB000
1096 1 10A7         BBIOW DC     BBMPR     AI MPXR ADDRESS IOCC
1097 0 0108               DC     /0108
1098 1 1006         BBIOR DC     BBRDV     AI READ IOCC
1099 0 0200               DC     /0200
109A 0 0000         BBIOC DC     *-*       AI CNTRL IOCC/TMP ST,CNT
109B 0 0400               DC     /0400
109C 0 0000         BBIOS DC     *-*       AI SENSE IOCC/TMP ACCUM
109D 0 0701               DC     /0701
109E 0 E009         BBER1 DC     /E009     INTERRUPT LOST - MSG ID
109F 0 0105         BBMSG DC     /0105     DATA MESSAGE - WORD COUNT
10A0 0 2001               DC     /2001     HEX/DEC SWITCH
10A1 0 0000         BBREP DC     *-*       REPETITION COUNTER - N/A
10A2 0 0000               DC     *-*       AI MULTIPLEXER ADDRESS
10A3 0 0000               DC     *-*       RANGE IN MV
10A4 0 0000 0000          DEC    0         VOLTS OR MILLIVOLTS * 100
10A6 0 0000               DC     *-*       DIGITAL COUNTS (DC)
10A7 0 0000         BBMPR DC     *-*       AI MPXR ADDRESS
10A8 0 A002         BBOFF DC     /A002     DEVICE OFF LINE - MSG ID
                    *
                    *     CONTROL PARAMETER CONVERSION TABLES
                    *
10A9 0 13FF         BBCHK DC     5119      PARAMETER SIZE CHECK TABLE
10AA 0 1388               DC     5000
10AB 0 270F               DC     9999
10AC 1 10A7         BBADR DC     BBMPR     INDIRECT ADDRESSING TABLE
10AD 1 10A3               DC     BBMSG+4
10AE 1 10A1               DC     BBREP
10AF 0 0000         BBIO  DC     0         RELAY POINT 0000 ADDRESS
10B0 0 1388         BBRN  DC     5000      RANGE = 5V, OPTION
10B1 0 000A               DC     10        NUMBER OF REPETITIONS
                    *
                    *     BEGIN EVALUATION
                    *
10B2 1 4400 09C7    BB101 BSI L  RELES     GO RELEASE AI
10B4 0 1010               SLA    16        CLEAR LIST
10B5 0 D050               STO    LIST+6    ERROR PARAMETER
                    *
10B6 0 C056               LD     BBDSW     TEST DEVICE STATUS
10B7 1 4C04 10BA          BSC L  BB102,E    FOR ERROR CONDITION
10B9 0 7005               MDX    BB103     NO, GO EVALUATE POINT
                    ******************************************
                    *                **LOG CALL**
10BA 2 4480 012F    BB102 BSI I  LOG       LOG OUT ERROR MESSAGE
10BC 1 110A               DC     BBER2     E2 = DEVICE ERROR
10BD 0 03E8         BBDIV DC     1000      CONSTANT =1K - N/A TO CALL
10BE 0 0000               DC     0
                    ******************************************
                    *
                    *     PROCESS 14 BIT DC VALUE
                    *
10BF 0 C016         BB103 LD     BBRDV     LOAD AI READING
10C0 0 1881               SRT    1         FORM SINGLE PRECISION
10C1 0 D0E4               STO    BBMSG+7   AND STORE DC
10C2 1 4400 0C94          BSI L  AIDCN     COMPUTE MV = DC*RANGE/MAX
```


5F48


```
10C4 0 D8DF               STD    BBMSG+5   STORE DOUBLE PRECISION
                    ******************************************
                    *                **LOG CALL**
10C5 2 4480 012F          BSI I  LOG
10C7 1 109F               DC     BBMSG     MESSAGE STRING
10C8 0 0140         BB320 DC     320       DELAY CONST - N/A TO CALL
10C9 0 0000               DC     0000
                    ******************************************
10CA 0 C0FD         BB105 LD     BB320     LOAD DELAY COUNT
10CB 0 D0CE               STO    BBIOC      AND RESET
10CC 1 6500 1088    BB106 LDX L1 BB107     LOAD LOOP ADDRESS
10CE 1 6D00 0809          STX L1 MLSCF      AND PASS TO MPXDM
10D0 2 4C80 012D          BSC I  START
                    *
                    *     IOCR
                    *
10D2 0 0000         BB600 DC     *-*
10D3 0 6813               STX    BB800-2   SET INTERRUPT SWITCH
                    *
                    ******************************************
10D4 2 4480 0131          BSI I  REQDV     REQUEST DEVICE
10D6   0001         BBRDV BSS    1         AI INPUT - N/A TO CALL
10D7 1 0811               DC     EDIT
10D8 1 10E8               DC     BB800-1
10D9 1 080A               DC     TERM
                    ******************************************
10DA 0 088F               XIO    BBIOC     RESET AI MULTIPLEXER
10DB 0 08BA               XIO    BBIOW      AND REQUEST CONVERSION
10DC 1 4C80 10D2          BSC I  BB600     EXIT
                    *
                    *     ID LOG CALL - COMMON ROUTINE FOR MESSAGES
                    *
10DE 0 0000         BB700 DC     *-*
10DF 0 D029               STO    BBCOM+2   STORE ID IN MESSAGE
10E0 2 4480 012F          BSI I  LOG        AND LOG OUT
10E2 1 1107               DC     BBCOM
10E3 0 0001         BBONE DC     1         CONSTANT =1 - N/A TO CALL
10E4 0 0000               DC     0
10E5 1 4C80 10DE          BSC I  BB700     EXIT
                    *
                    *
                    *     INTERRUPT PROCESSOR
                    *
10E7 0 0000               DC     0         INTERRUPT SWITCH
10E8 0 0000               DC     0         AREA CODE STORAGE
10E9 0 0000         BB800 DC     *-*
10EA 0 1010               SLA    16        CLEAR
10EB 0 D0FB               STO    BB800-2    INTERRUPT SWITCH
10EC 0 08AF               XIO    BBIOS     SENSE AI DSW
10ED 0 D01F               STO    BBDSW      AND SAVE
10EE 0 08A9               XIO    BBIOR     READ POINT
10EF 0 6680 FFD3          LDX I2 DTADR     XR2=D.T.+14
10F1 0 6A02               STX  2 BB801
                    *
10F2 0 4480 00FC          BSI I  $GETQ     REMOVE IOCR FROM QUEUE
10F4 0 0000         BB801 DC     *-*       D.T.+14
10F5 0 6301               LDX  3 1         XR3=1, SET ERROR
10F6 0 6B0F               STX  3 LIST+6     PAR. EQUAL COMPLETE
10F7 0 C201               LD   2 1         TEST D.T.XEQ DONE
10F8 0 D001               STO    BB802+1    BY SAVING AS FLAG
10F9 0 6500 0000    BB802 LDX L1 *-*         OR USING FOR
10FB 0 637F               LDX  3 CON
10FC 0 45A0 0003          BSI I1 3,Z           INDIRECT ADDRESS
10FE 1 4C80 10E9          BSC I  BB800     EXIT
                    *
                    *     CONSTANTS - TEMPORARY STORE
                    *
                    *     IOCR LIST
```

5F49

```
                         *                                          82321780
                         *                                          82321790
1100 0 0000              LIST  DC     *-*      LINK/BUSY                  82321800
1101 0 0000                    DC     0        EXIT OPTION                82321810
1102   0001                    BSS    1        SYSTEM RESERVATION #1      82321820
1103 1 1002                    DC     BB600    IOCR FOR $PUTQ CONTROL     82321830
1104   0002                    BSS    2        SYSTEM RESERVATIONS 3,4    82321840
1106 0 0000                    DC     0        ERROR PARAMETER            82321850
1107 0 0000              BBCOM DC     0        COMMON MESSAGE - LIST+7    82321860
1108 0 0000                    DC     0        HEX/DEC SWITCH - LIST+8    82321870
1109 0 0000                    DC     *-*      VARIABLE MESSAGE ID        82321880
110A 0 0001              BBER2 DC     1        ERROR 2 - ILLEGAL INT      82321890
110B 0 0000                    DC     0                                   82321900
110C 0 E00A                    DC     /E00A                               82321910
110D 0 0000              BBDSW DC     *-*      AI STATUS                  82321920
1'ΟE   1020                    END    AIGO                                82321930
  NO STATEMENTS FLAGGED IN THE ABOVE ASSEMBLY
```


5F50


```
$GETQ  00FC  10F2
$MK1   0032  1059
$MK2   0034  105A
$PUTQ  00FB  105B
$UMK1  002E  106A
$UMK2  0030  106B
ABORT  091E
ACAI   0CBA  0907 09A8 0A1F 1027
ACON1  08E9  0C22
ACON2  0C12  0C44
ACON3  0C13  0C4D
ACTI   0967  08FC
AIAAS  0DB0  09BD 0D7C 0D84
AIABC  0A00  09FA
AIADT  0D8C  0D93 0DA1
AIALD  0A2A  0A27
AIAPR  0821  0B07 0B15
AIBSA  0D99  0D71 0DA7 0DAA
AIBST  088A  08E9 090B 0CF6 1014
AIBSY  08C0  09A6 0BF7
AIBYS  0964  08AE 0956 09D2 09E1
AIB08  0A7B  0A53 0AA6
AIB11  0A48  0A1A
AIB14  0A49  0A11
AICHG  0C25  0C42 0C56 0C59
AICKB  08E5  08E2 08E7
AICLM  0BFB  0C03 0C70 0C73
AICNC  0AF4  0AD3
AICYC  0815  0B18 0BCA 0D8D
AICYR  0B29  0868 08BC 0AF3 0B17 0B1D 0CF3 0D94
AIC7F  0D6A  0D77
AIDCN  0C94  0AE5 0B43 08DA 0CAE 10C2
AIDER  0D6C  06CD 09F6 0D63
AIDOK  09EA  0916
AIDSW  0CB8  0CBE 0CD3
AIDWC  0D6B  0863 0D74 0D87 0DA6 0DB6
AIECK  09D2  08B1
AIENB  089B  0891
AIENC  08A5  089E 08B8 0A36
AIEND  1C0A  0808 0855 085C 101E
AIENS  0A0B  0A07
AIENT  09FA  08D7 09E9 09F0
AIEN1  101C  1012
AIERC  0CE2  08ED 091B 09D4 09D8 09DD 09E3 0AAF 0CE3 0CEF 0CF8
AIERL  0897  0CE9
AIERR  0CD2  0830 0831 0832 0833 0834 0837 0638 0839 083A 083B 083E 0AA8 0CC2
             0CDC
AIERS  0CDF  086E 0397 09EC 09EE 0AAD 0CD5 0CF2 0CF4
AIEVL  0AAD  08DE 08E3
AIEVV  08C2  0835
AIEV1  0AB3  0B05
AIEXB  08B7  08C6 0957 0C61
AIEXX  0839  08BF 08C1 08F2 0D5A
AIFRS  0822  0A0D 08B7 0D90
AIGO   1020  110E
AIGRD  0DD7  0AC5 0AC8 0B58 0B5F 0B76 0B84
AIHIL  0C66  0C5D
AIHXS  0AEA  0D92
AIIBR  0CC5  0CCD
AIIBT  082F  0CCB
AIINL  0AA5  0A86
AIINP  0A37  0996
AIINT  0A80  0A70 0A76 0A81 0A9C 0A9E 0AA3
AIIOP  0A65  0A62
AIIRY  0A74  083C 0A78
AIISS  0A6E  083D 0A72
AIIST  0CB7  0CC0 0CC5 0CCA
AIIXS  0CCE  0CC1 0CC7
```

5F51

```
AILAR   0D9C  0D9B
AILDB   08BC  0B1A
AILOL   0C68  0C62
AILOP   083F  0807 0844
AILPE   0905  0841 08F7
AILRK   0D8A  0D75 0D7F
AIMBR   0C6F  0C2C
AIMCT   0C0E  0B9E 0BC7 0BD0 0BD9 0BE5 0BE7 0C18 0C35 0C37 0C3B 0C3E 0C47 0C50
              0C6D 0C71 0C75 0C79 0C7A
AIMOD   0814  0A83
AIMPC   0CFA  0ADC 0B3C 0D03
AIMPX   0816  087D 087F 095C 098A 09FB 0ADA 0B3A 0D8E
AIMP1   0D05  0CFC 0D06
AINTR   0C8B  0CD0
AINXT   0BE7  0BD6 0BE0
AIOA4   0B17  0B09
AIOA5   0B1A
AIOCC   0A21  09FD 0A02
AIOLC   0A2F  0A3F 0A44
AIONE   0B39  0AC7 0AD7 0AFD 0B8E
AIOTR   0DDC  0AD5 0AD8 0B8D
AIOVC   0DE1  0AFB 0AFE 0B8A
AIOVL   0AFB  0AB8
AIPAS   0CDE  0C8F
AIPLX   0C87  0C6E
AIPRC   081C  0ACC 0ADE 0B10 0B41 0B45 0B9B 0BA3 0BCD 0D8F
AIRAC   09E8  0893
AIRAX   0C10  089A 0BA5 0BFD
AIRCC   0A7C  0A5A 0A83 0A94 0A97 0A98 0A99 0AA5
AIRDD   0A1C  0A16 0A19
AIRDM   0883  0876
AIRDV   0DD2  0A08 0A23 0AB6 0ABC 0B0D 0D98
AIREQ   0998  0895 0905 09AD 0A67
AIRES   0A47  0A15 0A18 0A1B 0A50
AIRG    0A17  0A12
AIRIA   0A77  0A64
AIRIT   0A23  0866 0879 0A0A
AIRL    0A1A  0A13
AIRLY   0956  0A05
AIRMX   0963  095E 098C 09BF
AIRNL   0A97  0AA7
AIRRT   08B3  09E6
AIRSC   0B2A  0B67 0B6F 0B7E
AIRSL   0846  084A 0884 08B9
AIRSS   0994  095F 099A
AIRST   0855  0D78
AIRSW   0A43  08C4 0994 09DC 09E0 09EB 0A8D 0A93
AIRTB   0BD4  0BEB 0C1F 0C60
AIRTM   08BA  0858 0D0C
AIRZZ   098A  095A
AISIA   0A71  0A61
AISPR   0B0D  0B13
AISPS   0896  089F 0B80 0A35 0A3A
AISPT   0DC3  0AF5 0C15 0C1C
AISQS   082C  0975 099E 0A25 0D95
AISRC   0CB9  0C7C 0C80 0C9B 0CA3 0CAA
AISRT   08F5  088F
AISRX   0B99  0B92
AISSE   087E  0882
AISSW   0A46  08C2 09D7 09DB 09FF 0A1C 0A41 0A89 0A91
AISTB   0DE6  0DC3 0DC4 0DC5 0DC6 0DC7
AISTC   0A2C  0A29
AISTW   0D80  0D7D 0D7E
AISUM   0DBE  0AC1 0AC3 0B56
AISUX   0DC8  085C 085F 0DBE 0DBF 0DC0 0DC1 0DC2
AISWC   0CB6  0CC9
AITAE   0DB3  0D80 0D82 0DA3 0DB2 0DB4
AITCN   0C0F  0B02 0BEE 0BF0 0C28 0C29
```


5F52


```
AITEN   0C4B  0BFE 0CA1
AITLM   0C6A  0C66 0C68
AITMS   08F4  08A2 0959 0993 0998 09B3 100E
AITND   0A90  0A8C
AITNP   0A63  0A5F
AITRP   0CDB  0CD7 0CDA 0CDB
AITSR   0A8D  0A88
AIUSA   0D74  0D6F
AIVED   0DA9  08D1 0DB8 0DBC
AIWC1   082E  086A 0874 0878 087B 08D5 099C 09F9 0A2A 0B03 0B0B 0BF1 0D97
AIWDC   0A7A  0A66 0AB4
AIWKA   0C06  0B9F 0BC8 0C7D 0C83
AIWKB   0C08  0BB9 0BC9 0BD8 0BE6 0C18 0C26 0C2E 0C32 0C3A 0C3D 0C3F 0C46 0C48
              0C4F 0C51 0C54 0C57 0C5B 0C5F 0C6F
AIWKC   0C09  0BA2 0BB2 0BBC 0BCB
AIWKD   0C0A  0B8A 0B91 0BA0 0BA7 0BB1 0BBF 0BCC 0BFF 0C3C 0C82 0C85 0C86
AIWKE   0B31  0AE3 0B40 0B51 0B64 0C96 1051
AIWKF   0B32  0B01 0B02 0B68 0B6E 0B74 0B78 0B82
AIWKG   0B34  0B48 0B52 0B53 0B6C 0B72 0B73 0B7A 0B7B 0B80 0B81 0B87 0B90 0B95
              0B98 0B99
AIWKH   0B36  0AE0 0AEE 0AEF 0B50 0B5A 0B5D 0B6B 0B6D 0B75 0D01
AIWKI   0C8A  0C19 0C33 0C72 0C74 0C78 0C95 0C9A 0C9F 0CA6 0CA7 0CAC
AIWKJ   0AAB  0ABF 0ACB 0AE4 0AF0
AIWKK   0AAC  0ACE 0AF4
AIWKL   0C8C  0AF1 0AF2 0B54 0B55 0BE3 0BE4 0C9C 0CA0 0CA4 0CA8 0CAD
AIWRT   0A7E  08E0 0A56 0A69
AIXSS   082D  0A2C 0A51 0D96
AIYP1   0B3A  0B27 0BF3
AIZX1   0B00  0AEB 0AFA
AI1108  0C05  0C20
AI3     0B56  0B4D
AI4     0BB7  0BAE
AI5     0BCD  0BC4
AI6     0DB4  0DAF
ARBSY   FFE2  1065
AROST   09A4
AROXT   09AD  09C6
BBADR   10AC  1045
BBCHK   10A9  1030 1042 1042 1043
BBCOM   1107  10DF 10E2
BBDIV   10BD  104E
BBDSW   110D  10B6 10ED
BBER1   109E  1083
BBEP2   110A  10BC
BBIO    10AF  1043
BBIOC   109A  1038 103A 1088 10CB 10DA
BBIOR   1098  10EE
BBIOS   109C  103B 103F 10EC
BBIOW   1096  1029 102B 10DB
BBMPR   10A7  104A 1096 10AC
BBMSG   109F  104B 104C 10AD 10C1 10C4 10C7
BBOFF   10A8  107C
BBONE   10E3  1076 1079
BBRDV   10D6  1098 10BF
BBREP   10A1  108B 10AE
BBRN    10B0
BBSLC   1093  1085
BB000   1023  098B 1095
BB001   1027  102E
BB100   1090  1090
BB101   1082  1077
BB102   108A  1087
BB103   108F  10B9
BB105   10CA
BB106   10CC  108A 1092
BB107   1088  10CC
BB108   108E  107E
BB200   102F
```

5C53

```
BB201   1032  1049
BB202   1037  1040
BB320   10C8  10CA
BB500   1053  107A 1087 108D
BB501   105D  1055
BB502   106A  1064
BB503   106C  106C
BB504   107F  1072
BB600   10D2  1060 10DC 1103
BB700   10DE  107D 1084 108F 10E5
BB800   10E9  1082 10D3 10D8 10EB 10FE
BB801   10F4  10F1
BB802   10F9  10F8
BEGIN   012C  1020
BRLOC   0C34  0C12 0C13 0C23 0C30 0C45 0C4E
BSYBT   0888  08AD
BYICR   FFEC  1062 1069
CALL    0D5E  0D29
CKDSW   092A  08D3 08D4 08EA 0912 0913 0CBC 1016
CON     007F  1058 1059 105A 106A 106B 10FB
CONTL   0889  0909
C0997   0B28  081E
DEVIA   0C7A  0C76
DSW     08F3  08AC 08EC 0918 0CF0
DTADR   FFD3  1054 10EF
EDIT    0811  08FB 09A7 09C8 09CE 101A 10D7
END     012E  091E 0BF9
ENDAI   0915  0850
EPA     0808
ERCAI   0CF4  0CEC
ERDSW   0CE0  0CD4 0CF1 0CF5
ERLGB   0D57  0D24
ERLG1   0D28  0D10 0D1B 0D4B
ERLG3   0D36  0D2F
ERLG5   0D38  0D35
ERLG6   0D45  0D42 0D4A
ERLG8   0D5A  0D8B
ERMID   0CED  0CE6
ERRCL   0D14  0CE7 0D16
ERROR   0130  0D60
FIFTY   0C90  0C98
FIVE    0B2B  0B8D
FTFOR   0C0C  0AD1 0BCF 0C1E
HALT    0133
HERE    08E3  08F0
HIINC   0C54  0C12
HILMT   0C43  0C49 0C67
HUND    0C91  0C7B 0CA5 0CA9
INLSW   0859  0885 09AA 0982
INPUT   0A4A  0A1E 0A 3 0A6A 0A6C
INTRE   0AA8  0A8A 0A8E
INTRS   0CB9  09A2 0AA0
INTRX   0A9E  0AAA
IPA     0806
KAITM   0987  0997
K0040   0CE1  0CE5
K4864   080E  09C2
LGLYR   0D65  0D57 0D58 0D5D
LGRTN   0D26  0D0E 0D36
LGTER   084C  08AA
LIST    1100  105E 1070 1074 10B3 10F6
LNCNT   0D64  0BEC 0D32 0D33 0D37 0DBB 100C
LOG     012F  055E 10BA 10C5 10E0
LOGCK   0D1C  0D13
LOGCL   0D07  084C 09F2 0AE7 0B49 0BAA 0BC0 0BDC 0D08 0DAB
LOGCS   0D21  0C0B 0D19 0D2B 0D31 0D69
LOINC   0C57  0C13
LOLMT   0C4C  0C52 0C69
```


5C54


```
LPA     0807
LPRTN   0913  0899
MDY04   0AF8  0AF7
MDY05   0C3D  0C39
MDY06   0C3F  0C3C
MEAN    0B2E  085C 0962 0B63 0B89 0BB3 0BB4
MKPOS   0CB0  0900 0ABA 0ACF 0B8B 0B96 0C00 0CB4
MLSCF   0809  0843 0849 10oE 10CE
MOD1    098D  09B8
MOD2    0A38  0A31
MOD3    0997  098F
MOD4    0A36  0A3C
MSKON   FFEF
MSSWA   0D43  0D3C
MSTBL   0D4D  0D23 0D3A 0D3E
MSTB1   0D4F  0D40 0D47
ONLIN   080F  089B 08DC 08F5 098D 09AF 09B2 09B6 09B5 09C0 09C1 09C2 09C5 0A2F
              0CD8 1010
ONOFF   FFD7  09B9
PADDR   0C11  0C21 0C5C
PCENT   0C14  0B9D 0BA9 0C87
PEND    1022  0808
PID     07FF  1022
POSWK   0C8E  0CB1 0CB3
P9970   0B30  0B21 0B25 0C2A
RAD     0801
RANGE   0827  0AE1 0B3E 0D91
RDDSW   088C  08AB 08B3 08E6 08EB 090F 0914 0A3D
REF     FFD2  1054 1065 10o9 107F
RELDV   0132  09CC 1018
RELES   09C7  08C8 0919 09B5 09D0 101C 1056 1085 10B2
RELXT   09D0  092B
REODV   0131  08F8 0944 10D4
RID     0800  0847 1024
RSAI    085B  0806 0840 0857 0862 0886
RTOB    1094  1023
RTO1    088E  087E 0883 08F1
RTO2    0890  08B7
RTO4    0D5C  0D59
RTO5    0892  0:8E
RTO6    0D62  0D6A
RTO7    0894  08C0
SDSW    085A  090D
START   012D  038A 1080 10D0
STRAD   0C0D  08FC 0C17
SWO     0802  08D9 0D1D
SW1     0803  08CF 09C1 09C5 0DB9 1032
SW2     0804  08CB 0BF5 0D6D 0D72
SW3     0805  09C0 0D7A 0D85
TEN     0B38  0A38 0B47 0B5B 0B5E 0B69 0B71 0B79 0B7D 0B83 0BA6
TENTH   0C93  0B65 0C6B 0D00
TERM    080A  08FD 09A9 09CF 101B 10D9
TEXIT   0948  0955
THOUS   0C92  0B1F 0C7F 0C84 0C9D
TIBT1   0813  08FE 0D8C
TICNO   0940  0937 093B
TICT1   0966  0902 096D
TIDSW   0988  0853 0982
TIERR   0982  C96C
TIERS   0989  0854 08A8 0983 0D11
TIEXX   0980  0985
TIGOB   097E  0973 0978
TIINT   0968  0980
TIMER   092C  092E 0932 0939 0940 0948 094A 094E 0990 0A32
TIM11   0924  0935 0942 0944 094C 0953 0971 0976 097A 097C
TIONE   0965  0911 0930 0975 09A1
TIRNG   0935  093E 093F
TISRC   0946  0950
```

AI DPC FUNCTION TEST

```
TITRP  0986  0986
TIWRK  0971  097F
TMBSY  08F1  08FA
TMCNT  0A34
TOIND  FFE1  107F
TSNSE  0922  0969
TSTOP  1008  1013
TSTRT  0920  092D 096A
VMEAN  082C  0870 087C 0888 0BB5 0BB6
WAWTC  0C5A  0C25 0C41 0C64
XTSNC  0A3D  0A2E 0A43
END OF ASSEMBLY
```

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

5455

Direct Program Control

TABLE OF CONTENTS

1. PURPOSE

THE ANALOG-INPUT DIRECT PROGRAM CONTROL (AIDPC) FUNCTION TEST IS DESIGNED TO TEST THE ANALOG-INPUT FEATURE UNDER DIRECT PROGRAM CONTROL. A MAXIMUM OF FIVE MULTIPLEX ADDRESSES CAN BE ENTERED AND READ. IN THE RANDOM MODE THE MULTIPLEX ADDRESSES ARE READ IN THE ORDER ENTERED IN THE TABLE. THE SEQUENTIAL MODE USES ONLY THE FIRST ADDRESS ENTERED IN THE TABLE, AND READS THE NUMBER OF ADDRESSES SPICIFIED TO A MAXIMUM OF 5 ADDRESSES IN SEQUENCE.

2. PREREQUISITES

2.1 PROGRAM PREREQUISITES

THE AIDPC FUNCTION TEST MUST RUN UNDER CONTROL OF THE DIAGNOSTIC MONITOR.

2.2 EQUIPMENT PREREQUISITES

A. MONITOR PREREQUISITES
B. ANALOG-INPUT FEATURE

3. OPERATING PROCEDURE

3.1 PROGRAM LOADING

STANDARD LOADING PROCEDURE AS DESCRIBED IN THE DIAGNOSTIC MONITOR USE PROCEDURE.

3.2 PROGRAM OPERATION

STANDARD MONITOR OPERATING PROCEDURES APPLY.
THESE PROCEDURES ARE SUMMARIZED HERE. SEE DIAGNOSTIC MONITOR USE PROCEDURE FOR DETAILS.

1. CLEAR STORAGE
2. LOAD DIAGNOSTIC MONITOR
3. SELECT MODE OF EXECUTION
4. SELECT MONITOR CONTROL OPTIONS
5. SELECT PROGRAM OPTIONS FROM TABLE 0 PROGRAM CONTROL FUNCTION.
6. INSTRUCT MONITOR TO EXECUTE (SEE SECTION 3.1.5 IN DIAGNOSTIC MONITOR DOCUMENTATION).

TABLE 0 CONTROL FUNCTION

SENSE/PROGRAM	
0 1 2 3 4 5 6 7	1. SET FUNCTION 00 IN SENSE/PROGRAM SWITCHES 0 AND 1.
0 0 1 0 0 0 1 1	2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7.
	3. SET DESIRED CONTROL OPTIONS IN DATA ENTRY SWITCHES 0-15.
	4. PRESS CONSOLE INTERRUPT.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
. 1	BYPASS ALL LOG OUTPUT
. . . . . 1 .	BYPASS BLAST AI
. . . . . 1 . .	BYPASS EOXX MESSAGES
. . . . . 1 . . .	BYPASS ALL D001 OUTPUT
. . . . . 1	BYPASS D001 DISTRIBUTION TABLE
. . . . 1	BYPASS A001 OUTPUT
. . . 1	BYPASS ERROR (E00X) OUTPUT
. . 1	BYPASS SETUP ERROR (E01X)
. 1	BYPASS TIMER DSW ERROR (C000)
1	BYPASS DATA VERIFY OUTPUT

3.3 PROGRAM HALTS

A DESCRIPTION OF EACH PROGRAM HALT CONDITION CAN BE FOUND AT THE BEGINNING OF THE PROGRAM LISTING.

3.4 PROGRAM TERMINATION

STANDARD MONITOR TERMINATION

3.5 SETUP OF DATA TABLES

EACH DATA TABLE IS INITIALLY SPECIFIED INTERNALLY WITHIN THE PROGRAM TO ESTABLISH THE PARAMETERS FOR EVALUATING THE BASIC OPERATIONS OF THE CE CALIBRATE POINT. AN EXPLANATION OF THIS INITIAL SETUP IS CONTAINED IN THE APPENDIX SECTION 6.1.

THE DATA TABLES CAN BE CHANGED EITHER BY CHANGING THE EDIT CARDS AND RELOADING OR DIRECTLY IN CORE USING THE DATA ENTRY SELECT FUNCTION.

1. EDIT CARDS.

   THE PROGRAM EDIT FEATURE IS USED TO LOAD THE DATA TABLES WITH THE DESIRED INFORMATION. ANY OR ALL OF THE TABLE DATA CAN BE CHANGED OR MODIFIED BEFORE THE INITIAL LOADING OF THE PROGRAM. SEE FIGURE 1 FOR AN EXPLANATION OF THE DATA TABLE.

2. DATA ENTRY ROUTINE

ANY OR ALL OF THE TABLE DATA CAN BE CHANGED BY USING THE DATA ENTRY ROUTINE. THIS IS DONE ANYTIME AFTER THE PROGRAM IS IN CORE AND EXECUTING. FUNCTION 10-11 OF THE MONITOR READ BIT SWITCHES FEATURE IS USED. FUNCTION 10 IS USED TO SET UP THE ADDRESS OF THE WORD OR WORDS TO BE CHANGED. FUNCTION 11 IS USED TO ENTER THE NEW WORD. WORDS CAN BE ENTERED IN SEQUENCE BY SETTING THE DESIRED DATA INTO THE SWITCHES AND PRESSING CONSOLE INTERRUPT FOR EACH WORD TO BE ENTERED. SEE TABLE 2 AND 3.

A WORD COUNT EQUAL TO THE TERMINATOR (127) IS ENTERED AFTER A COMPLETE DATA ENTRY OPERATION (VIA FUNCTION 11). THIS RETURNS THE CONTROL TO THE OPERATING PROGRAM. AN EXPLANATION OF THE DATA TABLES IS CONTAINED IN FIGURE 1.

3. DATA VERIFY ROUTINE

IF IT IS NECESSARY TO PRINT THE CONTENTS OF AN AI TABLE IN CORE, TABLE 1 (DATA VERIFY) SHOULD BE USED. THE WORD COUNT (SWS. 9-15 INDICATES THE NUMBER OF WORDS TO BE PRINTED, TABLE DISPLACEMENT (SWS. 4-8) WILL SPECIFY THE FIRST WORD TO BE PRINTED FROM THE TABLE, AND TABLE NO. (SWS. 0-3) REFERS TO THE DESIRED TABLE (SEE THE DATA ENTRY ADDRESS TABLE LIST FOLLOWING TABLE 3).

FOR EXAMPLE, THERE IS AN AI TABLE IN STORAGE THAT HAS THE CONVERTED VALUES OF ALL THE ADDRESSES THAT ARE SPECIFIED IN THE AIMPX TABLE. IF THE CE WISHES TO PRINTOUT THE CONVERTED VALUES, THE FOLLOWING ENTRY SHOULD BE MADE USING TABLE 1. TABLE NO. IS C (SWS. 0-3), TABLE DISPLACEMENT IS 0 (SWS. 4-8) AND WORD COUNT 5 (SWS. 9-15).

TABLE 1 DATA VERIFY ROUTINE SELECT

SENSE/PROGRAM 0 1 2 3 4 5 6 7	1. SET FUNCTION 01 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7. 3. SET DATA TABLE IDENTIFICATION IN DATA ENTRY SWITCHES 0-15. 4. PRESS CONSOLE INTERRUPT.
0 1 1 0 0 0 1 1	

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
X X X X X X X X	WORD COUNT. 1-127
X X X X X	TABLE DISPLACEMENT. 0-31 BIT SWITCHES 4 THRU 8 ARE USED TO ALLOW ENTERING THE SELECTED TABLE AT ANY OF THE FIRST 32 WORDS.
X X X X	TABLE NUMBER. 0-F SEE THE DATA ENTRY ADDRESS TABLE LIST

TABLE 2 DATA ENTRY ROUTINE SELECT

SENSE/PROGRAM 0 1 2 3 4 5 6 7	1. SET FUNCTION 10 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7. 3. SET DATA TABLE IDENTIFICATION IN DATA ENTRY SWITCHES 0-15. 4. PRESS CONSOLE INTERRUPT. NOTE- PROGRAM MUST BE EXECUTING.
1 0 1 0 0 0 1 1	

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
X X X X X X X X	WORD COUNT OR TERMINATOR. 1-127 TERMINATOR - 127
X X X X X	TABLE DISPLACEMENT. 0-31 BIT SWITCHES 4 THRU 8 ARE USED TO ALLOW ENTERING THE SELECTED TABLE AT ANY OF THE FIRST 32 WORDS.
X X X X	TABLE NUMBER. 0-F SEE THE DATA ENTRY ADDRESS TABLE LIST

A WORD COUNT EQUAL TO THE TERMINATOR (127) IS ENTERED AFTER A COMPLETE DATA ENTRY OPERATION. THIS RETURNS CONTROL TO THE OPERATING PROGRAM.

TABLE 3 DATA ENTRY FUNCTION

SENSE/PROGRAM 0 1 2 3 4 5 6 7	1. SET FUNCTION 11 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7. 3. SET DATA WORD INTO DATA ENTRY SWITCHES 0-15. 4. PRESS CONSOLE INTERRUPT. NOTE- PROGRAM MUST BE EXECUTING.
1 1 1 0 0 0 1 1	

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
X X X X X X X X X X X X X X X X	DATA WORD TO BE ENTERED INTO TABLE POSITION SELECTED BY FUNCTION 10. SEE TABLE 2.

DATA ENTRY ADDRESS TABLE LIST

FOR USE WITH THE DATA ENTRY AND THE VERIFY DATA ROUTINES.
THE TABLE NUMBER IS ENTERED IN 80-83 OF THE DATA ENTRY SWITCHES.
SEE DATA VERIFY ROUTINE SELECT AND DATA ENTRY ROUTINE SELECT, TABLES 1 AND 2.

CORE TABLE NO.	TABLE SYMBOLIC ADDRESS	CORE TABLE NAME	TABLE LENGTH
0	TIBTI	TIMER A SPEED CONSTANT	1
1	AICYC	CYCLE COUNT	1
2	AIMPX	MULTIPLEX ADDRESS TABLE	6
3	AIPRC	PRECISION READING TABLE	6
4	AIFRS	RESOLUTION TABLE	1
5	RANGE	RANGE TABLE	5
6	AIHXS	HEX-DEC(A001) SWITCH	1
7	AIADT+8	THIS WORD CONTAINS THE ADDRESS OF THE FOLLOWING WORD. BY SELECTING TABLE ADDRESS 7 IN DATA ENTRY FUNCTION 10 ANY CORE ADDRESS CAN BE ENTERED INTO TABLE ADDRESS 8 USING FUNCTION 11. THIS ADDRESS ENTERED DETERMINES THE STARTING POSITION OF THE CORE TABLE ADDRESSED BY POSITION 8 OF THE ADDRESS TABLE. BY SELECTING TABLE ADDRESS 8 FUNCTION 10, DATA CAN BE ENTERED INTO THIS CORE TABLE USING FUNCTION 11. THIS ALLOWS ANY 1-125 WORD TABLE IN CORE TO BE MODIFIED.	1
8	AICYR	CYCLE COUNTER -- ANY ADDR CAN BE ENTERED HERE	1-159
9	AISQS	R-S SWITCH ADDRESS	1
A	AIXSS	EXTERNAL SYNC SWITCH	1
B	AIWC1	NUMBER OF POINTS	1
C	AIRDV	INPUT DATA TABLE ADDR	5

3.6 DATA TABLE EXPLANATION

FIGURE 1.

DATA TABLE EXPLANATION

NAME	EXPLANATION
TIBTI	ONE-WORD TABLE. A CONSTANT TO ESTABLISH THE INTERRUPT RATE OF TIMER A IS ENTERED IN THIS WORD. SEE TABLE IN LISTING.
AICYC	ONE-WORD TABLE. THIS COUNT DETERMINES THE NUMBER OF TIMES EACH SPECIFIED MULTIPLEX ADDRESS IS READ AND CONVERTED. THE COUNT MAY BE ANY NUMBER FROM 1 TO 32,000 (7D00 HEX) CYCLE COUNTS.
AIMPX	SIX-WORD (MAXIMUM) TABLE. THE MULTIPLEX ADDRESSES TO BE READ AND EVALUATED FOR ACCURACY AND REPEATABILITY ARE ENTERED IN THIS TABLE. THE LAST WORD MUST BE AN FFFF. SEE EXAMPLE 1.

EXAMPLE 1

AIMPX TABLE

1000
1002
1003
1004
1006
FFFF

AIPRC	FIVE-WORD TABLE. THE PRECISION DIGIT VALUE CORRESPONDING TO EACH MULTIPLEX ADDRESS IN THE AIMPX TABLE IS ENTERED IN THIS TABLE.
AIAPR	ONE-WORD SWITCH. A ONE BIT IN THIS WORD WILL CAUSE THE FIRST VALUE READ FOR EACH SELECTED MULTIPLEX ADDRESS TO BE ENTERED IN THE AIPRC TABLE. A ZERO WILL CAUSE THE AIPRC TABLE ENTRIES TO BE USED AS THEY ARE SPECIFIED. THIS SWITCH IS THE 6TH ENTRY OF THE AIPRC TABLE.
AIFRS	FIVE-WORD TABLE. THE RESOLUTION FOR EACH OF THE ADDRESSES IN THE AIMPX TABLE IS ENTERED IN THIS TABLE. 000E 14-BIT RESOLUTION, 0008 11-BIT RESOLUTION, AND 0008 8-BIT RESOLUTION.

RANGE	FIVE-WORD TABLE. THE RANGE CONSTANT CORRESPONDING TO EACH OF THE MULTIPLEX ADDRESSES IN THE AIMPX TABLE IS ENTERED IN THE CORRESPONDING LOCATION OF THIS TABLE. THE VARIOUS RANGES AND RANGE CONSTANTS ARE LISTED BELOW.

RANGE	HEX CONSTANT
500 MV	01F4
200 MV	00C8
100 MV	0064
50 MV	0032
20 MV	0014
10 MV	000A
5 VOLTS	0005

AISQS	ONE WORD SWITCH. A ZERO IN THIS WORD SELECTS RANDOM MODE. A ONE SELECTS SEQUENTIAL MODE.
AIXSS	ONE WORD SWITCH. A ZERO IN THIS WORD SELECTS NORMAL MODE OF OPERATION. A ONE SELECTS EXTERNAL SYNC MODE. (NOTE A PULSE SOURCE MUST BE CONNECTED TO EXTERNAL SYNC INPUT IF EXTERNAL SYNC MODE IS SELECTED).
AIWC1	ONE WORD TABLE. A NUMBER FROM 1-5 IS ENTERED IN THIS WORD TO INDICATE THE NUMBER OF MULTIPLEX ADDRESSES IN THE AIMPX TABLE TO BE USED.

4.0 PRINTOUTS

ALL OF THE MESSAGES OUTPUTTED BY THIS PROGRAM ARE IN THE STANDARD MONITOR FORMAT. THE FIRST FOUR WORDS OF THE MESSAGE ARE ALWAYS IN HEX AND ARE USED FOR IDENTIFICATION ONLY. THE MESSAGE EXPLANATIONS GIVEN BELOW DO NOT SHOW THE PROGRAM ID (PID).

THE REMAINDER OF THE MESSAGE CAN BE EITHER IN HEX OR DECIMAL. IN THE WORDS WHERE FRACTIONAL VALUES CAN APPEAR THE DECIMAL POINT POSITION IS INDICATED IN THE EXAMPLE. NO DECIMAL POINTS ARE LOGGED. A MINUS SIGN IS LOGGED PRECEEDING THE NEGATIVE DECIMAL VALUES.

MID	RID	RAD	MULTIPLEX ADDRESS	PRECISION DIGIT VALUE READ	DIGIT VALUE	VOLTAGE VALUE READ	CYCLE COUNT
A001	CCOX	XXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXX.XXXXX	XXXXXXXX

THIS DECIMAL MESSAGE IS USED TO OUTPUT ANY DATA READ THAT IS OUT OF THE SAVE TABLE LIMITS, OVERLOADS EXCEPTED. THE SAVE TABLE INCLUDES THE PRECISION READING PLUS AND MINUS 54 DIGITS.

MID	RID	ADDR OF WORD	WORD	WORD
AAAA	CCOX	XXXX	XXXX	XXXX

THIS HEX MESSAGE IS USED TO OUTPUT PROGRAM DATA TABLES AND SWITCHES TO VERIFY CONTENTS. SEE TABLE 1. THE MESSAGE MAY BE FROM 1-127 LINES.

MID	RID	TIMR ERROR DSW	COUNT
CCCO	CCOX	XXXX	XXXX XXXX

THIS HEX MESSAGE IS USED TO LOG TIMER DSW ERRORS. AFTER THIS ERROR IS LOGGED THE PROGRAM IS ENDED. THE ERROR COUNT INDICATES THE NUMBER OF ERRORS COUNTED SINCE THE LAST LOG.

LINE 0

MULTIPLEX ADDRESS			RANGE	PRECISION DIGIT VALUE	PRECISION* VOLTAGE VALUE
D001	CCOX	XXXX	XXXXXXXX	XXXXXXXX	XXX.XXXXX

THIS DECIMAL MESSAGE IS USED TO LOG THE EVALUATION DATA FOR THE MULTIPLEX ADDRESSES SELECTED. THE SUMMARY DATA IS GIVEN IN THE FIRST THREE LINES AND THE DISTRIBUTION TABLE IS CONTAINED IN THE FOLLOWING 1-109 LINES.

LINE 1

PERCENT ACCURACY	PERCENT REPEAT-ABILITY	MEAN DIGITS	MEAN* VOLTAGE
XXXX.XXXX	XXXX.XXXX	XXXXXXX.X	XXX.XXXXX

LINE 2

ACCURACY DEVIATION	REPEAT-ABILITY DEVIATION	RESOLUTION	CYCLES	OVERLOAD COUNTER	OUT OF TABLE COUNTER
XXXXXXX.X	XXXXXXX.X	XXXXXXXX	XXXXXXXX	XXXXXXXX	XXXXXXXX

LINE 3 THROUGH LINE 112

VOLTAGE* VALUE	DIGIT VALUE	COUNT
XXX.XXXXX	XXXXXXXX	XXXXXXXX

* VOLTAGE VALUES ARE GIVEN IN TERMS OF THE RANGE. SEE THE RANGE TABLE IN SECTION 3.1.

MID	RID	RAD	ERR ID	DSW LAST SNS	DSW LAST INT	ERR CNT	CYCLE CNT
E00X	CCOX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX

THIS HEX MESSAGE IS USED TO OUTPUT ERRORS OCCURRING DURING PROGRAM OPERATION.

E000 ERROR DETECTED DURING INTERRUPT.

E001 THE DSW WORD WCNT RESET TO ZERO.

E002 SOLID STATE BUSY STAYS ON OVER 100 MS.

E003 EXPECTED INTERRUPT DIDN'T OCCUR.

E004 RELAY INTERRUPT DIDN'T OCCUR.

E005 RELAY BUSY STAYS ON OVER 100 MS.

E008 THE DSW IS NOT RESET TO ZERO AFTER EXECUTING A BLAST AI OPERATION.

	EVALUATION ADDRESS	COUNT
E010	CCOX	XXXX XXXX

SET UP ERROR

THIS ERROR WILL OCCUR IF NO MULTIPLEX ADDRESSES ARE SELECTED TO BE READ AND EVALUATED. AFTER LOGGING IS COMPLETED THE PROGRAM CONTROL IS TRANSFERRED TO THE DATA ENTRY ROUTINE.

5. COMMENTS

5.1 THE AIDPC FUNCTION TEST IS DESIGNED TO TEST EITHER RANDOM OR SEQUENTIAL DIRECT PROGRAM CONTROL OPERATION, USING A MAXIMUM OF FIVE MULTIPLES ADDRESSES. THE ADDRESSES USED ARE EVALUATED FOR ACCURACY AND REPEATABILITY AND THIS INFORMATION, TOGETHER WITH THE MEAN AND VARIABLE FACTORS USED IN THE CALCULATIONS, ARE PRINTED OUT. ANY READING THAT FALLS OUTSIDE THE LIMITS SET FOR THE DISTRIBUTION-TABLE WILL BE LOGGED OUT IN MESSAGE A001. THE MESSAGE LOGGING CAN BE SUPPRESSED BY USING THE PROGRAM CONTROL OPTIONS. SEE TABLE 0.

5.2 THE NUMBER OF CYCLES CAN BE VARIED BY ENTERING THE NUMBER DESIRED IN THE CYCLE-COUNT WORD (AICYC). THE CYCLE COUNT CAN BE CHANGED DURING OPERATION USING THE DATA ENTRY ROUTINE. SEE SECTION 3.5.

5.3 IF THE OVERLAP FEATURE IS INSTALLED, RELAY AND SOLID-STATE ADDRESSES WILL BE OVERLAPPED. A MAXIMUM OF FIVE ADDRESSES CAN BE USED AT ONE TIME.

5.4 THE AIMPX TABLE IS USED TO SPECIFY UP TO FIVE MULTIPLEX ADDRESSES TO BE READ AND EVALUATED. THESE ADDRESSES MAY BE IN ANY ORDER OR SEQUENCE. IF THERE IS MORE THAN ONE RELAY ADDRESS IN THE TABLE ONLY THE FIRST ONE MAY BE REPEATED.

5.5 THE AIPRC TABLE IS USED TO PROVIDE A PRECISION DIGIT VALUE WHICH POSITIONS THE CENTER OF THE DISTRIBUTION TABLE. THIS ENABLES THE TABLE TO BE POSITIONED TO INCLUDE AN INCOMING DATA SPREAD OF 54 DIGITS ON EITHER SIDE OF THE PRECISION DIGIT VALUE ENTERED.

THE PRECISION DIGIT VALUES CAN BE AUTOMATICALLY SPECIFIED EQUAL TO THE FIRST VALUE READ FOR EACH SELECTED MULTIPLEX ADDRESS BY ENTERING A 1 IN THE AIAPR SWITCH, THE 6TH ENTRY IN THE AIPRC TABLE. THIS SWITCH IS RESET TO ZERO AFTER THE AIPRC TABLE IS INITIALLY SET UP.

5.6 ERRORS THAT OCCUR DURING THE OPERATIONS ARE LOGGED. SEE SECTION 4 FOR THE POSSIBLE ERROR MESSAGES.

5.7 DURING OPERATION, THE OUT-OF-LIMIT ERRORS AND OUT-OF-TABLE READINGS FOR ANY OF THE FIVE SELECTED POINTS WILL BE TYPED OUT ALONG WITH THE CYCLE NUMBER. THESE TYPEOUTS CAN BE BYPASSED BY USING THE PROGRAMS CONTROL OPTIONS. SEE TABLE 1 SECTION 3.5.

6. APPENDIX

6.1 THE EDIT CARD NUMBER 0 MUST BE IN THE CARD DECK TO ESTABLISH THE DEVICE ASSIGNMENTS AND THE TIMER A INTERVAL BEFORE LOADING THIS FUNCTION TEST. IF NO OTHER EDIT CARDS ARE INCLUDED, THE PROGRAM WILL PERFORM THE FOLLOWING FUNCTIONS-

A. 1000 CYCLES. THE FIRST CYCLE WILL ESTABLISH THE PRECISION DIGIT VALUES BY PLACING THE VALUE READ IN THE AIPRC TABLE.
B. THE CE MULTIPLEX ADDRESS (13E8) IS READ 5 TIMES.
C. THE CE MULTIPLEX ADDRESS IS SPECIFIED TO BE EVALUATED EACH TIME IT IS READ.
D. 14 BIT RESOLUTION.
E. 5 VOLT RANGE
F. NO EXTERNAL SYNC
G. RANDOM MODE IS SPECIFIED

THE TERMINATOR (END) EDIT CARD MUST ALWAYS BE THE LAST EDIT CARD. THE SAVE TABLE LIMITS, OVERLOADS EXCEPTED. THE SAVE TABLE INCLUDES

6.1 EDIT PROCEDURE: THE FOLLOWING EDIT PROCEDURE IS FOR CARD INPUT. THE EDIT PROCEDURE FOR PAPER TAPE INPUT IS LOCATED IN THE PAPER TAPE EDIT UTILITY PROGRAM DOCUMENTATION. THE PROPER EDIT CARDS MUST BE THE LAST CARDS IN THIS PROGRAM DECK. THE FOLLOWING FORMS ARE PROVIDED TO AID IN MANUALLY PREPARING THESE EDIT CARDS OR UPDATING EXISTING EDIT CARDS. IF IT IS NECESSARY TO PREPARE OR MODIFY EDIT CARDS, FILL IN THE NECESSARY DATA IN THE FORMS PRIOR TO PUNCHING THE CARDS. CARD COLUMNS THAT ARE SHADED SHOULD BE LEFT BLANK.

DDEF STANDS FOR DEVICE DEFINITION EDIT FIELD. IT INCLUDES:
1. THE INTERRUPT LEVEL ASSOCIATED WITH THIS DEVICE (USE HEX NOTATION, 00-17).
2. THE ILSW BIT POSITION ASSOCIATED WITH THIS DEVICE (USE HEX NOTATION, 0-F).
3. THE CHANNEL ASSIGNED TO THIS DEVICE (0-8). PUNCH AN "F" IN THE CARD COLUMN.

TIBT1 TABLE

THE FOLLOWING TABLE LISTS CONSTANTS TO BE ENTERED BY THE OPERATOR FOR TIMER A TIME BASE..

TIME BASE OF TIMER A IN MILLISEC.	CONSTANT ENTERED IN HEX AT LABEL TIBT1
128.000	0001
64.000	0002
32.000	0004
16.000	0007
8.000	000E
4.000	001B
2.000	0036
1.000	006B
.500	00D6
.250	01AB
.125	0356

																AI DDEF					INT. TIMER DDEF					TIBT1					AIMOD																																														
		PROGRAM I.D.					CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES					INTERRUPT LEVEL (HEX)		ILSW BIT (HEX)	CHANNEL (OR F)		INTERRUPT LEVEL (HEX)		ILSW BIT (HEX)	CHANNEL (OR F)		INTERVAL TIMER CONSTANT SEE TIBT1 TABLE FOR CONSTANTS					A.D.C. MOD. MOD 1 = 0000 MOD 2 = 0001																																														
COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
CARD 0	E	2	3	0	0	▨	E	D	0	0	▨	0	0	0	4	▨				F	▨				F	▨					▨	0	0	0		▨					▨					▨					▨					▨					▨					▨					▨				
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DATE	28 FEB 66	1 MAY 66	01 JUL 66
EC	415120	415120A	415178

EDIT PROCEDURE (CONTINUED)

SEE SEC. 3.1 FIG. 1

		PROGRAM ID						CARD SEQUENCE NUMBER				NUMBER OF EDIT ENTRIES				AICYC NUMBER OF CYCLES TO BE RUN. 1 TO 7000					
COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
CARD 1	E	2	3	0	0	▨	E	D	0	1	▨	0	0	0	1	▨					▨

DATE 28 FEB 66 1 MAY 66 01 JUL 66
EC 415120 415120A 415178

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID					CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES				AIMPX TABLE									TERMINATOR						
CARD 2	E	2	3	0	0		E	D	0	2		0	0	0	6										F	F	F	F			

THE MULTIPLEX ADDRESSES TO BE EVALUATED ARE ENTERED HERE IN THE DESIRED ORDER. (1 TO 5 ADDRESSES) SEE FIGURE 1 IN SECTION 3.6. WHEN LESS THAN 5 ADDRESSES ARE SPECIFIED, FILL THE REMAINDER OF THE TABLE WITH FFFF WORDS.

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
CARD 3	E	2	3	0	0		E	D	0	3		0	0	0	6																

PROGRAM ID

CARD SEQUENCE NUMBER

NUMBER OF EDIT ENTRIES

AIPRC TABLE

THE PRECISION DIGIT VALUE FOR EACH MULTIPLEX ADDRESS IN THE AIMPX TABLE IS ENTERED IN THIS TABLE. WHEN LESS THAN 5 ADDRESSES ARE ENTERED, FILL THE REMAINING TABLE ENTRIES TO 0000.

AIAPR

0000=NORMAL
0001=AIPRC TABLE IS FILLED WITH FIRST VALUE READ FOR EACH ADDRESS

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID					CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES				AIERS TABL															
CARD 4	E	2	3	0	0		E	D	0	4		0	0	0	5	0	0	0		0	0	0	0	0	0	0	0	0	0			

A RESOLUTION CONSTANT FOR EACH MULTIPLEX ADDRESS IN THE AIMPX TABLE IS ENTERED IN THE CORRESPONDING LOCATION OF THIS TABLE. E-14 BIT, B-11 BIT, 8-8 BIT. WHEN LESS THAN 5 ENTRIES ARE MADE, FILL THE REMAINING ENTRIES TO 0000. SEE SEC. 3.6 FIGURE 1.

6.1 EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID						CARD SEQUENCE NUMBER				NUMBER OF EDIT ENTRIES				RANGE TABLE															
CARD 5	E	2	3	0	0		E	D	0	5		0	0	0	5		0				0		0		0		0				

A RANGE CONSTANT IS ENTERED FOR EACH MULTIPLEX ADDRESS IN THE AIMPX TABLE. SEE SECTION 3.6 FOR A LIST OF THE RANGE CONSTANTS. WHEN LESS THAN 5 CONSTANTS ARE ENTERED, FILL ALL REMAINING TABLE ENTRIES TO 0000.

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID					CARD SEQUENCE NUMBER				NUMBER OF EDIT ENTRIES						AISQS RANDOM - SEQUENTIAL SWITCH 0001 = SEQUENTIAL 0000 = RANDOM														
CARD 6	E	2	3	0	0		E	D	0	6		0	0	0	1		0	0	0												

EDIT PROCEDURE (CONTINUED)

COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	26	31	36	41	46	51	56	61	66	71
		PROGRAM ID					CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES					AIXSS EXTERNAL SYNC SWITCH 0001 = EXT SYNC 0000 = NORMAL														
CARD 7		E	2	3	0	0		E	D	0	7		0	0	0	1		0	0	0											

EDIT PROCEDURE (CONTINUED)

THE LAST EDIT CARD IS THE END EDIT CARD . THE INFORMATION IN THIS CARD INCLUDES:

1. AN "E" IN COLUMN 1.
2. THE PID FOR THIS PROGRAM (COL. 2-3).
3. A TERMINATOR WORD OF "FFFF" (COL. 7-10).

		PROGRAM ID							CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES			AIWC1 NUMBER OF ADDRESSES USED FROM THE AIMPX TABLE 1-5				
COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
CARD 8	E	2	3	0	0	▨	E	D	0	8	▨	0	0	0	1	▨	0	0	0		▨
						▨					▨					▨					▨
END	E	2	3	0	0	▨	F	F	F	F	▨					▨					▨
						▨					▨					▨					▨
						▨					▨					▨					▨

TABLE OF CONTENTS

1. PURPOSE

THE PURPOSE OF THE DICC FUNCTION TEST, IS TO CHECK THE OPERATION OF THE DIGITAL INPUT SECTION UNDER CHANNEL CONTROL. ALL MODES OF OPERATION (RANDOM, SEQUENTIAL, SINGLE ADDRESS), OR ANY OF THE 3 MODES WITH EXTERNAL SYNC, CAN BE CHECKED. MODE SELECTION IS AN OPERATOR FUNCTION. BLAST CHANNEL, COMMAND REJECT, STORAGE PROTECT VIOLATE AND DEVICE BUSY ARE CHECKED. DATA TRANSFER IS CHECKED BY PRINTING THE DATA RECEIVED FOR OPERATOR OBSERVATION. CHAINING WILL BE CHECKED IF SELECTED BY THE OPERATOR.

2. REQUIREMENTS

2.1 PROGRAM REQUIREMENTS

THIS PROGRAM MUST RUN UNDER CONTROL OF THE DIAGNOSTIC MONITOR. THE DIAGNOSTIC MONITOR PROGRAM USES 2,047 STORAGE WORDS, AND THIS PROGRAM USES 1457 STORAGE WORDS.

THE PROPER EDIT CARDS MUST BE ADDED AT THE END OF THIS PROGRAM DECK SEE EDIT PROCEDURES IN APPENDIX (PARAGRAPH 6.1).

2.2 EQUIPMENT REQUIREMENTS

A. THE EQUIPMENT REQUIRED BY THE DIAGNOSTIC MONITOR IS ALSO REQUIRED FOR THIS PROGRAM.
B. AT LEAST TWO DIGITAL INPUT GROUPS AND DI ADAPTER. THE DIGITAL INPUT GROUPS CAN BE CONTACT, VOLTAGE OR A COMBINATION OF BOTH.
C. A DIGITAL INPUT DATA CHANNEL ADAPTER.

3. USE PROCEDURE

3.1 PROGRAM LOADING

STANDARD LOADING PROCEDURE AS DESCRIBED IN THE DIAGNOSTIC MONITOR USE PROCEDURE.

3.2 PROGRAM OPERATION

STANDARD MONITOR OPERATING PROCEDURES APPLY. THESE PROCEDURES ARE SUMMARIZED HERE. SEE DM USE PROCEDURE FOR DETAILS.

1. CLEAR STORAGE.
2. LOAD DIAGNOSTIC MONITOR.
3. SELECT MODE OF EXECUTION.
4. SELECT MONITOR CONTROL OPTIONS.
5. SELECT PROGRAM OPTIONS FROM:

   TABLE 0 PROGRAM CONTROL FUNCTION
   TABLE 1 ROUTINE SELECT FUNCTION
   TABLE 2 MODE SELECT FUNCTION

6. INSTRUCT MONITOR TO EXECUTE.

DI CC FUNCTION TEST

TABLE C CONTROL FUNCTION

SENSE/PROGRAM 0 1 2 3 4 5 6 7	1. SET FUNCTION CC IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2 THROUGH 7. 3. SET DESIRED CONTROL OPTIONS IN DATA ENTRY SWITCHES 0-15. 4. PRESS CONSOLE INTERRUPT.
0 C 1 0 0 1 0 C	

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
. .	
. 1	..TERMINATE PROGRAM
1	.....BYPASS DATA PRINTOUTS, IE. D MESSAGES

TABLE 1 ROUTINE SELECT FUNCTION

SENSE/PROGRAM 0 1 2 3 4 5 6 7	1. SET FUNCTION C1 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2-7. 3. SET OPTION IN DATA ENTRY SWITCHES. 4. PRESS CONSOLE INTERRUPT.
0 1 1 0 0 1 0 C	

DATA ENTRY SWITCHES $C 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
. .	
0 1	..LOOP ROUTINE 1
1 C	..LOOP ROUTINE 2
1 1	..LOOP ROUTINE 3

*NOTE- UNLESS LOOP ROUTINE IS SPECIFIED FOR ROUTINES 1,2 OR 3, THEY WILL BE RUN ONLY ONCE AT START OF PROGRAM. ONCE ROUTINE 4 IS ENTERED IT WILL BE CONTINOUSLY LOOPED AUTOMATICALLY.

DI CC FUNCTION TEST

TABLE 2 MODE SELECT FUNCTION

SENSE/PROGRAM 0 1 2 3 4 5 6 7	1. SET FUNCTION 10 IN SENSE/PROGRAM SWITCHES 0 AND 1. 2. SET PID IN SENSE/PROGRAM SWITCHES 2-7. 3. SELECT MODE IN DATA ENTRY SWITCHES 4 THRU 15 4. SET BIT 0 ON IN DATA ENTRY SWITCHES. 5. PRESS CONSOLE INTERRUPT.
1 0 1 0 0 1 0 0	

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
. .	
1	
1	
1 0 0 0 0 0 0 0	
.	
1 X X X X X X X	
.	
1	
1	
1	
1	

. . 0 0 ..SELECT RANDOM MODE
. . 0 1 ..SELECT SEQUENTIAL MODE
. . 1 0 ..SELECT SINGLE ADDRESS MODE.RUN NEXT SEQUENTIAL DI GROUP IF ALREADY IN S.A.
. . 1 0 ..RUN SINGLE ADDRESS WITH DI GROUP WHOSE ADDRESS IS XXXXXXX
. 1 .....RUN SELECTED MODE IN EXTERNAL SYNC
1 .....RUN SELECTED MODE WITH CHAINING
1.....MUST BE ON FOR ANY ENTRY TO BE HONORED

NOTE- UNLESS SOME OTHER MODE HAS BEEN SELECTED, THE PROGRAM WILL RUN SEQUENTIALLY WITHOUT CHAINING OR EXTERNAL SYNC. ON INITIAL SINGLE ADDRESS SELECT, AND NO ADDRESS SPECIFIED IN BITS 1-7, PROGRAM WILL RUN DI GROUP ADDRESS 0040

3.3 PROGRAM HALTS

THIS PROGRAM HAS NO HALTS.

3.4 PROGRAM TERMINATION

A. STANDARD MONITOR TERMINATION.
B. TERMINATE PROGRAM SWITCH - USE THIS OPTION WHEN RUNNING IN BOOTSTRAP MODE AND LOADING OF NEXT PROGRAM IS DESIRED.

4. PRINTOUTS

4.1 STATUS MESSAGES

PID MID RID RAD MODE PASS NMBR

2400 A0C1 0004 XXXX 000X XXXX

THIS PRINTOUT OCCURS DURING EXTERNAL SYNC OPERATIONS. IT INDICATES THAT THE PASS DELAY COUNTER HAS REACHED ZERO, THE E.O.T. BIT WAS NOT ON IN THE DSW, AND THAT THE BUSY INDICATOR IS ON. THE PASS NUMBER IS THE NUMBER OF TIMES THE DELAY COUNTER HAS BEEN REDUCED TO ZERO WITHOUT RECEIVING AN E.O.T. INTERRUPT.

THE PASS COUNTER IS STARTED AT 7FFF AND REDUCED BY 1 EACH TIME THE DIDC FUNCTION TEST RETURNS FROM MONITOR START ROUTINE. WITH ONLY THE DIDC FUNCTION TEST RUNNING, 1 PASS THROUGH MONITOR START ROUTINE TAKES APPROXIMATELY 1 MILLISECOND.

4.2 DATA MESSAGES

PID MID RID RAD MODE CHAIN

2400 DC01 0004 XXXX OCCX OCCX

```
0C40 CC41 CC42 0043 0C44 CC45 0046 0047
XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

0C48 CC4S CC4A 0C4B 0C4C 004D 004E 004F
XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

0C50 0C51 0C52 0C53 0C54 0C55 0C56 0057
XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

CC5E CC5S CC5A 0C5B CC5C 0C5D QC5E 005F
XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

0C60 CC61 0C62 0063 0C64 0C65 0C66 0067
XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

0C68 0C69 0C6A 006B CC6C CC6D C06E 006F
XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

0070 C071 C072 0073 C074 C075 C076 0077
XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

C078 C079 C07A C07B C07C 007D C67E 007F
XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
```

DATA RECEIVED ON 1ST READ AFTER MODE SELECTION. NUMBER OF DATA WORDS PRINTED DEPENDS ON NUMBER OF DI GROUPS BEING RUN. CHAIN = 0001 WHEN CHAINING. MODE IS EITHER RANDOM OR SEQUENTIAL. DATA PRINTED IS SAVED AS INITIAL COMPARE WORD.

PID MID RID RAD MODE GRP ADRS CHAIN CMPR DATA PRSNT DATA

2400 DC02 0004 XXXX OCOX OCXX OCCX XXXX XXXX

COMPARE DATA NOT SAME AS PRESENT DATA. SAVE PRESENT DATA AS NEW COMPARE WORD.

PID MID RID RAD MODE CHAIN GRP ADRS

04C0 CCC3 0004 XXXX CCCX CCCX 00XX

```
DATA DATA  DATA DATA DATA DATA DATA DATA
XXXX XXXX  XXXX XXXX XXXX XXXX XXXX XXXX

DATA DATA  DATA DATA DATA DATA DATA DATA
XXXX XXXX  XXXX XXXX XXXX XXXX XXXX XXXX
```

DATA READ FROM DI GROUP SPECIFIED ON 1ST READ AFTER SINGLE ADDRESS MODE SELECTION. 8 DATA WORDS PRINTED IF NOT CHAINING, 16 DATA WORDS PRINTED IF CHAINING.

4.3 ERROR MESSAGES

PID MID RID RAD MODE DSW CHAIN

2400 ECCX 000X XXXX 000X XXXX OCCX

E001- LOST INTERRUPT.

EC02- SCAN COMPLETE INTERRUPT RECEIVED WITH INHIBIT INTERRUPT BIT SET ON SCAN CONTROL FIELD.

EC03- ERROR INTERRUPT RECEIVED.

EC04- DI BUSY INDICATOR ON - SHOULD BE OFF.

EC05- DSW FAILED TO RESET.

EC06- FAILED TO RECEIVE BUSY INDICATION AFTER INITIALIZE READ WITH EXTERNAL SYNC.

EC07- INHIBIT INTERRUPT BIT SET IN SCAN CONTROL FIELD. BUSY INDICATOR ON AFTER SUFFICIENT DELAY TO COMPLETE READ.

EC08- WRONG DSW AFTER INTERRUPT.

EC09- INTERRUPT RECEIVED - DSW BITS C, 1, 2, AND 3 OFF.

EC0A- DI BUSY INDICATOR ON AFTER BLAST CHANNEL.

EC0B- INTERRUPT RECEIVED AFTER BLAST CHANNEL.

EC0C- NO INTERRUPT RECEIVED AFTER SUFFICIENT DELAY DURING CHAINING OPERATION. SCAN COMPLETE BIT IN DSW OFF, BUSY INDICATOR ON.

PID MID RID RAD MODE DSW CHAIN PTCT DATA ACT DATA

2400 ECCD 0003 XXXX 0CC2 XXXX 0000 FFFF XXXX

STORAGE PROTECT AREA WAS MODIFIED ON READ INSTRUCTION.

5. COMMENTS

THE DIDC FUNCTION TEST CONSIST OF 4 TESTING ROUTINES AND RELATED SUBROUTINES. EACH ROUTINE CONTAINS IT'S OWN CONTROL. ROUTINE 1 CHECKS THE DI BLAST CHANNEL FEATURE. ROUTINE 2 CHECKS COMMAND REJECT. ROUTINE 3 CHECKS STORAGE PROTECT VIOLATE. ROUTINE 4 CHECKS DATA, SCAN COMPLETE INTERRUPT, CHAINING, AND ALL MODES OF DATA CHANNEL OPERATION (RANDOM, SEQUENTIAL, AND SINGLE ADDRESS).

ROUTINES 1,2 AND 3 ARE NORMALLY RUN ONLY ONCE WHEN THE PROGRAM IS INITIALLY EXECUTED. IF IT IS DESIRED TO LOOP EITHER ROUTINES 1,2 OR 3, THE OPTION MUST BE SELECTED PRIOR TO PROGRAM EXECUTION. IF A ROUTINE IS SELECTED FOR LOOPING, THE ROUTINES PRECEEDING IT WILL BE RUN ALSO. FOR EXAMPLE, IF ROUTINE 3 IS SELECTED FOR LOOPING, ROUTINES 1 AND 2 WILL BE RUN PRIOR TO THE LOOPING OF ROUTINE 3. THE ROUTINES MAY ONLY BE LOOPED IN ASCENDING ORDER WHILE THE PROGRAM IS RUNNING. THAT IS, IF LOOPING ROUTINE 1, ROUTINES 2 OR 3 MAY BE SELECTED FOR LOOPING. IF LOOPING ROUTINE 2 ONLY ROUTINE 3 MAY BE SELECTED FOR LOOPING. ONCE ROUTINE 4 IS RUNNING PROGRAM DEEXECUTION IS REQUIRED TO SET UP FOR LOOPING OF ROUTINES 1,2 OR 3.

5.1 ROUTINE 1.

ROUTINE ONE CHECKS THE BLAST CHANNEL FEATURE. THE INITIAL FUNCTION OF ROUTINE 1 IS TO CHECK THE DI BUSY INDICATOR. IF THE INDICATOR IS ON, AN ERROR MESSAGE WILL RESULT AND THE ROUTINE WILL CONTINUE TO LOOP IN THE BUSY CHECK UNTIL THE INDICATOR GOES OFF OR UNTIL THE PROGRAM IS DEEXECUTED. IF THE BUSY INDICATOR IS NOT ON, AN INITIALIZE READ, SINGLE ADDRESS WITH EXTERNAL SYNC IS ISSUED TO GROUP ADDRESS 40. EXTERNAL SYNC SHOULD CAUSE DI TO GO BUSY. THE BUSY INDICATOR IS CHECKED AND IF IT IS NOT ON, AN ERROR PRINTOUT RESULTS. IF THE INDICATOR IS ON, A BLAST CHANNEL COMMAND IS ISSUED AND THE BUSY INDICATOR CHECKED, THIS TIME FOR A NOT BUSY CONDITION. IF THE BUSY INDICATOR IS STILL ON AFTER THE CHANNEL BLAST, AN ERROR MESSAGE RESULTS AND THE ROUTINE LOOPS ISSUING BLAST CHANNEL COMMANDS UNTIL BUSY INDICATOR GOES OFF OR THE PROGRAM IS DEEXECUTED. IF THE BLAST CHANNEL CAUSED THE BUSY INDICATOR TO GO OFF, THEN A FURTHER CHECK IS MADE TO INSURE THAT A SCAN COMPLETE INTERRUPT IS NOT RECEIVED.

5.2 ROUTINE 2.

ROUTINE TWO CHECKS THE COMMAND REJECT FUNCTION. AN INITIALIZE READ, SINGLE ADDRESS EXTERNAL SYNC IS ISSUED FOR GROUP ADDRESS 40. EXTERNAL SYNC IS USED TO HANG THE DI SECTION IN A BUSY STATUS. A SECOND INITIALIZE READ IS THEN ISSUED ON THE BUSY CHANNEL. IF A COMMAND REJECT INTERRUPT IS NOT RECEIVED, AN ERROR RESULTS. IF THE INTERRUPT IS RECEIVED, THE DSW IS FURTHER CHECKED FOR THE PROPER BIT.

THE ROUTINE WILL SET AN INDICATOR IN THE DIAGNOSTIC MONITOR SO THE THAT THE C.A.R. CHECK ERROR WHICH RESULTS FROM THE COMMAND REJECT WILL NOT CAUSE THE MONITOR TO COME TO AN INTERNAL ERROR HALT. IF THE ILSW IS WRONG ON THE C.A.R CHECK ERROR, OR IF A C.A.R CHECK IS DETECTED AT ANY TIME OTHER THAN DURING ROUTINE 2 TEST, THE MONITOR WILL HALT DISPLAYING 30E6 IN THE B REG, AND THE ILSW IN THE A REG.

5.3 ROUTINE 3.

ROUTINE THREE CHECKS THE STORAGE PROTECT VIOLATE FEATURE. IF THE DI BUSY INDICATOR IS ON WHEN THIS ROUTINE IS ENTERED, THE PROGRAM WILL LOOP ON THE BUSY CONDITION UNTIL IT GOES OFF, OR UNTIL THE PROGRAM IS DEEXECUTED. AN ERROR PRINTOUT ACCOMPANIES THIS LOOP.

TO CHECK STORAGE PROTECT, THE ROUTINE STORES A TEST WORD OF FFFF INTO THE FIRST DATA LOCATION IN THE DATA TABLE. THE LOCATION IS THEN STORAGE PROTECTED AND AN INITIALIZE READ SINGLE ADDRESS COMMAND IS GIVEN USING DI GROUP ADDRESS 40. THE ROUTINE THEN CHECKS FOR A STORAGE PROTECT VIOLATE INTERRUPT, AND CHECKS TO INSURE THE PROPER DSW IS ON. THE FINAL CHECK IS TO INSURE THAT THE PROTECTED AREA STILL CONTAINS FFFF.

5.4 ROUTINE 4.

ROUTINE 4 IS USED TO CHECK DATA TRANSFER, END OF TRANSMISSION INTERRUPT, INHIBIT E.O.T. INTERRUPT AND CHAINING. ANY MODE OF OPERATION CAN BE CHECKED. THE MODE IS DETERMINED BY THE OPERATOR, (SEE TABLE 2).

WHEN RUNNING WITH OUT CHAINING, THE INHIBIT INTERRUPT BIT IN THE SCAN CONTROL FIELD WILL BE SET. RECEIPT OF SCAN COMPLETE INTERRUPT CONSTITUTES AN ERROR. IF CHAINING IS REQUESTED, THE FIRST TABLE WILL HAVE THE INHIBIT INTERRUPT BIT SET IN THE SCAN CONTROL FIELD, AND THE SECOND TABLE WILL ALLOW THE SCAN COMPLETE INTERRUPT. EACH TABLE WILL READ ONE HALF OF THE DI GROUPS AVAILABLE. IF THE NUMBER OF GROUPS IS ODD, THE 2ND TABLE WILL READ 1 MORE GROUP THAN THE 1ST.

A DATA PRINTOUT OF DI GROUP CONTENTS WILL OCCUR FOLLOWING THE SELECTION OF ANY MODE OF OPERATION (IN CASE OF EXTERNAL SYNC, THE EXT SYNC PULSE MUST BE RECEIVED BEFORE PRINTOUT CAN OCCUR). THIS PRINTOUT IS GIVEN TO INDICATE INITIAL REGISTER CONTENTS. FURTHER DATA PRINTOUTS WILL OCCUR WHENEVER THE PROGRAM DETECTS A CHANGE IN DI GROUP CONTENTS.

WHEN SINGLE ADDRESS MODE IS SELECTED, AND A DI GROUP IS NOT SPECIFIED, DI GROUP 0 (ADDRESS 0040) WILL BE USED. DI GROUP 0 WILL BE USED IF A GROUP IS SPECIFIED, BUT NOT EDITED INTO THE PROGRAM.

SINGLE ADDRESS OPERATION WILL CAUSE THE SPECIFIED DI GROUP TO BE READ 8 TIMES WHEN NOT CHAINING, AND 16 TIMES IF CHAINING. WHEN A CHANGE OF DATA IS SENSED BY THE PROGRAM, 8 OR 16 PRINTOUTS WILL RESULT, DEPENDING ON THE CHAIN OPTION.

IF EXTERNAL SYNC MODE IS SELECTED FOR OPERATION, THEN PROGRAM PROGRESS IS INDICATED BY ACC1 STATUS MESSAGES, (REFER TO SECTION 4 FOR MESSAGE EXPLANATION). WHEN A MODE CHANGE IS REQUESTED WHILE IN EXTERNAL SYNC, THE CHANGE WILL NOT BE HONORED UNTIL THE DELAY COUNTER FOR THE PRESENT PASS HAS BEEN REDUCED TO ZERO, OR AFTER A SCAN COMPLETE INTERRUPT TERMINATES THE EXT. SYNC OPERATION.

INTERRUPTS AND DSW ARE CHECKED IN ALL MODES TO DETERMINE PROPER OPERATION UNDER DATA CHANNEL CONTROL.

6.1 EDIT PROCEDURE

THE FOLLOWING EDIT PROCEDURE IS FOR CARD INPUT. THE EDIT PROCEDURE FOR PAPER TAPE INPUT IS LOCATED IN THE PAPER TAPE EDIT UTILITY PROGRAM DOCUMENTATION. THE PROPER EDIT CARDS MUST BE THE LAST CARDS IN THIS PROGRAM DECK. THE FOLLOWING FORMS ARE PROVIDED TO AID IN MANUALLY PREPARING THESE EDIT CARDS OR UPDATING EXISTING EDIT CARDS. IF IT IS NECESSARY TO PREPARE OR MODIFY EDIT CARDS, FILL IN THE NECESSARY DATA IN THE FORMS PRIOR TO PUNCHING THE CARDS. CARD COLUMNS THAT ARE SHADED SHOULD BE LEFT BLANK.

DDEF STANDS FOR DEVICE DEFINITION EDIT FIELD. IT INCLUDES:

1. THE INTERRUPT LEVEL ASSOCIATED WITH THIS DEVICE (USE HEX NOTATION, 00-17).
2. THE ILSW BIT POSITION ASSOCIATED WITH THIS DEVICE (USE HEX NOTATION, 0-F).
3. THE CHANNEL ASSIGNED TO THIS DEVICE (0-8).

THE LAST EDIT CARD IS THE "END EDIT CARD". THE INFORMATION IN THIS CARD INCLUDES:

1. AN "E" IN COLUMN 1.
2. THE PID FOR THIS PROGRAM (COL. 2-3).
3. A TERMINATOR WORD OF "FFFF" (COL. 7-10).

																	DI DDEF																					
		PROGRAM ID							CARD SEQUENCE NUMBER					NUMBER OF EDIT ENTRIES			INTERRUPT LEVEL (HEX)		ILSW BIT (HEX)	CHANNEL NO.		NO. OF D.I. GRPS. AVL.ON SYS(IN HEX)																
COLUMN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21					26					31					36		
CARD 0	E	2	4	0	0	▨	E	D	0	0	▨	0	0	0	2	▨					▨	0	0			▨					▨					▨		
END	E	2	4	0	0	▨	F	F	F	F	▨					▨					▨					▨					▨					▨		
						▨					▨					▨					▨					▨					▨					▨		
						▨					▨					▨					▨					▨					▨					▨		
						▨					▨					▨					▨					▨					▨					▨		

COLUMN			41					46					51					56					61					65					71				
CARD 0			▨					▨					▨					▨					▨					▨					▨				
END			▨					▨					▨					▨					▨					▨					▨				
			▨					▨					▨					▨					▨					▨					▨				
			▨					▨					▨					▨					▨					▨					▨				
			▨					▨					▨					▨					▨					▨					▨				

CARD 0 CONTAINS THE DDEF FOR DIGITAL IN, AND THE NUMBER OF D.I. GROUPS AVAILABLE ON THIS SYSTEM.

CARD 1 IS THE "END EDIT CARD". PUNCH EXACTLY AS IS SHOWN.

DI DC FUNCTION TEST

```
0000                     ORG       *+2047                                       82400000
                   *                                                            82400010
                   *                    ********************                    82400020
                   *                    MONITOR EQUATE TABLE                    82400030
                   *                    ********************                    82400040
                   *                                                            82400050
012C               BEGIN EQU       300                                          82400060
012D               START EQU       BEGIN+1                                      82400070
012E               END   EQU       START+1                                      82400080
012F               LOG   EQU       END+1                                        82400090
0130               ERROR EQU       LOG+1                                        82400100
0131               REQDV EQU       ERROR+1                                      82400110
0132               RELDV EQU       REQDV+1                                      82400120
0133               CHCK  EQU       RELDV+1                                      82400130
                   *                                                            82400140
                   *                    ***************************             82400150
                   *                    DIDC  PROGRAM STATUS TABLE              82400160
                   *                    ***************************             82400170
                   *                                                            82400180
07FF 0  2400       PID   DC        /2400      PROGRAM ID                        82400190
0800 0  0001       RID   DC        1          ROUTINE NUMBER                    82400200
0801 1  0850       RAD   DC        DIDCC      ROUTINE ADDRESS                   82400210
0802 0  0000       SW0   DC        0          FUNCTION 00 ENTRY                 82400220
0803 0  0000       SW1   DC        0          FUNCTION 01 ENTRY                 82400230
0804 0  0000       SW2   DC        0          FUNCTION 10 ENTRY                 82400240
0805 0  0000       SW3   DC        0          FUNCTION 11 ENTRY                 82400250
0806 1  082C       IPA   DC        INIDI      INITIALIZATION ADDRS              82400260
0807 1  0850       LPA   DC        DIDCC      LOOP PROGRAM ADDRESS              82400270
0808 1  0CFF       EPA   DC        DIEND      END PROGRAM ADDRESS               82400280
0809 0  0000       MLSCF DC        0          INTERRUPT SEQ CONTRL              82400290
080A 0  0000             DC        0          MAIN LINE SEQ CONTRL              82400300
080B 0  FFFF       TERM  DC        /FFFF                                        82400310
                   *                                                            82400320
                   *                    **MONITOR EDIT CONSTANTS**              82400330
                   *                                                            82400340
080C 1  0DCB             DC        PEND       END PROGRAM ADDRESS               82400350
080D 0  0000             DC        0                                            82400360
080E 0  0000             DC        0                                            82400370
080F 0  0000             DC        0                                            82400380
0810 0  0000             DC        0                                            82400390
0811 0  0000             DC        0                                            82400400
                   *                                                            82400410
                   *                    ** DIDCC EDIT DATA **                   82400420
                   *                                                            82400430
0812 0  0000       EDIT  DC        0          DI INTERRUPT LEVEL                82400440
0813 0  0000             DC        0          NUMBER OF DI GRPS                 82400450
                   *                                                            82400460
                   *                    *****************                       82400470
                   *                    INTERRUPT ROUTINE                       82400480
                   *                    *****************                       82400490
                   *                                                            82400500
0814 0  0000       DIINT DC        0          DEVICE ASSIGNMENT AD              82400510
0815 0  0000             DC        0          INTERRUPT ENTRY PT    IE          82400520
0816 01 0C0009AE         XIO   L   DISN       SENSE DSW AND SAVE                82400530
0818 01 D40009AB         STO   L   DI1                                          82400540
081A 01 0C0009AE         XIO   L   DISN       SENSE DSW AGAIN AND               82400550
081C 01 D40009AC         STO   L   DI2        *SAVE FOR RESET CK                82400560
081E 01 678009A4         LDX   I3  RTNSW      SET INTERRUPT RETURN              82400570
0820 01 C7000825         LD    L3  RTRN       *ACCORDING TO RTN                 82400580
0822 0  D0E6             STO       MLSCF      *SWITCH                           82400590
0823 01 4C800815         BSC   I   DIINT+1    RETURN TO USER        IX          82400600
                   *                                                            82400610
0825 1  0A78       RTRN  DC        DIIRT      ROUTINE 4 RETURN                  82400620
0826 1  08CB             DC        RT1IN      ROUTINE 1 RETURN                  82400630
0827 1  0923             DC        RT2IN      ROUTINE 2 RETURN                  82400640
0828 1  0986             DC        RT3IN      ROUTINE 3 RETURN                  82400650
                   *                                                            82400660
                   *                    *************                           82400670
```


DI DC FUNCTION TEST

```
                   *                    BEGIN ROUTINE                           82400680
                   *                    *************                           82400690
                   *                                                            82400700
0829 00 4480012C   DIBGN BSI   I   BEGIN      XFER. TO MON BEGIN    MRC         82400710
082B 1  07FF             DC        PID        *RTN WITH PID ADDRS               82400720
                   *                                                            82400730
                   *                    **********************                  82400740
                   *                    INITIALIZATION ROUTINE                  82400750
                   *                    **********************                  82400760
                   *                                                            82400770
082C 0  0000       INIDI DC        0                                SE          82400780
082D 01 C40009A3         LD    L   DISRT      SET GRP ADDRESS 0040              82400790
082F 01 D4000997         STO   L   DIREG      *INTO GRP IN USE IND              82400800
0831 0  6306             LDX    3  6          PRESET MODE TO SINGL              82400810
0832 01 6F000998         STX   L3  MODE       *ADDRESS EXT SYNC                 82400820
0834 01 C40009A5         LD    L   ONE                                          82400830
0836 01 D4000999         STO   L   RDSW       SET 1ST READ INDICTR              82400840
0838 0  2C40             DC        /2C40      CLEAR STORAGE PROTCT              82400850
0839 1  000A             DC        DTBL+2     *AREA                             82400860
083A 0  1010             SLA       16         CLEAR CONTROL                     82400870
083B 01 D400099A         STO   L   CHAIN      *INDICATORS                       82400880
083D 01 D400099C         STO   L   EXTS                                         82400890
083F 01 D400099D         STO   L   SAIND                                        82400900
0841 00 670000C4         LDX   L3  196        CLEAR DATA AND                    82400910
0843 0  1010             SLA       16         *COMPARE TABLES                   82400920
0844 01 D7000D07         STO   L3  DTBL-1                                       82400930
0846 0  73FF             MDX    3  -1                                           82400940
0847 0  70FC             MDX       *-4                                          82400950
0848 0  C0BE             LD        LPA        SET UP PROGRAM                    82400960
0849 0  D0BF             STO       MLSCF      *RETURN                           82400970
084A 01 4C80082C         BSC   I   INIDI      RETURN TO MONITOR     SX          82400980
                   *                                                            82400990
                   *                    ***********************                 82401000
                   *                    DIDCC MAIN LINE PROGRAM                 82401010
                   *                    ***********************                 82401020
                   *                                                            82401030
084C 0  1090       DIOE  SLT       16         GET REMAINDER                     82401032
084D 01 D400099E         STO   L   WC1        SET                               82401034
084F 0  700C             MDX       DIOF       BRANCH                            82401036
0850 0  10A0       DIDCC SLT       32                                           82401040
0851 0  C0C1             LD        EDIT+1     DETERMINE CHAINIG                 82401050
0852 0  1890             SRT       16         *WORD COUNTS  WORD                82401060
0853 01 AC0009A6         D     L   TWO        *COUNT 1 = NO.GRPS/2              82401070
0855 01 4C18084C         BSC   L   DIOE,+-    BRANCH IF ZERO                    82401072
0857 01 D400099E         STO   L   WC1        *WORD COUNT 2 = NO.               82401080
0859 0  1090             SLT       16         *GRPS/2 + ANY REMAIN              82401090
085A 01 8400099E         A     L   WC1                                          82401100
085C 01 D400099F   DIOF  STO   L   WC2                                          82401110
                   *                                                            82401120
                   ***************************************************          82401130
085E 01 44000AA9         BSI   L   RQDV       GO REQUEST DEVICE     SRC         82401140
                   ***************************************************          82401150
                   *                                                            82401160
                   *                    ** BUILD RD + SNS IOCC **               82401170
                   *                                                            82401180
0860 0  C0B3             LD        DIINT      SAVE AREA CODE                    82401190
0861 01 EC0009A8         OR    L   SENSE                                        82401200
0863 01 D40009AF         STO   L   DISN+1     SENSE COMMAND                     82401210
0865 01 E40009A9         AND   L   IREAD                                        82401220
0867 01 D40009AD         STO   L   RDIO       INITIALIZE READ CMND              82401230
0869 01 F40009AA         EOR   L   CNTRL                                        82401240
086B 01 D40009B3         STO   L   BLAST+1    BLAST CHANNEL COMMD               82401250
                   *                                                            82401260
                   ***************************************************          82401270
086D 01 44000AB9         BSI   L   RLDV       GO RELEASE DEVICE     SRC         82401280
                   ***************************************************          82401290
                   *                                                            82401300
                   *                    ***********************                 82401310
```

DI DC FUNCTION TEST

```
                    *                   RTN 1 TEST BLAST CHANNEL
                    *                   AND DEVICE BUSY
                    *                   ************************
                    *
086F 0  C870        RT01  LDD     RID01      ROUTINE NUMBER AND
0870 0  D88F              STD     RID        *ADDRESS TO PST
0871 0  6301              LDX   3 1          SET ROUTINE SWITCH
0872 01 6F0009A4          STX  L3 RTNSW      *FOR ROUTINE 1
                    *
                    ********************************************
0874 01 44000AA9          BSI   L RQDV       GO REQUEST DEVICE      SRC
                    ********************************************
                    *
0876 00 67000085    RT01E LDX  L3 133        SET DATA TABLE SC+WC
0878 01 6F000D08          STX  L3 DTBL
087A 01 C40009A3          LD    L DISRT      SET GRP ADDRESS
087C 01 D4000D09          STO   L DTBL+1
087E 01 C4000998          LD    L MODE       BUILD INITIALIZE
0880 0  1005              SLA     5          *READ COMMAND
0881 01 EC0009AD          OR    L RDIO
0883 01 D40009B1          STO   L DIRD+1
                    *
                    *                  ** CHECK DI BUSY **
                    *
0885 01 0C0009AE          XIO   L DISN       SENSE DI
0887 01 D40009AB          STO   L DI1        SAVE DSW
0889 0  4504              BSC     E          SKIP IF NOT BUSY
088A 0  7001              MDX     *+1
088B 0  7006              MDX     *+6
                    *
                    ********************************************
088C 01 44000CD0          BSI   L LOGER      GO PRINT ERROR E004    SRC
088E 0  E004              DC      /E004      MESSAGE ID
088F 01 44000AC4          BSI   L RLPC       PROGRAM RELEASE        SRC
                    ********************************************
                    *
0891 0  70F3              MDX     *-13       TRY AGAIN
                    *
0892 0  6302              LDX   3 2          SET DELAY INDEX
0893 01 0C0009B0          XIO   L DIRD       READ DI
0895 0  73FF              MDX   3 -1         WAIT FOR START DI
0896 0  70FE              MDX     *-2
                    *
0897 01 0C0009AE          XIO   L DISN       SENSE DSW
0899 01 D40009AB          STO   L DI1        SAVE DSW
089B 0  4804              BSC     E          SKIP IF NOT BUSY
089C 0  7006              MDX     RTN10
                    *
                    *                  **NOT BUSY  ERROR 6**
                    *
089D 01 0C0009B2          XIO   L BLAST      RESET DI
                    *
                    ********************************************
089F 01 44000CD0          BSI   L LOGER      GO PRINT ERROR 6       SRC
08A1 0  E006              DC      /E006
                    ********************************************
                    *
08A2 0  7002              MDX     *+2
                    *
                    *                  **CHECK BLAST CHANNEL**
                    *
08A3 01 0C0009B2    RTN10 XIO   L BLAST      RESET DI
08A5 01 0C0009AE          XIO   L DISN
08A7 01 D40009AB          STO   L DI1        SAVE DSW
08A9 0  4804              BSC     E          SKIP IF NOT BUSY
08AA 0  7001              MDX     *+1
08AB 0  7006              MDX     RTN11
                    *
```


DI DC FUNCTION TEST

```
                    *                  **DI BUSY  ERROR A**
                    *
                    ********************************************
08AC 01 44000CD0          BSI   L LOGER      GO PRINT ERROR A       SRC
08AE 0  E00A              DC      /E00A      MESSAGE ID
08AF 01 44000AC4          BSI   L RLPC       PROGRAM RELEASE        SRC
                    ********************************************
                    *
08B1 0  70F1              MDX     RTN10      TRY AGAIN
                    *
08B2 0  6302        RTN11 LDX   3 2          DELAY TO INSURE NO
08B3 01 44000AC4          BSI   L RLPC       *INTERRUPT OCCURS      SRC
08B5 0  73FF              MDX   3 -1
08B6 0  70FC              MDX     *-4
                    *
                    ********************************************
08B7 01 44000AB9    RTN13 BSI   L RLDV       RELEASE DEVICE         SRC
08B9 01 44000AC4          BSI   L RLPC       OVERLAP RELEASE        SRC
                    ********************************************
                    *
08BB 0  1010              SLA     16         CLEAR RTN SWITCH
08BC 01 D40009A4          STO   L RTNSW
08BE 01 C4000802          LD    L SW0        CHECK IF TERMINATE
08C0 00 4C84012E          BSC   I END,E      *PROGRAM REQUESTED
08C2 01 C4000803          LD    L SW1        CHECK IF LOOP RTN 1
08C4 01 E40009A7          AND   L THREE
08C6 01 F40009A5          EOR   L ONE
08C8 0  4818              BSC     +-
08C9 0  70A5              MDX     RT01       LOOP ROUTINE 1
08CA 0  7017              MDX     RT02       GO TO ROUTINE 2
                    *
                    *                  **INTERRUPT RETURN**
                    *
08CB 01 C40009AC    RT1IN LD    L DI2        CHECK FOR DSW RESET
08CD 0  1801              SRA     1
08CE 0  4818              BSC     +-
08CF 0  7003              MDX     RTN12
                    *
                    *                  **DSW FAILED TO RESET**
                    *                  **     ERROR 5      **
                    *
                    ********************************************
08D0 01 44000CD0          BSI   L LOGER      GO PRINT ERROR 5       SRC
08D2 0  E005              DC      /E005      MESSAGE ID
                    ********************************************
                    *
08D3 01 C40009AB    RTN12 LD    L DI1        CHECK IF EOT INTERPT
08D5 0  1002              SLA     2
08D6 0  4810              BSC     -
08D7 0  70DF              MDX     RTN13
                    *
                    *                  **EOT INTERPT ERROR B**
                    *
                    *
                    ********************************************
08D8 01 44000CD0          BSI   L LOGER      GO PRINT ERROR B       SRC
08DA 0  E00B              DC      /E00B      MESSAGE ID
                    ********************************************
                    *
08DB 0  70DB              MDX     RTN13
                    *
                    *                  ** LOOP ERROR RETURN **
                    *
                    ********************************************
08DC 01 44000AC4    RT1ER BSI   L RLPC       OVERLAP RELEASE        SRC
                    ********************************************
                    *
08DE 0  7097              MDX     RT01E
```

```
                    *
08E0    0000              BSS   E  0
08E0 0  0001        RID01 DC       1          RID
08E1 1  086F              DC       RT01       RAD
                    *
                    *                 **************************
                    *                 RTN 2 TEST COMMAND REJECT
                    *                 **************************
                    *
08E2 0  C84D        RT02  LDD      RID02      ROUTINE NUMBER AND
08E3 01 DC000800          STD   L  RID        *ADDRESS TO PST
08E5 0  6302              LDX    3 2          SET ROUTINE SWITCH
08E6 01 6F0009A4          STX   L3 RTNSW      *FOR ROUTINE 2
                    *
                    ************************************************
08E8 01 44000AA9          BSI   L  RQDV       GO REQUEST DEVICE    SRC
                    ************************************************
                    *
08EA 00 67004085    RT2ER LDX   L3 /4085      SET UP DATA TABLE
08EC 01 6F000D08          STX   L3 DTBL
08EE 01 C40009A3          LD    L  DISRT      SET UP STARTING
08F0 01 D4000D09          STO   L  DTBL+1     *ADDRESS
08F2 01 C4000998          LD    L  MODE       BUILD INITIALIZE
08F4 0  1005              SLA      5          *READ COMMAND
08F5 01 EC0009AD          OR    L  RDIO
08F7 01 D40009B1          STO   L  DIRD+1
08F9 0  6302              LDX    3 2          SET DELAY INDEX
08FA 01 0C0009B0          XIO   L  DIRD       READ DI
08FC 01 C40007FF          LD    L  PID        SET MONITOR C.A.R.
08FE 00 D4000133          STO   L  CRCK       *CHECK INDICATOR
0900 01 0C0009B0          XIO   L  DI?D       ISSUE ANOTHER READ
0902 0  73FF              MDX    3 -1
0903 0  70FE              MDX      *-2
                    *
                    ************************************************
0904 01 44000AC4          BSI   L  RLPC       GO CHECK FOR INTERPT SRC
                    ************************************************
                    *
0906 01 0C0009AE          XIO   L  DISN       SENSE DI
0908 01 D40009AB          STO   L  DI1        SAVE DSW
090A 01 0C0009B2          XIO   L  BLAST      RESET DI
                    *
                    *                **NO CMND RJECT INTERPT**
                    *                **      ERROR 1        **
                    *
                    ************************************************
090C 01 44000CD0          BSI   L  LOGER      GO PRINT ERROR 1     SRC
090E 0  E001              DC       /E001      MESSAGE ?D
                    ************************************************
                    *
090F 01 44000AB9    RTN20 BSI   L  RLDV       RELEASE DEVICE       SRC
0911 01 44000AC4          BSI   L  RLPC       OVERLAP RELEASE      SRC
                    *
0913 0  1010              SLA      16         CLEAR ROUTINE SWITCH
0914 01 D40009A4          STO   L  RTNSW
0916 01 C4000802          LD    L  SW0        CHECK IF TERMINATE
0918 00 4C84012E          BSC   I  END,E      *PROGRAM REQUESTED
091A 01 C4000803          LD    L  SW1        CHECK IF LOOP RTN 2
091C 01 E40009A7          AND   L  THREE
091E 01 F40009A6          EOR   L  TWO
0920 0  4818              BSC      +-
0921 0  70C0              MDX      RT02       LOOP ROUTINE 2
0922 0  7010              MDX      RT03       GO TO ROUTINE 3
                    *
                    *                **INTERRUPT RETURN**
                    *
0923 01 0C0009B2    RT2IN XIO   L  BLAST      RESET DI
0925 01 C40009AB          LD    L  DI1        CHECK FOR PROPER DSW
```



```
0927 0  1801              SRA      1
0928 0  1001              SLA      1
0929 0  F008              EOR      CMRJ
092A 0  4818              BSC      +-         SKIP ON WRONG DSW
092B 0  70E3              MDX      RTN20
                    *
                    *               **WRONG DSW  ERROR 8**
                    *
                    ************************************************
092C 01 44000CD0          BSI   L  LOGER      GO PRINT ERROR 8     SRC
092E 0  E008              DC       /E008      MESSAGE ID
                    ************************************************
                    *
092F 0  70DF              MDX      RTN20
                    *
0930    0000              BSS   E  0
0930 0  0002        RID02 DC       2          RID
0931 1  08E2              DC       RT02       RAD
0932 0  1000        CMRJ  DC       /1000      CMND REJECT CK WORD
                    *
                    *                 **************************
                    *                 RTN 3 CHECK STG PROT VIOL
                    *                 **************************
                    *
0933 0  C860        RT03  LDD      RID03      ROUTINE NUMBER AND
0934 01 DC000800          STD   L  RID        *ADDRESS TO PST
0936 0  6304              LDX    3 4          SET ROUTINE SWITCH
0937 0  D06C              STO      RTNSW      *FOR ROUTINE 3
                    *
                    ************************************************
0938 01 44000AA9          BSI   L  RQDV       GO REQUEST DEVICE    SRC
                    ************************************************
                    *
093A 01 C400080B    DI09  LD    L  TERM       SET CHECK WORD IN
093C 01 D4000D0A          STO   L  DTBL+2     *PROTECT AREA
093E 0  C062              LD       SC01       SET SCAN CONTROL 01
093F 0  E866              OR       TWO        *AND WORD COUNT 2
0940 01 D4000D08          STO   L  DTBL       *IN DATA TABLE
0942 0  C060              LD       DISRT      SET GRP ADDRESS IN
0943 01 D4000D09          STO   L  DTBL+1     *DATA TABLE
0945 0  6302              LDX    3 2          SET MODE TO SINGLE
0946 0  6B51              STX    3 MODE       *ADDRESS
0947 0  2C41              DC       /2C41      STORAGE PROTECT
0948 1  0D0A              DC       DTBL+2     *READ IN AREA
                    *
                    *               ** CHECK IF DI BUSY **
                    *
0949 01 0C0009AE    DIOD  XIO   L  DISN       SENSE DI
094B 0  D05F              STO      DI1
094C 0  100F              SLA      15
094D 0  4810              BSC      -          SKIP IF BUSY
094E 0  7007              MDX      DIOA
                    *
                    ************************************************
094F 01 44000CD0          BSI   L  LOGER      GO PRINT ERROR 4     SRC
0951 0  E004              DC       /E004
                    ************************************************
                    *
0952 0  085F              XIO      BLAST      RESET DI
                    *
                    ************************************************
0953 01 44000AC4          BSI   L  RLPC       RELEASE PROGRAM CTRL SRC
                    ************************************************
                    *
0955 0  70F3              MDX      DIOD       TRY AGAIN
                    *
                    *               ** READ DI **
                    *
```

```
0956 0  C041        DIOA  LD    MODE       ADD MODE TO READ          82404040
0957 0  1005              SLA   5          *COMMAND AND SET          82404050
0958 0  E854              OR    RDIO       *IN IOCC                  82404060
0959 0  D057              STO   DIRD+1                               82404070
                    *                                                82404080
095A 0  0855              XIO   DIRD       READ DI                   82404090
                    *                                                82404100
                    ************************************************ 82404110
095B 01 44000AC4          BSI   L RLPC     GO WAIT FOR INTRP    SRC  82404120
                    ************************************************ 82404130
                    *                                                82404140
                    *              **NO SPV INTRP  ERROR 1**         82404150
                    *                                                82404160
095D 0  0850              XIO   DISN       SENSE DSW AND SAVE        82404170
095E 0  D04C              STO   DI1                                  82404180
                    *                                                82404190
                    ************************************************ 82404200
095F 01 44000CD0          BSI   L LOGER    GO LOG ERROR 6       SRC  82404210
0961 0  E001              DC    /E001                                82404220
                    ************************************************ 82404230
                    *                                                82404240
                    *              **CK IF READ IN AREA**            82404250
                    *              **WAS DISTURBED     **            82404260
                    *                                                82404270
0962 01 C4000D0A    DI0B  LD    L DTBL+2   CHECK IF PROTECTED        82404280
0964 01 F400080B          EOR   L TERM     *AREA IS FFFF             82404290
0966 0  4818              BSC   +-         SKIP IF NOT FFFF          82404300
0967 0  700B              MDX   DIOC                                 82404310
                                                                     82404320
                    *              **PROTECTED AREA READ IN**        82404330
                    *              **      ERROR D       **          82404340
                    *                                                82404350
0968 01 C400080B          LD    L TERM     SET EXPECTED AND          82404360
096A 01 D4000CCB          STO   L MESAG+6  *ACTUAL PROTECTED         82404370
096C 01 C4000D0A          LD    L DTBL+2   *AREA DATA IN             82404380
096E 01 D4000CCC          STO   L MESAG+7  *MESSAGE                  82404390
                    *                                                82404400
                    ************************************************ 82404410
0970 01 44000CD0          BSI   L LOGER    PRINT ERROR D        SRC  82404420
0972 0  E00D              DC    /E00D      MESSAGE ID                82404430
                    ************************************************ 82404440
                    *                                                82404450
0973 0  2C40        DIOC  DC    /2C40      CLEAR STG PROT BIT        82404460
0974 1  0D0A              DC    DTBL+2                               82404470
0975 0  1010              SLA   16         CLEAR ROUTINE SWITCH      82404480
0976 0  D02D              STO   RTNSW                                82404490
                    *                                                82404500
                    ************************************************ 82404510
0977 01 44000AB9          BSI   L RLDV     GO RELEASE DEVICE    SRC  82404520
0979 01 44000AC4          BSI   L RLPC     OVERLAP RELEASE      SRC  82404530
                    ************************************************ 82404540
                    *                                                82404550
097B 01 C4000802          LD    L SW0      CHECK IF TERMINATE        82404560
097D 00 4C84012E          BSC   I END,E    *PROGRAM REQUESTED        82404570
097F 01 C4000803          LD    L SW1      CHECK IF LOOP RTN 3       82404580
0981 0  E025              AND   THREE                                82404590
0982 0  F024              EOR   THREE                                82404600
0983 0  4818              BSC   +-                                   82404610
0984 0  70AE              MDX   RT03                                 82404620
0985 0  7030              MDX   RT04       GO TO ROUTINE 4           82404630
                                                                     82404640
                    *              **SPV INTERRUPT RETURN**          82404650
                    *                                                82404660
0986 0  C024        RT3IN LD    DI1        CHECK FOR PROPER          82404670
0987 0  1801              SRA   1          *DSW BIT ON SPV           82404680
0988 0  1001              SLA   1          *INTERRUPT                82404690
0989 0  F00C              EOR   SPVCK                                82404700
098A 0  4818              BSC   +-         SKIP ON WRONG DSW         82404710
```



```
098B 0  7003              MDX   *+3                                82404720
                    *                                                82404730
                    *              **WRONG DSW D. SPV INTRP**        82404740
                    *              **      ERROR 8       **          82404750
                    *                                                82404760
                    ************************************************ 82404770
098C 01 44000CD0          BSI   L LOGER    GO PRINT ERROR 8     SRC  82404780
098E 0  E008              DC    /E008      MESSAGE ID                82404790
                    ************************************************ 82404800
                    *                                                82404810
098F 0  70D2              MDX   DI0B       GO CHECK RD IN AREA       82404820
                    *                                                82404830
                    *                                                82404840
                    *              **LOOP ERROR RETURN**             82404850
                    *                                                82404860
0990 0  0821        RT3ER XIO     BLAST      RESET DEVICE              82404870
0991 0  2C40              DC      /2C40      CLEAR STORAGE PROTCT      82404880
0992 1  0D0A              DC      DTBL+2     *BIT                      82404890
0993 0  70A6              MDX     DI09       GO READ                   82404900
                    *                                                82404910
0994    0000              BSS   E 0                                  82404920
0994 0  0003        RID03 DC      3          RID                       82404930
0995 1  0933              DC      RT03       RAD                       82404940
0996 0  4000        SPVCK DC      /4000      SPV CHECK WORD            82404950
                    *                                                82404960
                    *                    ****************            82404970
                    *                    PROGRAM CONSTANTS           82404980
                    *                    ****************            82404990
                    *                                                82405000
0997 0  0000        DIREG DC      0          GRP TO USE INDICATOR      82405010
0998 0  0000        MODE  DC      0          MODE INDICATOR            82405020
0999 0  0000        RDSW  DC      0          1ST READ INDICATOR        82405030
099A 0  0000        CHAIN DC      0          CHAINING INDICATOR        82405040
099B 0  0000        CHNSW DC      0          CHAIN SWITCH              82405050
099C 0  0000        EXTS  DC      0          EXTERNAL SYNC INDCTR      82405060
099D 0  0000        SAIND DC      0          SINGLE ADDRESS INDTR      82405070
099E 0  0000        WC1   DC      0          CHAIN WORD COUNT 1        82405080
099F 0  0000        WC2   DC      0          CHAIN WORD COUNT 2        82405090
09A0 1  0D4A        CARCK DC      DTBL+66    CAR CK ADDRESS            82405100
09A1 0  4000        SC01  DC      /4000      SCAN CONTROL BITS 01      82405110
09A2 0  C000        SC11  DC      /C000      SCAN CONTROL BITS 11      82405120
09A3 0  0040        DISRT DC      /0040      DI GRP STARTING ADRS      82405130
09A4 0  0000        RTNSW DC      0          ROUTINE SWITCH            82405140
09A5 0  0001        ONE   DC      1          CONSTANT 1                82405150
09A6 0  0002        TWO   DC      2          CONSTANT 2                82405160
09A7 0  0003        THREE DC      3          CONSTANT 3                82405170
09A8 0  0701        SENSE DC      /0701      SENSE/RESET COMMAND       82405180
09A9 0  FE00        IREAD DC      /FE00      INITIALIZE READ CMND      82405190
09AA 0  0220        CNTRL DC      /0220      BUILD CNTRL CMND K        82405200
09AB 0  0000        DI1   DC      0          DSW HOLD                  82405210
09AC 0  0000        DI2   DC      0          DSW RESET CK HOLD         82405220
09AD 0  0000        RDIO  DC      0          READ CMND LESS MODE       82405230
09AE    0000              BSS   E 0                                  82405240
09AE 0  0000        DISN  DC      0          SENSE IOCC                82405250
09AF 0  0000              DC      0                                    82405260
09B0 1  0D08        DIRD  DC      DTBL       READ IOCC                 82405270
09B1 0  0000              DC      0                                    82405280
09B2 0  0000        BLAST DC      0          BLAST CHANNEL IOCC        82405290
09B3 0  0000              DC      0                                    82405300
09B4 0  0004        RID04 DC      4          RID                       82405310
09B5 1  09B6              DC      RT04       RAD                       82405320
                    *                                                82405330
                    *                  ******************            82405340
                    *                  RTN 4 DI DATA CHECK           82405350
                    *                  ******************            82405360
                    *                                                82405370
                    *              **ROUTINE 4 WILL LOOP    **       82405380
                    *              **CONTINOUSLY UNTIL THE **        82405390
```

DI DC FUNCTION TEST

```
                        *                            **PROGRAM IS DESELECTED **
                        *
09B6 0  C8FD            RT04  LDD      RID04        ROUTINE NUMBER AND
09B7 01 DC000800              STD   L  RID          *ADDRESS TO PST
09B9 0  C0EB                  LD       ONE          PRESET MODE SWITCH
09BA 0  D0DD                  STO      MODE         *TO SEQUENTIAL MODE
09BB 01 C4000804              LD    L  SW2          GET FUNCTION 2
09BD 0  4810                  BSC      -            SKIP IF MODE REQUEST
09BE 0  7034                  MDX      DI03         BRANCH  RUN SEQUENTL
                        *
09BF 0  1884            DI01  SRT      4            SAVE MODE + CHAIN
09C0 0  1010                  SLA      16           CLEAR A
09C1 0  1081                  SLT      1            SET CHAIN INDICATOR
09C2 0  D0D7                  STO      CHAIN        * = TO BIT 12
09C3 0  1010                  SLA      16           CLEAR A
09C4 0  1081                  SLT      1            SET EXTERNAL SYNC
09C5 0  D0D6                  STO      EXTS         *IND = TO BIT 13
09C6 0  1082                  SLT      2            SET MODE INDICATOR
09C7 0  D0D0                  STO      MODE         * = TO BITS 13 14 15
09C8 0  C0DC                  LD       ONE          SET 1ST READ INDICTR
09C9 0  D0CF                  STO      RDSW
                        *
09CA 0  C0CD                  LD       MODE         CHECK IF MODE IS
09CB 0  E0DA                  AND      TWO          *SINGLE ADDRESS
09CC 0  4808                  BSC      +            SKIP IF SINGLE ADDRS
09CD 0  7025                  MDX      DI03         BRANCH IF NOT SA
                        *
                        *                         ** PREPARE FOR SA MODE **
                        *
09CE 01 7400099D              MDX   L  SAIND,0      SKIP IF SA IND OFF
09D0 0  7004                  MDX      DI02         BRANCH ON SA IND ON
09D1 0  C0D3                  LD       ONE
09D2 0  D0CA                  STO      SAIND        SET SA MODE INDICATR
09D3 0  633F                  LDX    3 63           SET DI GRP TO USE
09D4 0  6BC2                  STX    3 DIREG        *INDICATOR TO 003F
                        *
                        *                         ** CHECK IF OPERATOR    **
                        *                         ** SPECIFIED A DI GROUP **
                        *
09D5 01 C4000804        DI02  LD    L  SW2          GET FUNCTION 2
09D7 0  1001                  SLA      1            *ENTRY  SAVE DI GRP
09D8 0  1809                  SRA      9            *SELECT BITS
09D9 0  4808                  BSC      +            SKIP IF GRP REQUESTD
09DA 0  7002                  MDX      *+2          BRANCH  NO REQUEST
09DB 0  D0BB                  STO      DIREG        SAVE GRP REQUEST
09DC 0  7002                  MDX      *+2
09DD 01 74010997              MDX   L  DIREG,1      ADD 1 TO DI GRP IND
                        *
                        *                         **CHECK IF NEXT GRP TO  **
                        *                         **BE RUN IS WITHIN LIMIT**
                        *
09DF 0  C0C3                  LD       DISRT        CHECK IF GRP REQUEST
09E0 0  90B6                  S        DIREG        *IS LESS THAN ADDRS
09E1 0  4808                  BSC      +            *0040  SKIP IF REQST
09E2 0  7001                  MDX      *+1          *IS TOO SMALL
09E3 0  7007                  MDX      *+7
09E4 0  C0BE                  LD       DISRT        GET 1ST ADDRESS 0040
09E5 01 84000813              A     L  EDIT+1       *ADD TOTAL NUMBER OF
09E7 0  90BD                  S        ONE          *GRPS MINUS ONE AND
09E8 0  90AE                  S        DIREG        *CHECK AGAINST DIREG
09E9 0  4810                  BSC      -            SKIP IF SEL TOO BIG
09EA 0  7002                  MDX      *+2
09EB 0  C0B7                  LD       DISRT        RESET GRP ADDRESS TO
09EC 0  D0AA                  STO      DIREG        *40 IF SELCT TOO BIG
09ED 0  1010                  SLA      16
09EE 01 D4000804              STO   L  SW2          CLEAR FUNCTION 2 ETY
                        *
                        ******************************************
```


DI DC FUNCTION TEST

```
09F0 01 44000B59              BSI   L  SASET        GO SET UP SINGL ADRS SRC
                        ******************************************
                        *
09F2 0  7006                  MDX      DI04         GO READ
                        *
                        *                         **REQUEST RANDOM OR SEQ **
                        *
09F3 0  1010            DI03  SLA      16           CLEAR SINGLE ADDRESS
09F4 0  D0A8                  STO      SAIND        *INDICATOR AND FCN
09F5 01 D4000804              STO   L  SW2          *2 ENTRY
                        *
                        ******************************************
09F7 01 44000AD6              BSI   L  SRSET        SETUP RNDM OR SEQ    SRC
                        ******************************************
                        *
                        *                         **PREPARE TO READ DI **
                        *
                        ******************************************
09F9 01 44000AA9        DI04  BSI   L  RQDV         REQUEST DEVICE       SRC
                        ******************************************
                        *
09FB 0  08B2                  XIO      DISN         SENSE DSW AND SAVE
09FC 0  D0AE                  STO      DI1
09FD 0  100F                  SLA      15           CHECK IF BUSY
09FE 0  4810                  BSC      -
09FF 0  700A                  MDX      DI05         BRANCH NOT BUSY
                        *
                        *                         ** DI BUSY  ERROR 4 **
                        *
                        ******************************************
0A00 01 44000CD0              BSI   L  LOGER        PRINT ERROR 4        SRC
0A02 0  E004                  DC       /E004        MESSAGE ID
                        ******************************************
0A03 01 0C0009B2              XIO   L  BLAST
                        ******************************************
0A05 01 44000AB9              BSI   L  RLDV         RELEASE DEVICE       SRC
0A07 01 44000AC4              BSI   L  RLPC         RELEASE PROG CONTROL SRC
                        ******************************************
                        *
0A09 0  70EF                  MDX      DI04         TRY AGAIN
                        *
                        *                         ** DI NOT BUSY   READ **
                        *
0A0A 0  C091            DI05  LD       EXTS         GET EXTERNAL SYNC
0A0B 0  4804                  BSC      E            *INDICATOR  SET
0A0C 0  7002                  MDX      *+2          *INTERRUPT DELAY CTR
0A0D 0  6101                  LDX    1 1            *ACCORDING TO EXTRNL
0A0E 0  7002                  MDX      *+2          *SYNC BIT
0A0F 00 65007FFF              LDX   L1 /7FFF
0A11 0  6200                  LDX    2 0            CLEAR EXT SYNC CNTR
0A12 01 C4000998              LD    L  MODE         GET MODE AND POSITON
0A14 0  1005                  SLA      5
0A15 0  E897                  OR       RDIO         ADD MODE TO RD CMND
0A16 0  D09A                  STO      DIRD+1       *AND SET IN IOCC
                        *
0A17 0  0898                  XIO      DIRD         INITIALIZE READ DI
                        *
                        ******************************************
0A18 01 44000AC4        DI06  BSI   L  RLPC         OVERLAP RELEASE      SRC
                        ******************************************
                        *
0A1A 01 C4000802              LD    L  SW0          CHECK IF TERMINATE
0A1C 00 4C84012E              BSC   I  END,E        *PROGRAM REQUESTED
0A1E 0  71FF                  MDX    1 -1           STEP INTRPT COUNTER
0A1F 0  70F8                  MDX      DI06         COUNTER NOT ZERO
                        *
                        *                         ** COUNTER ZERO CHECK RD**
                        *
```

```
0A20 01 C4000998          LD    L  MODE          SET MODE IN MESSAGE        82406760
0A22 01 D400CCC8          STO   L  MESAG+3                                  82406770
                                                                            82406780
0A24 01 C400099C          LD    L  EXTS                                     82406790
0A26 0  4808              BSC      +             SKIP IF EXTERNAL SYN       82406800
0A27 0  702C              MDX      DI07                                     82406810
0A28 00 65007FFF          LDX   L1 /7FFF         RELOAD DELAY COUNTER       82406820
0A2A 0  7201              MDX    2 1             STEP PASS COUNTER          82406830
0A2B 01 0C0009AE  DI06A   XIO   L  DISN          SENSE DSW                  82406840
0A2D 01 D40009AB          STO   L  DI1           SAVE DSW                   82406850
0A2F 0  1002              SLA      2                                        82406860
0A30 0  4808              BSC      +             SKIP IF NOT EOT            82406870
0A31 0  7018              MDX      LOSTI                                    82406880
0A32 0  1C0D              SLA      13                                       82406890
0A33 0  4810              BSC      -             SKIP IF DI BUSY            82406900
0A34 0  7015              MDX      LOSTI                                    82406910
0A35 01 C400099C          LD    L  EXTS                                     82406920
0A37 0  4808              BSC      +             SKIP IF EXTERNAL SYN       82406930
0A38 0  7015              MDX      DI06B                                    82406940
                     *                                                      82406950
                     *                 **EXT SYNC MODE NO INTRP**           82406960
                     *                 **NOT EOT AND DEVICE BSY**           82406970
                     *                                                      82406980
0A39 01 6E000CC9          STX   L2 MESAG+4       PASS CTR TO MESSAGE        82406990
                     *                                                      82407000
                     ****************************************               82407010
0A3B 01 44000CA2          BSI   L  LOGDT         PRINT MESSAGE A001   SRC   82407020
0A3D 0  0002              DC       2             WORD COUNT                 82407030
0A3E 0  AC01              DC       /A001         MESSAGE ID                 82407040
                     ****************************************               82407050
                     *                                                      82407060
0A3F 01 C4000804          LD    L  SW2           CHECK IF MODE CHANGE       82407070
0A41 0  4810              BSC      -             *REQUEST SKIP ON CHG       82407080
0A42 0  70D5              MDX      DI06          NO CHANGE CONTINUE         82407090
                     *                                                      82407100
0A43 01 0C0009B2          XIO   L  BLAST         RESET DI                   82407110
                     *                                                      82407120
                     ****************************************               82407130
0A45 0  4073              BSI      RLDV          GO RELEASE DEVICE    SRC   82407140
                     ****************************************               82407150
                     *                                                      82407160
0A46 01 C4000804          LD    L  SW2                                      82407170
0A48 01 4C0009BF          BSC   L  DI01          GO SET UP NEW MD           82407180
                     *                                                      82407190
                     *                 **LOST INTERRUPT ERROR 1**           82407200
                     *                                                      82407210
                     ****************************************               82407220
0A4A 01 44000CD0  LOSTI   BSI   L  LOGER         GO PRINT ERROR 1     SRC   82407230
0A4C 0  E001              DC       /E001         MESSAGE ID                 82407240
                     ****************************************               82407250
                     *                                                      82407260
0A4D 0  7015              MDX      DI08          GO CHECK DATA              82407270
                     *                                                      82407280
                     *                 **COUNTER ZERO  CHAINING**           82407290
                     *                 **NO INTRP,NOT EOT  BUSY**           82407300
                     *                 **       ERROR C       **            82407310
                     *                                                      82407320
                     ****************************************               82407330
0A4E 01 44000CD0  DI06B   BSI   L  LOGER         PRINT ERROR C        SRC   82407340
0A50 0  EC0C              DC       /E00C         MESSAGE ID                 82407350
                     ****************************************               82407360
                     *                                                      82407370
0A51 01 0C0009B2  DI06C   XIO   L  BLAST         RESET DI                   82407380
0A53 0  700F              MDX      DI08          GO CHECK DATA              82407390
                     *                                                      82407400
                     *                 **NOT EXT SYNC CK IF CHN**           82407410
                     *                                                      82407420
0A54 01 7400099A  DI07    MDX   L  CHAIN,0       SKIP IF NOT CHNING         82407430
0A56 0  70D4              MDX      DI06A         CHNG  CHECK CONDITON       82407440
```



```
                     *                                                      82407440
                     *                 **NOT CHAINING  CK BUSY **           82407450
                     *                                                      82407460
0A57 01 0C0009AE          XIO   L  DISN                                     82407470
0A59 01 D40009AB          STO   L  DI1           SAVE DSW                   82407480
0A5B 0  100F              SLA      15                                       82407490
0A5C 0  4810              BSC      -             SKIP IF BUSY               82407500
0A5D 0  7005              MDX      DI08          GO CHECK DATA              82407510
                     *                                                      82407520
                     *                 **INHIBIT INTRP SET  CTR**           82407530
                     *                 **ZERO DEVICE BUSY ERR 7**           82407540
                     *                                                      82407550
                     ****************************************               82407560
0A5E 01 44000CD0          BSI   L  LOGER         GO PRINT ERROR 7     SRC   82407570
0A60 0  E007              DC       /E007         MESSAGE ID                 82407580
                     ****************************************               82407590
                     *                                                      82407600
0A61 01 0C0009B2          XIO   L  BLAST         RESET DI                   82407610
                     *                                                      82407620
                     *                 **READ COMPLT CHECK DATA**           82407630
                     *                                                      82407640
                     ****************************************               82407650
0A63 01 44000AB9  DI08    BSI   L  RLDV          RELEASE DEVICE       SRC   82407660
0A65 0  405E              BSI      RLPC          OVERLAP RELEASE      SRC   82407670
                     ****************************************               82407680
                     *                                                      82407690
0A66 01 C4000998          LD    L  MODE          CHECK MODE  IF SINGL       82407700
0A68 0  1801              SRA      1             *ADDRESS GO TO SACMP       82407710
0A69 0  4804              BSC      E             *IF NOT GO TO SRCMP        82407720
0A6A 0  7001              MDX      *+1                                      82407730
0A6B 0  7003              MDX      *+3                                      82407740
                     *                                                      82407750
                     ****************************************               82407760
0A6C 01 44000C21          BSI   L  SACMP         CHECK SINGLE ADDRESS SRC   82407770
                     ****************************************               82407780
                     *                                                      82407790
0A6E 0  7002              MDX      *+2                                      82407800
                     *                                                      82407810
                     ****************************************               82407820
0A6F 01 44000B80          BSI   L  SRCMP         CHECK RANDOM OR SEQ  SRC   82407830
                     ****************************************               82407840
                     *                                                      82407850
                     *                 **PASS COMPLETE  CHECK **            82407860
                     *                 **IF MODE CHANGE REQST **            82407870
                     *                                                      82407880
0A71 01 C4000802          LD    L  SW0           CHECK IF TERMINATE         82407890
0A73 00 4C84012E          BSC   I  END,E         *PROGRAM REQUESTED         82407900
0A75 01 C4000804          LD    L  SW2           GET FUNCTION 2             82407910
0A77 01 4C2809BF          BSC   L  DI01,+Z       BRANCH IF REQUEST          82407920
0A79 01 4C0009F9          BSC   L  DI04          RERUN PRESENT SETUP        82407930
                     *                                                      82407940
                     *                 *************************            82407950
                     *                 DI INTERRUPT CHECK ROUTINE           82407960
                     *                 *************************            82407970
                     *                                                      82407980
0A7B 01 C40009AC  DIIRT   LD    L  DI2           CHECK IF DSW RESET         82407990
0A7D 0  1801              SRA      1                                        82408000
0A7E 0  4818              BSC      +-            SKIP IF DSW NOT RSET       82408010
0A7F 0  7005              MDX      DIIR1                                    82408020
                     *                                                      82408030
                     *                 **NO DSW RESET  ERROR 5 **           82408040
                     *                                                      82408050
                     ****************************************               82408060
0A80 01 44000CD0          BSI   L  LOGER         PRINT ERROR 05       SRC   82408070
0A82 0  E005              DC       /E005         MESSAGE ID                 82408080
                     ****************************************               82408090
                     *                                                      82408100
                     ****************************************               82408110
```

DI DC FUNCTION TEST

```
0A83 01 44000AC4            BSI  L  RLPC         RELEASE PROG           SRC
                     ********************************************
                     *
0A85 01 C40009AB     DIIR1 LD   L  DI1          CK FOR PARITY ERROR
0A87 0  D01F               STO     HOLD         SAVE PRESENT DSW
0A88 0  E01F               AND     DIICN        CHECK IF ERROR INTRP
0A89 0  4818               BSC     +-           SKIP ON ERROR
0A8A 0  7008               MDX     DIIR2
                     *
                     *                **PRTY SPV OR CMND REJCT**
                     *                **      ERROR 3        **
                     *
                     ********************************************
0A8B 01 44000CD0           BSI  L  LOGER        PRINT ERROR 3          SRC
0A8D 0  E003               DC      /E003        MESSAGE ID
                     ********************************************
                     *
0A8E 0  C018               LD      HOLD         CHECK IF OP COMPLETE
0A8F 0  1002               SLA     2            *WAS ON
0A90 01 4C100A18           BSC  L  DI06,-       EXIT ON NOT EOT        SX
0A92 0  7009               MDX     DIIR3
                     *
                     *                **CHECK FOR OP COMPLETE**
                     *
0A93 0  C013         DIIR2 LD      HOLD
0A94 0  1002               SLA     2
0A95 0  4828               BSC     +Z           SKIP IF NOT EOT
0A96 0  7005               MDX     DIIR3
                     *
                     *                **INTRP ON BITS 4-15**
                     *                **      ERROR 9    **
                     *
                     ********************************************
0A97 01 44000CD0           BSI  L  LOGER        PRINT ERROR 9          SRC
0A99 0  E009               DC      /E009        MESSAGE ID
                     ********************************************
                     *
0A9A 01 4C000A18           BSC  L  DI06         EXIT NOT EOT           SX
                     *
0A9C 01 7400099A     DIIR3 MDX  L  CHAIN,0      SKIP IF NOT CHAINING
0A9E 0  7006               MDX     DIIR4        BRANCH IF CHAINING
0A9F 01 7400099C           MDX  L  EXTS,0       SKIP IF NOT EXT SYNC
0AA1 0  7003               MDX     DIIR4        BRANCH IF EXT SYNC
                     *
                     *                **INIHIBIT INTERRUPT BIT **
                     *                **SET  EOT INTERPT RCVD **
                     *                **      ERROR  2       **
                     *
                     ********************************************
0AA2 01 44000CD0           BSI  L  LOGER        PRINT ERROR 2          SRC
0AA4 0  E002               DC      /E002        MESSAGE ID
                     ********************************************
                     *
0AA5 01 4C000A63     DIIR4 BSC  L  DI08         GO CHECK DATA          SX
                     *
0AA7 0  0000         HOLD  DC      0            PRESENT DSW
0AA8 0  D000         DIICN DC      /D000
                     *
                     *                **********************
                     *                REQUEST DEVICE ROUTINE
                     *                **********************
                     *
0AA9 0  0000         RQDV  DC      0                                   SE
0AAA 01 C4000812           LD   L  EDIT         REQUEST DEVICE IF IT
0AAC 0  4828               BSC     +Z           *IS NOT PRESENTLY
0AAD 0  7006               MDX     **6          *ASSIGNED TO PROGRAM
                     *
                     ********************************************
```


DI DC FUNCTION TEST

```
0AAE 00 44800131            BSI  I  REQDV        REQUEST DEVICE         MRC
0AB0 1  0AB6                DC      DVBSY        DEVICE BUSY RETURN
0AB1 1  0812                DC      EDIT         DEFINE DEVICE ADDRS
0AB2 1  0814                DC      DIINT        DEVICE ASSIGNMENT AD
0AB3 1  080B                DC      TERM
                     ********************************************
                     *
0AB4 01 4C800AA9            BSC  I  RQDV         BRANCH IF DEVICE SEL SX
                     *
                     ********************************************
0AB6 01 44000AC4     DVBSY BSI  L  RLPC         DEVICE BUSY REL PROG SRC
                     ********************************************
                     *
0AB8 0  70F1                MDX     RQDV+1       RETRY DEVICE REQUEST
                     *
                     *                **********************
                     *                RELEASE DEVICE ROUTINE
                     *                **********************
                     *
0AB9 0  0000         RLDV  DC      0                                   SE
0ABA 01 C4000812           LD   L  EDIT         RELEASE DEVICE IF IT
0ABC 0  4810               BSC     -            *IS PRESENTLY HELD
0ABD 0  7004               MDX     **4          BY THE DI PROGRAM
                     *
                     ********************************************
0ABE 00 44800132           BSI  I  RELDV        RELEASE DEVICE         MRC
0AC0 1  0812               DC      EDIT         DEFINE DEVICE ADDRS
0AC1 1  080B               DC      TERM
                     ********************************************
                     *
0AC2 01 4C800AB9           BSC  I  RLDV         RETURN TO USER         SX
                     *
                     *                **************************
                     *                RELEASE PRGM CNTRL ROUTINE
                     *                **************************
                     *
0AC4 0  0000         RLPC  DC      0                                   SE
0AC5 0  6909               STX   1 RL1+1        SAVE INDEX REGS
0AC6 0  6A0A               STX   2 RL1+3
0AC7 0  6B0B               STX   3 RL1+5
0AC8 01 67000ACE           LDX  L3 RL1          SET MLSCF RETURN
0ACA 01 6F00080A           STX  L3 MLSCF+1
                     *
                     ********************************************
0ACC 00 4C80012D           BSC  I  START        EXIT TO MONITOR        MRC
                     ********************************************
                     *
0ACE 00 65000000     RL1   LDX  L1 0            RESTORE INDEX REG 1
0AD0 00 66000000           LDX  L2 0            RESTORE INDEX REG 2
0AD2 00 67000000           LDX  L3 0            RESTORE INDEX REG 3
0AD4 01 4C800AC4           BSC  I  RLPC         RETURN TO USER         SX
                     *
                     *                ********************
                     *                RANDOM AND SEQUFNTIAL
                     *                SETUP ROUTINE
                     *                ********************
                     *
0AD6 0  0000         SRSET DC      0            ROUTINE ENTRY          SE
0AD7 01 7400099A           MDX  L  CHAIN,0      SET UP DATA TABLE
0AD9 0  701D               MDX     SR2          *ACCORDING TO CHAIN
0ADA 01 65800813           LDX  I1 EDIT+1       SET INDEX = NMBR GRP
0ADC 01 C4000998           LD   L  MODE         GET MODE INDICATOR
0ADE 0  4804               BSC     E            *IF RANDOM SET WC =
0ADF 0  7007               MDX     SR1          *GRPS X 2  IF SEQTL
0AE0 0  10A0               SLT     32           *SET WC = GRPS + 1
0AE1 01 C4000813           LD   L  EDIT+1       MULTIPLY GRPS X 2
0AE3 01 A40009A6           M    L  TWO
0AE5 0  1090               SLT     16
```

```
0AE6 0  7004              MDX     *+4                                  82409480
0AE7 01 C4000813    SR1   LD   L  EDIT+1      ADD ONE TO NMBR GRPS      82409490
0AE9 01 840009A5          A    L  ONE                                   82409500
0AEB 01 D4000D08          STO  L  DTBL                                  82409510
                  *                                                     82409520
0AED 01 7400099C          MDX  L  EXTS,0       IF EXT SYNC IND ON       82409530
0AEF 0  7003              MDX     *+3          *SET SC =00 IF OFF       82409540
0AF0 01 C40009A1          LD   L  SC01         *SET SC =01              82409550
0AF2 0  7001              MDX     *+1                                   82409560
0AF3 0  1010              SLA     16           ADD SCAN CONTROL         82409570
0AF4 01 EC000D08          OR   L  DTBL         *TO WORD COUNT           82409580
0AF6 0  7019              MDX     SR4                                   82409590
                  *                                                     82409600
                  *                  **SETUP WITH CHAINING **           82409610
                  *                                                     82409620
0AF7 01 6580099E    SR2   LDX  I1 WC1          SET IX = CHAIN WC 1      82409630
0AF9 01 C4000998          LD   L  MODE         GET MODE INDICATOR       82409640
0AFB 0  4804              BSC     E            *IF RANDOM SET WC =      82409650
0AFC 0  7007              MDX     SR3          *WC 1 X 2  IF SEQTL      82409660
0AFD 0  10A0              SLT     32           *SET WC = WC 1 + 1       82409670
0AFE 01 C400099E          LD   L  WC1          MULTIPLY CHAIN WC 1      82409680
0B00 01 A40009A6          M    L  TWO          * X 2                    82409690
0B02 0  1090              SLT     16                                    82409700
0B03 0  7004              MDX     *+4                                   82409710
0B04 01 C400099E    SR3   LD   L  WC1          ADD ONE TO CHAINING      82409720
0B06 01 840009A5          A    L  ONE          * WC 1                   82409730
0B08 01 D4000D08          STO  L  DTBL                                  82409740
0B0A 01 74010998          MDX  L  CHNSW,1      SETUP CHAIN SW ON        82409750
0B0C 01 C40009A2          LD   L  SC11         ADD SCAN CONTROL TO      82409760
0B0E 01 EC000D08          OR   L  DTBL         *WORD COUNT              82409770
                  *                                                     82409780
0B10 01 D4000D08    SR4   STO  L  DTBL         SC + WC TO DATA TABL     82409790
0B12 01 668009A3          LDX  I2 DISRT        SET DI GRP IN USE        82409800
0B14 01 6E000997          STX  L2 DIREG        *IND TO ADDRESS 40       82409810
0B16 0  6201              LDX     2 1                                   82409820
0B17 01 C4000997    SR5   LD   L  DIREG        SET GRP ADDRESS IN       82409830
0B19 01 D6000D08          STO  L2 DTBL         *DATA TABLE              82409840
0B18 01 C4000998          LD   L  MODE         IF RANDOM MODE           82409850
0B1D 0  4804              BSC     E            *CONTINUE SETUP  IF      82409860
0B1E 0  7005              MDX     *+5          *SEQTL MODE BRANCH       82409870
0B1F 01 74010997          MDX  L  DIREG,1                               82409880
0B21 0  7202              MDX     2 2                                   82409890
0B22 0  71FF              MDX     1 -1                                  82409900
0B23 0  70F3              MDX     SR5                                   82409910
                  *                                                     82409920
0B24 01 C4000998          LD   L  CHNSW        IF SETUP CHAIN SW        82409930
0B26 0  4808              BSC     +            *IS ON SET UP NXT TB     82409940
0B27 0  702F              MDX     SR8          EXIT SETUP               82409950
                  *                                                     82409960
                  *                  **SETUP CHAIN TABLE**              82409970
                  *                                                     82409980
0B28 0  1010              SLA     16           CLEAR SETUP CHAIN SW     82409990
0B29 01 D4000998          STO  L  CHNSW        SETUP CHAIN TABLE        82410000
0B2B 01 C4000998          LD   L  MODE         *ACCORDING TO MODE       82410010
0B2D 0  4804              BSC     E                                     82410020
0B2E 0  7008              MDX     SR6          SEQUENTIAL MODE BR       82410030
                  *                                                     82410040
0B2F 01 6580099F          LDX  I1 WC2          SET IX = CHAIN WC 1      82410050
0B31 0  10A0              SLT     32                                    82410060
0B32 01 C400099F          LD   L  WC2          SET WORD COUNT = TO      82410070
0B34 01 A40009A6          M    L  TWO          *CHAIN WC 2 X 2          82410080
0B36 0  1090              SLT     16                                    82410090
0B37 01 D4000D4B          STO  L  DTBL+67                               82410100
0B39 0  700C              MDX     SR7                                   82410110
                  *                                                     82410120
0B3A 01 C400099F    SR6   LD   L  WC2          SET WORD COUNT = TO      82410130
0B3C 01 840009A5          A    L  ONE          *CHAIN WC 1 + 1          82410140
0B3E 01 D4000D4B          STO  L  DTBL+67                               82410150
```



```
0B40 01 C4000997          LD   L  DIREG        SET UP STARTING          82410160
0B42 01 8400099E          A    L  WC1          *ADDRESS FOR SEQUNTL     82410170
0B44 01 D4000997          STO  L  DIREG        *CHAIN TABLE 2           82410180
                  *                                                     82410190
0B46 01 C4000D08    SR7   LD   L  DTBL         DETERMINE WHERE TO       82410200
0B48 0  1002              SLA     2            *PLACE NEXT TABLE        82410210
0B49 0  1802              SRA     2            *ADDRESS IN FIRST        82410220
0B4A 01 840009A5          A    L  ONE          *TABLE                   82410230
0B4C 0  D001              STO     *+1                                   82410240
0B4D 00 66000000          LDX  L2 0                                     82410250
0B4F 01 C40009A0          LD   L  CARCK        SET NEXT TABLE ADDRS     82410260
0B51 01 D6000D08          STO  L2 DTBL         *AND CAR CHECK ADDRS     82410270
0B53 01 D4000D4A          STO  L  DTBL+66      *INTO CHAIN TABLES       82410280
0B55 0  6244              LDX     2 68         SET INDEX FOR NEXT       82410290
0B56 0  70C0              MDX     SR5          *TABLE AND GO SETUP      82410300
                  *                                                     82410310
0B57 01 4C800AD6    SR8   BSC  I  SRSET        EXIT SR SETUP ROUTIN     82410320
                  *                                                     82410330
                  *                  ********************               82410340
                  *                  SINGLE ADDRESS SETUP               82410350
                  *                  ********************               82410360
                  *                                                     82410370
0B59 0  0000      SASET DC     0                                   SE   82410380
0B5A 0  6309              LDX     3 9          SET WORD COUNT = 9       82410390
0B5B 01 6F000D08          STX  L3 DTBL         *INTO DATA TABLE         82410400
0B5D 01 6F000D4B          STX  L3 DTBL+67                               82410410
0B5F 01 C4000997          LD   L  DIREG        SET DI GRP ADDRESS       82410420
0B61 01 D4000D09          STO  L  DTBL+1       *INTO DATA TABLE         82410430
0B63 01 D4000D4C          STO  L  DTBL+68                               82410440
0B65 01 7400099A          MDX  L  CHAIN,0      CHECK IF CHAINING        82410450
0B67 0  700A              MDX     SA1                                   82410460
                  *                                                     82410470
                  *                  ** SETUP WITHOUT CHAIN             82410480
                  *                                                     82410490
0B68 01 7400099C          MDX  L  EXTS,0       CHECK IF EXT SYNC        82410500
0B6A 0  7013              MDX     SA2          EXTERNAL SYNC BRANCH     82410510
0B6B 01 C40009A1          LD   L  SC01         SET SCAN CONTROL =01     82410520
0B6D 01 EC000D08          OR   L  DTBL                                  82410530
0B6F 01 D4000D08          STO  L  DTBL                                  82410540
0B71 0  700C              MDX     SA2          EXIT                     82410550
                  *                                                     82410560
                  *                  ** SETUP WITH CHAINING **          82410570
                  *                                                     82410580
0B72 01 C40009A2    SA1   LD   L  SC11         SET SCAN CONTROL =11     82410590
0B74 01 EC000D08          OR   L  DTBL                                  82410600
0B76 01 D4000D08          STO  L  DTBL                                  82410610
0B78 01 C40009A0          LD   L  CARCK        SET NEXT TBL ADDRS       82410620
0B7A 01 D4000D12          STO  L  DTBL+10      *AND CAR CHECK ADDRS     82410630
0B7C 01 D4000D4A          STO  L  DTBL+66      *IN DATA TABLE           82410640
                  *                                                     82410650
0B7E 01 4C800859    SA2   BSC  I  SASET        EXIT SA SETUP ROUTIN SX  82410660
                  *                                                     82410670
                  *                  ************************           82410680
                  *                  RANDOM AND SEQ COMPARL RTN         82410690
                  *                  ************************           82410700
                  *                                                     82410710
0B80 0  0000      SRCMP DC     0                                   SE   82410720
0B81 01 7400099A          MDX  L  CHAIN,0      CHECK IF CHAINING        82410730
0B83 0  7003              MDX     **3                                   82410740
                  *                                                     82410750
0B84 01 6580081B          LDX  I1 EDIT+1       SET IX = NUMBER GRPS     82410760
0B86 0  7004              MDX     **4                                   82410770
                  *                                                     82410780
0B87 01 6580099E          LDX  I1 WC1          SET IX = CHAIN WC 1      82410790
0B89 01 74010998          MDX  L  CHNSW,1      CHAIN SW TO ON           82410800
                  *                                                     82410810
0B8B 0  6202              LDX     2 2          INITIALIZE INDEX         82410820
0B8C 0  6300              LDX     3 0                                   82410830
```

```
0B8D 01 C6000D08          *
0B8F 01 74000999  SRC1    LD   L2 DTBL       GET INPUT DATA
0891 0  7001              MDX  L  RDSW,0     SKIP IF NOT 1ST READ
0892 0  700D              MDX     SRC2-2
                          MDX     SRC3
                          *
                          *                  ** FIRST READ SET DATA **
                          *                  ** IN COMPARE TABLE    **
                          *
0893 01 D7000D8C          *       STO  L3 CTBL       SET IN CMP TABLE
                          *
0B95 0  7301      SRC2    MDX  3 1           CMP INDEX + 1
0B96 01 C4000998          LD   L  MODE       CHECK MODE  SKIP IF
0B98 0  4804              BSC     E          * RANDOM
0B99 0  7002              MDX     *+2
0B9A 0  7202              MDX  2 2           MODIFY IX FOR RANDOM
0B9B 0  7001              MDX     *+1
0B9C 0  7201              MDX  2 1           MODIFY IX FOR SEQTL
0B9D 0  71FF              MDX  1 -1          SKIP IF ALL GRPS CKD
0B9E 0  70EE              MDX     SRC1       GO CK NEXT GRP
0B9F 0  702D              MDX     SRC5       GO CK IF CHAINING
                          *
                          *                  ** NOT FIRST READ,COMPR **
                          *                  ** PRESENT AND PAST DATA**
                          *
0BA0 01 D4000CCC  SRC3    STO  L  MESAG+7    SET DATA IN MESSAGE
0BA2 01 97000D8C          S    L3 CTBL       CHECK IF PRESENT
0BA4 0  4818              BSC     +-         *DATA SAME AS PAST
0BA5 0  70EF              MDX     SRC2       DATA SAME CONTINUE
                          *
                          *                  ** PRESENT DATA NOT SAME**
                          *                  ** AS PAST,PRINT D MSG 2**
                          *
0BA6 01 C7000D8C          LD   L3 CTBL       SET PAST DATA IN
0BA8 01 D4000CCB          STO  L  MESAG+6    *PRINT MESSAGE
0BAA 01 C4000998          LD   L  MODE       SET GRP ADDRS ACCORD
0BAC 0  4804              BSC     E          *ING TO MODE
0BAD 0  7003              MDX     *+3        SEQUENTIA' MODE BRNC
0BAE 01 C6000D07          LD   L2 DTBL-1     GET RANDOM GRP ADDRS
0BB0 0  7006              MDX     SRC4       *AND SET IN MESSAGE
                          *
0BB1 0  6B01              STX  3 *+1         BUILD SEQUENTIAL GRP
0B32 0  7001              MDX     *+1        *ADDRESS AND SET IN
0BB3 0  0000              DC      0          *MESSAGE   GRP ADDRS
0BB4 01 C40009A3          LD   L  DISRT      *EQUALS 0040 + IX3
0BB6 0  80FC              A       *-4
                          *
0BB7 01 D4000CC9  SRC4    STO  L  MESAG+4    SET IN MESSAGE
0BB9 01 C4000998          LD   L  MODE       SET MODE IN MESSAGE
0BBB 01 D4000CC8          STO  L  MESAG+3
0BBD 01 C400099A          LD   L  CHAIN      SET CHAIN INDICATOR
0BBF 01 D4000CCA          STO  L  MESAG+5    *IN MESSAGE
0BC1 0  1010              SLA     16         CLEAR LOG CALL TERM
0BC2 01 D4000CB5          STO  L  LOGD1+4    *ADDRESS
                          *
                          ********************************************
0BC4 01 44000CA2          BSI  L  LOGDT      GO PRINT MESAG D2    SRC
0BC6 0  0005              DC      /0005      WORD COUNT
0BC7 0  D002              DC      /D002      MESSAGE ID
                          ********************************************
                          *
0BC8 01 C6000D08          LD   L2 DTBL       SET PRESENT DATA
0BCA 01 D7000D8C          STO  L3 CTBL       *IN COMPARE TABLE
0BCC 0  70C8              MDX     SRC2       CONTINUE
                          *
                          *                  ** ALL GRPS CHECKED IN  **
                          *                  ** 1ST TABLE CK IF CHAIN**
                          *
```



```
0BCD 01 C400099B  SRC5    LD   L  CHNSW      CHECK CHAIN SWITCH
0BCF 0  4808              BSC     +          *IF ON SET UP FOR
0BD0 0  7007              MDX     SRC6       *SECOND TABLE DATA
                          *
0BD1 01 6580099F          LDX  I1 WC2        SET IX = CHAIN WC 2
0BD3 0  6245              LDX  2 69          DATA IX TO 2ND TABLE
0BD4 0  1010              SLA     16         CLEAR CHAIN SW
0BD5 01 D4000998          STO  L  CHNSW
0BD7 0  7085              MDX     SRC1       GO CK 2ND TABLE DATA
                          *
                          *                  ** DATA CHECK COMPLETE **
                          *
0BD8 01 74000999  SRC6    MDX  L  RDSW,0     CHECK IF 1ST READ
0BDA 0  7001              MDX     *+1
0BDB 0  7041              MDX     SRCB       NOT 1ST READ  EXIT
                          *
                          *                  **1ST READ PRINT CMP TBL**
                          *
0BDC 01 C4000998          LD   L  MODE       SET MODE IN MESSAGE
0BDE 01 D4000CC8          STO  L  MESAG+3
0BE0 01 C400099A          LD   L  CHAIN      SET CHAIN INDICATOR
0BE2 01 D4000CC9          STO  L  MESAG+4    *IN MESSAGE
0BE4 01 74010C20          MDX  L  PRTSW,1    SET PRINT SW
0BE6 01 67000BEE          LDX  L3 SRC7       SET LOG CALL TERM
0BE8 01 6F000CB5          STX  L3 LOGD1+4    *ADDRESS
                          *
                          ********************************************
0BEA 01 44000CA2          BSI  L  LOGDT      PRINT MESSAGE D 1    SRC
0BEC 0  0002              DC      /0002      WORD COUNT
0BED 0  D001              DC      /D001      MESSAGE ID
                          ********************************************
                          *
0BEE 01 67000BF7  SRC7    LDX  L3 SRC8       SET LOG CALL TERM
0BF0 01 6F000CB5          STX  L3 LOGD1+4    *ADDRESS
0BF2 01 67800813          LDX  I3 EDIT+1     SET PRINT COUNTER
0BF4 0  6B2A              STX  3 PRCTR       *TO NUMBER OF GRPS
0BF5 0  1010              SLA     16         INITIAL INDEX 2
0BF6 0  D001              STO     SRC8+1     *SETTING
0BF7 00 66000000  SRC8    LDX  L2 0          SETUP INDEX
0BF9 0  6100              LDX  1 0
0BFA 0  6308              LDX  3 8
0BFB 01 C6000D8C          LD   L2 CTBL       SET COMPARE TABLE
0BFD 01 D5000CC8          STO  L1 MESAG+3    *DATA IN MESSAGE
0BFF 01 74FF0C1F          MDX  L  PRCTR,-1   STEP PRINT COUNTER
0C01 0  7001              MDX     *+1        NOT DONE   CONTINUE
0C02 0  7009              MDX     SRC9       LAST GRP IN MESSAGE
                          *
0C03 0  7101              MDX     1 1        STEP INDEX FOR NEXT
0C04 0  7201              MDX     2 1        *GRP IF MSG TABLE
0C05 0  73FF              MDX     3 -1       *FULL  SKIP TO PRINT
0C06 0  70F4              MDX     SRC8+4
0C07 00 67000108          LDX  L3 /0108      SET LINE NMBER AND
0C09 0  6B0E              STX  3 SRCA+2      *WORD COUNT IN CALL
0C0A 0  6AED              STX  2 SRC8+1      SAVE IX1
0C0B 0  700A              MDX     SRCA       GO PRINT
0C0C 0  6B12      SRC9    STX  3 PRCTR       BUILD LINE NUMBER
0C0D 0  C0FA              LD      *-6        *AND WORD COUNT FOR
0C0E 0  9010              S       PRCTR      *LAST LINE OF PRINT
0C0F 01 840009A5          A    L  ONE
0C11 0  D006              STO     SRCA+2
0C12 0  1010              SLA     16         CLEAR PRINT SWITCH
0C13 0  D00C              STO     PRTSW      *AND LOG CALL TERM
0C14 01 D4000CB5          STO  L  LOGD1+4    *ADDRESS
                          *
                          ********************************************
0C16 01 44000CA2  SRCA    BSI  L  LOGDT      PRINT MESSAGE D001   SRC
0C18 0  0000              DC      0          LINE NMBR + WORD CNT
0C19 0  D001              DC      /D001      MESSAGE ID
```

DI DC FUNCTION TEST

```
                   *******************************************              82412200
                   *                                                        82412210
0C1A 0  1010             SLA      16         CLEAR FIRST READ               82412220
0C1B 01 D4000999         STO  L   RDSW       *INDICATOR                     82412230
0C1D 01 4C800B80   SRCB  BSC  I   SRCMP      EXIT SR COMPARE RTN  SX        82412240
                   *                                                        82412250
0C1F 0  0000       PRCTR DC       0          PRINT COUNTER                  82412260
0C20 0  0000       PRTSW DC       0          PRINT SWITCH                   82412270
                   *                                                        82412280
                   *                    *************************           82412290
                   *                    SINGLE ADDRESS COMPARE RTN          82412300
                   *                    *************************           82412310
                   *                                                        82412320
                   *                                                        82412330
0C21 0  0000       SACMP DC       0                               SE        82412330
0C22 01 C400099A         LD   L   CHAIN      CHECK IF CHAINING              82412340
0C24 01 4C180C28         BSC  L   *+2,+-     BRANCH IF NOT CHAING           82412350
0C26 01 7401099B         MDX  L   CHNSW,1    SET CHAIN SWITCH               82412360
                   *                                                        82412370
                                                                            82412380
0C28 0  6202             LDX   2 2           INITIALIZE INDEX               82412390
0C29 0  6300             LDX   3 0                                          82412400
                   *                                                        82412410
0C2A 0  6108       SAC1  LDX   1 8                                          82412420
0C2B 01 C6000D08         LD   L2 DTBL        GET INPUT DATA                 82412430
0C2D 01 74000999         MDX  L   RDSW,0     SKIP IF 1ST READ               82412440
0C2F 0  7001             MDX      SAC2-2                                    82412450
0C30 0  7007             MDX      SAC3                                      82412460
                   *                    **FIRST READ  SET DATA    **        82412470
                   *                    **IN COMPARE TABLE        **        82412480
                   *                                                        82412490
                   *                                                        82412500
0C31 01 D7000D8C         STO  L3 CTBL        SET IN CMP TABLE               82412510
                   *                                                        82412520
0C33 0  7301       SAC2  MDX   3 1                                          82412530
0C34 0  7201             MDX   2 1                                          82412540
0C35 0  71FF             MDX   1 -1          SKIP IF ALL DATA CKD           82412550
0C36 0  70F4             MDX      SAC1+1     GO CK NEXT DATA                82412560
0C37 0  7021             MDX      SAC4                                      82412570
                   *                    ** NOT 1ST READ  COMPARE**          82412580
                   *                                                        82412590
                   *                                                        82412600
0C38 01 D4000CCC   SAC3  STO  L   MESAG+7    SAVE DATA FOR PRINT            82412610
0C3A 01 97000D8C         S    L3 CTBL        CHECK IF PRESENT               82412620
0C3C 0  4818             BSC      +-         *DATA SAME AS PAST             82412630
0C3D 0  70F5             MDX      SAC2       DATA SAME  CONTINUE            82412640
                   *                    **DATA NOT SAME PRINT D2**          82412650
                   *                                                        82412660
                   *                                                        82412670
0C3E 01 C7000D8C         LD   L3 CTBL        SET PAST DATA IN MSG           82412680
0C40 01 D4000CCB         STO  L   MESAG+6                                   82412690
0C42 01 C4000998         LD   L   MODE       SET MODE IN MSG                82412700
0C44 01 D4000CC8         STO  L   MESAG+3                                   82412710
0C46 01 C4000997         LD   L   DIREG      SET GRP ADDRS IN MSG           82412720
0C48 01 D4000CC9         STO  L   MESAG+4                                   82412730
0C4A 01 C400099A         LD   L   CHAIN      SET CHAIN IND IN MSG           82412740
0C4C 0  007D             STO      MESAG+5                                   82412750
0C4D 0  1010             SLA      16         CLEAR LOG CALL TERM            82412760
0C4E 01 D4000CB5         STO  L   LOGD1+4    *ADDRESS                       82412770
                   *                                                        82412780
                   *******************************************              82412790
0C50 01 44000CA2         BSI  L   LOGDT      GO PRINT MESAG D2    SRC       82412800
0C52 0  0005             DC       /0005      WORD COUNT                     82412810
0C53 0  D002             DC       /D002      MESSAGE ID                     82412820
                   *******************************************              82412830
                   *                                                        82412840
0C54 01 C6000D08         LD   L2 DTBL        SET PRESENT DATA IN            82412850
0C56 01 D7000D8C         STO  L3 CTBL        *COMPARE TABLE                 82412860
0C58 0  70DA             MDX      SAC2                                      82412870
                   *
```


DI DC FUNCTION TEST

```
0C59 01 C400099B   SAC4  LD   L   CHNSW      CHECK IF CHAINING              82412880
0C5B 0  4808             BSC      +          SKIP ON CHAIN                  82412890
0C5C 0  7005             MDX      SAC5                                      82412900
                   *                                                        82412910
0C5D 0  6245             LDX   2 69          NEXT TABLE INDEX               82412920
0C5E 0  1010             SLA      16         CLEAR CHAIN SW                 82412930
0C5F 01 D400099B         STO  L   CHNSW                                     82412940
0C61 0  70C8             MDX      SAC1       GO CK 2ND TBL DATA             82412950
                   *                                                        82412960
                   *                    ** DATA CHECK COMPLETE **           82412970
                   *                                                        82412980
0C62 01 74000999   SAC5  MDX  L   RDSW,0     CHECK IF 1ST READ              82412990
0C64 0  7001             MDX      *+1                                       82413000
0C65 0  703A             MDX      SACA       NOT 1ST READ  EXIT             82413010
                   *                                                        82413020
                   *                    **1ST READ PRINT CMP TBL**          82413030
                   *                                                        82413040
0C66 01 C4000998         LD   L   MODE       SET MODE CHAIN AND             82413050
0C68 0  D05F             STO      MESAG+3    *REG ADDRS IN MESSAG           82413060
0C69 01 C400099A         LD   L   CHAIN                                     82413070
0C6B 0  D05D             STO      MESAG+4                                   82413080
0C6C 01 C4000997         LD   L   DIREG                                     82413090
0C6E 0  D05B             STO      MESAG+5                                   82413100
0C6F 01 74010C20         MDX  L   PRTSW,1    SET PRINT SWITCH               82413110
0C71 01 67000C78         LDX  L3 SAC6                                       82413120
0C73 0  6B41             STX   3 LOGD1+4     SET TERM ADDRESS               82413130
                   *                                                        82413140
                   *******************************************              82413150
0C74 01 44000CA2         BSI  L   LOGDT      GO PRINT MSG D 3     SRC       82413160
0C76 0  0003             DC       /0003      WORD COUNT                     82413170
0C77 0  D003             DC       /D003      MESSAGE ID                     82413180
                   *******************************************              82413190
                   *                                                        82413200
0C78 01 7400099A   SAC6  MDX  L   CHAIN,0    SET PRINT COUNTER              82413210
0C7A 0  7002             MDX      *+2        *ACCORDING TO CHAIN            82413220
0C7B 0  6308             LDX   3 8           *INDICATOR                     82413230
0C7C 0  7001             MDX      *+1                                       82413240
0C7D 0  6310             LDX   3 16                                         82413250
0C7E 0  6BA0             STX   3 PRCTR                                      82413260
0C7F 01 67000C84         LDX  L3 SAC7        SET LOG CALL TERM              82413270
0C81 0  6B33             STX   3 LOGD1+4     *ADDRESS                       82413280
0C82 0  1010             SLA      16                                        82413290
0C83 0  D001             STO      SAC7+1                                    82413300
                   *                                                        82413310
0C84 00 66000000   SAC7  LDX  L2 0           INITIALIZE INDEX               82413320
0C86 0  6100             LDX   1 0                                          82413330
0C87 0  6308             LDX   3 8                                          82413340
0C88 01 C6000D8C         LD   L2 CTBL        SET COMPARE TABLE              82413350
0C8A 01 D5000CC8         STO  L1 MESAG+3     *DATA IN MESSAGE               82413360
0C8C 01 74FF0C1F         MDX  L   PRCTR,-1   STEP PRINT COUNTER             82413370
0C8E 0  7001             MDX      *+1                                       82413380
0C8F 0  7006             MDX      SAC8       LAST DATA IN MESSAG            82413390
                   *                                                        82413400
0C90 0  7101             MDX   1 1           SET INDEX FOR NEXT             82413410
0C91 0  7201             MDX   2 1           *DATA IF MESSAGE               82413420
0C92 0  73FF             MDX   3 -1          *TABLE FULL GO PRINT           82413430
0C93 0  70F4             MDX      SAC7+4                                    82413440
0C94 0  6AF0             STX   2 SAC7+1      SAVE INDEX REG 2               82413450
0C95 0  7003             MDX      SAC9                                      82413460
                   *                                                        82413470
                   *                    ** LAST PRINT PASS **               82413480
                   *                                                        82413490
0C96 0  1010       SAC8  SLA      16         CLEAR PRINT SWITCH             82413500
0C97 0  D088             STO      PRTSW      *AND LOG TERMINATION           82413510
0C98 0  D01C             STO      LOGD1+4    *ADDRESS                       82413520
                   *                                                        82413530
                   *******************************************              82413540
0C99 01 44000CA2   SAC9  BSI  L   LOGDT      GO PRINT MSG D 3     SRC       82413550
```

```
0C9B 0 0108          DC     /0108      LINE NMBR + WORD CNT      82413560
0C9C 0 D003          DC     /D003      MESSAGE ID                82413570
                     ********************************************* 82413580
                     *                                           * 82413590
0C9D 0 1010          SLA    16         CLEAR FIRST READ          82413600
0C9E 01 D4000999     STO  L RDSW       *INDICATOR                82413610
0CA0 01 4C800C21 SACA BSC  I SACMP     EXIT SINGL ADRS CMP  SX    82413620
                     *                                           82413630
                     *                                           82413640
                     *            ***********                    82413650
                     *            LOG ROUTINE                    82413660
                     *            ***********                    82413670
                     *                                           82413680
0CA2 0 0000          LOGDT DC     0                         SE    82413690
0CA3 0 6819               STX  3 LOGD2+1    SAVE INDEX            82413700
0CA4 01 C4800CA2          LD   I LOGDT      SET WORD COUNT AND    82413710
0CA6 0 D01E               STO    MESAG      *LINE NMBR IN MSG     82413720
0CA7 01 74010CA2          MDX  L LOGDT,1                         82413730
0CA9 01 C4800CA2          LD   I LOGDT      SET MESSAGE ID INTO   82413740
0CAB 0 D01B               STO    MESAG+2    *MESSAGE TABLE        82413750
                     *                                           82413760
0CAC 01 C4000802          LD   L SWO        CHECK IF BYPASS LOG   82413770
0CAE 0 1802               SRA    2          *REQUESTED            82413780
0CAF 0 4804               BSC    E          SKIP IF PRINTING      82413790
0CB0 0 700B               MDX    LOGD2                            82413800
                     *                                           82413810
                     ********************************************* 82413820
0CB1 00 4480012F LOGD1 BSI  I LOG         GO PRINT MESSAGE     MRC 82413830
0CB3 1 0CC5               DC     MESAG      MESSAGE ADDRESS       82413840
0CB4 1 0CC2               DC     LGBSY      BUSY RETURN           82413850
0CB5 0 0000               DC     /0000      TERMINATION ADDRESS   82413860
                     ********************************************* 82413870
                     *                                           * 82413880
0CB6 01 C4000C20          LD   L PRTSW      CHECK IF MORE DATA    82413890
0CB8 01 4C180CBC          BSC  L LOGD2,+-   *TO BE PRINTED        82413900
                     *                                           82413910
                     ********************************************* 82413920
0CBA 00 4C80012D          BSC  I START      GO WAIT FOR END PRNT MRC 82413930
                     ********************************************* 82413940
                     *                                           82413950
                     *          ** PRINT COMPLETE  EXIT **       82413960
                     *                                           82413970
0CBC 00 67000000 LOGD2 LDX  L3 0          RESTORE INDEX           82413980
0CBE 01 74010CA2          MDX  L LOGDT,1  BUMP RETURN             82413990
0CC0 01 4C800CA2          BSC  I LOGDT    RETURN TO USER       SX 82414000
                     *                                           82414010
                     *          ** LOG ROUTINE BUSY **           82414020
                     *                                           82414030
                     ********************************************* 82414040
0CC2 01 44000AC4 LGBSY BSI  L RLPC        RELEASE PROGRAM      SRC 82414050
                     ********************************************* 82414060
                     *                                           82414070
0CC4 0 70EC               MDX    LOGD1      TRY AGAIN             82414080
                     *                                           82414090
                     *          ** MESSAGE TABLE **              82414100
                     *                                           82414110
0CC5 0 0000          MESAG DC     0          LINE NMBR + WORD CNT  82414120
0CC6 0 0000               DC     0          HEX DEC INDICATOR     82414130
0CC7 0 0000               DC     0          MESSAGE ID            82414140
0CC8 0 0000               DC     0          MOD 1                 82414150
0CC9 0 0000               DC     0          MOD 2                 82414160
0CCA 0 0000               DC     0          MOD 3                 82414170
0CCB 0 0000               DC     0          MOD 4                 82414180
0CCC 0 0000               DC     0          MOD 5                 82414190
0CCD 0 0000               DC     0          MOD 6                 82414200
0CCE 0 0000               DC     0          MOD 7                 82414210
0CCF 0 0000               DC     0          MOD 8                 82414220
                     *                                           82414230
```



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                     *                                           82414240
                     *          ************                     82414250
                     *          ERROR ROUTINE                    82414260
                     *          ************                     82414270
                     *                                           82414280
0CD0 0 0000          LOGER DC     0                         SE    82414290
0CD1 0 6818               STX  3 LOGE2+1    SAVE INDEX            82414300
0CD2 01 C4000998          LD   L MODE       SET MODE  DSW  AND    82414310
0CD4 0 D0F3               STO    MESAG+3    *CHAIN INDICATOR IN   82414320
0CD5 01 C40009AB          LD   L DI1        *MESSAGE TABLE        82414330
0CD7 0 D0F1               STO    MESAG+4                          82414340
0CD8 01 C400099A          LD   L CHAIN                           82414350
0CDA 0 D0EF               STO    MESAG+5                          82414360
0CDB 01 C4800CD0          LD   I LOGER      SET MESSAGE ID INTO   82414370
0CDD 0 D0E9               STO    MESAG+2    *MESSAGE TABLE        82414380
0CDE 01 F4000972          EOR  L D1OB+16    SET WORD COUNT TO 3   82414390
0CE0 0 4818               BSC    +-         *UNLESS MESSAGE ID    82414400
0CE1 0 7002               MDX    *+2        *IS EOOD  FOR EOOD    82414410
0CE2 0 6303               LDX  3 3          *SET WORD COUNT TO 5  82414420
0CE3 0 7001               MDX    *+1                              82414430
0CE4 0 6305               LDX  3 5                                82414440
0CE5 0 6BDF               STX  3 MESAG                            82414450
                     *                                           82414460
                     ********************************************* 82414470
0CE6 00 44800130 LOGE1 BSI  I ERROR       GO PRINT ERROR       MRC 82414480
0CE8 1 0CC5               DC     MESAG      MESSAGE ADDRESS       82414490
0CE9 1 0CF1               DC     ERBSY      BUSY RETURN           82414500
0CEA 1 0CF4               DC     LOGE3      LOOP ERROR ADDRESS    82414510
                     ********************************************* 82414520
                     *                                           82414530
0CEB 00 67000000 LOGE2 LDX  L3 0          RESTORE INDEX           82414540
0CED 01 74010CD0          MDX  L LOGER,1  BUMP RETURN             82414550
0CEF 01 4C800CD0          BSC  I LOGER    RETURN TO USER       SX 82414560
                     *                                           82414570
                     *          ** ERROR ROUTINE BUSY **         82414580
                     *                                           82414590
                     ********************************************* 82414600
0CF1 01 44000AC4 ERBSY BSI  L RLPC        RELEASE PROGRAM      SRC 82414610
                     ********************************************* 82414620
                     *                                           82414630
0CF3 0 70F2               MDX    LOGE1      TRY AGAIN             82414640
                     *                                           82414650
0CF4 01 678009A4 LOGE3 LDX  I3 RTNSW      SET UP TO RETURN TO   82414660
0CF6 01 C7000CFB          LD   L3 LOOPA     *OPERATING ROUTINE    82414670
0CF8 0 D001               STO    *+1        *ON LOOP ERROR        82414680
0CF9 00 4C000000          BSC  L 0          EXIT                  82414690
                     *                                           82414700
0CFB 1 0CEB          LOOPA DC     LOGE2      ROUTINE 4 RETURN      82414710
0CFC 1 08DC               DC     RT1ER      ROUTINE 1 RETURN      82414720
0CFD 1 08EA               DC     RT2ER      ROUTINE 2 RETURN      82414730
0CFE 1 0990               DC     RT3ER      ROUTINE 3 RETURN      82414740
                     *                                           82414750
                     *            ***********                    82414760
                     *            END ROUTINE                    82414770
                     *            ***********                    82414780
                     *                                           82414790
0CFF 0 0000          DIEND DC     0                         SE    82414800
0D00 01 0C0009B2          XIO  L BLAST      RESET DI              82414810
0D02 0 2C40               DC     /2C40      CLEAR STORAGE PROTCT  82414820
0D03 1 0D0A               DC     DTBL+2     *BIT                  82414830
                     *                                           82414840
                     ********************************************* 82414850
0D04 01 44000AB9          BSI  L RLDV       GO RELEASE DEVICE    SRC 82414860
                     ********************************************* 82414870
                     *                                           82414880
0D06 01 4C800CFF          BSC  I DIEND      EXIT                 SX 82414890
                     *                                           82414900
                     *          ** DATA TABLE **                 82414910
                     *                                           82414920
```

DI DC FUNCTION TEST

```
0D08     0084       DTBL  BSS     132                                    82414920
                    *                                                    82414930
                    *                    ** COMPARE TABLE **             82414940
                    *                                                    82414950
0D8C     003F       CTBL  BSS     63                                     82414960
0DCB 0   0000       PEND  DC      0                                      82414970
0DCC     0829             END     DIBGN                                  82414980
```


DI DC FUNCTION TEST

CROSS REFERENCE LISTING

```
SYMBOL  VALUE    REFERENCES
BEGIN   012C     07FF,0829
BLAST   09B2     086B,089D,08A3,090A,0923,0952,0990,0A03,0A43,0A51,
                 0A61,0D00
CARCK   09A0     084F,0878
CHAIN   099A     083B,09C2,0A54,0A9C,0AD7,0B65,0B81,0BBD,0BE0,0C22,
                 0C4A,0C69,0C78,0CD8
CHNSW   099B     080A,0824,0829,0889,08CD,08D5,0C26,0C59,0C5F
CMRJ    0932     0929
CNTRL   09AA     0869
CRCK    0133     08FE
CTBL    0D8C     0B93,0BA2,0BA6,0BCA,0BFB,0C31,0C3A,0C3E,0C56,0C88
DIBGN   0829     0DCC
DIDCC   0850     0801,0807
DIEND   0CFF     0808,0D06
DIICN   0AA8     0A88
DIINT   0814     0823,0860,0AB2
DIIRT   0A7B     0825
DIIR1   0A85     0A7F
DIIR2   0A93     0A8A
DIIR3   0A9C     0A92,0A96
DIIR4   0AA5     0A9E,0AA1
DIRD    09B0     0883,0893,08F7,08FA,0900,0959,095A,0A16,0A17
DIREG   0997     082F,09D4,09DB,09DD,09E0,09E8,09EC,0B14,0B17,0B1F,
                 0B40,0B44,0B5F,0C46,0C6C
DISN    09AE     0816,081A,0863,0885,0897,08A5,0906,0944,095D,09FB,
                 0A2B,0A57
DISRT   09A3     082D,087A,08EE,0942,09DF,09E4,09EB,0B12,0BB4
DIOA    0956     094E
DIOB    0962     098F,0CDE
DIOC    0973     0967
DIOD    0949     0955
DIOE    084C     0855
DIOF    085C     084F
DIO1    09BF     0A48,0A77
DIO2    09D5     09D0
DIO3    09F3     09BE,09CD
DIO4    09F9     09F2,0A09,0A79
DIO5    0A0A     09FF
DIO6    0A18     0A1F,0A42,0A90,0A9A
DIO6A   0A2B     0A56
DIO6B   0A4E     0A38
DIO6C   0A51
DIO7    0A54     0A27
DIO8    0A63     0A4D,0A53,0A5D,0AA5
DIO9    093A     0993
DI1     09AB     0818,0887,0899,08A7,08D3,0908,0925,094B,095E,0986,
                 09FC,0A2D,0A59,0A85,0CD5
DI2     09AC     081C,08CB,0A7B
DTBL    0D08     0839,0844,0878,087C,08EC,08F0,093C,0940,0943,0948,
                 0962,096C,0974,0992,09A0,09B0,0AEB,0AF4,0B08,0B0E,
                 0B10,0B19,0B37,0B3E,0B46,0B51,0B53,0B5B,0B5O,0B61,
                 0B63,0B6D,0B6F,0B74,0B76,0B7A,0B7C,0B8D,0BAE,0BC8,
                 0C2B,0C54,0D03
DVBSY   0AB6     0AB0
EDIT    0812     0851,09E5,0AAA,0AB1,0ABA,0AC0,0ADA,0AE1,0AE7,0B84,
                 0BF2
END     012E     07FF,08C0,0918,097D,0A1C,0A73
EPA     0808
ERBSY   0CF1     0CE9
ERROR   0130     07FF,0CE6
EXTS    099C     083D,09C5,0A0A,0A24,0A35,0A9F,0AED,0B68
HOLD    0AA7     0A87,0A8E,0A93
INIDI   082C     0806,084A
IPA     0806
IREAD   09A9     0865
```

LGBSY	0CC2	0CB4
LOC	012F	07FF,0CB1
LOGDT	0CA2	0A3B,08C4,08EA,0C16,0C50,0C74,0C99,0CA4,0CA7,0CA9, 0CBE,0CC0
LOGD1	0CB1	08C2,08E8,08F0,0C14,0C4E,0C73,0C81,0C98,0CC4
LOGD2	0CBC	0CA3,0CB0,0CB8
LOGER	0CD0	088C,089F,08AC,08D0,08D8,090C,092C,094F,095F,0970, 098C,0A00,0A4A,0A4E,0A5E,0A80,0A8B,0A97,0AA2,0CDB, 0CED,0CEF
LOGE1	0CE6	0CF3
LOGE2	0CE8	0CD1,0CFB
LOGE3	0CF4	0CEA
LOOPA	0CFB	0CF6
LOSTI	0A4A	0A31,0A34
LPA	0807	0848
MESAG	0CC5	096A,096E,0A22,0A39,0BA0,0BA8,0BB7,0BBB,0BBF,0BDE, 0BE2,0BFD,0C38,0C40,0C44,0C48,0C4C,0C68,0C6B,0C6E, 0C8A,0CA6,0CAB,0CB3,0CD4,0CD7,0CDA,0CDD,0CE5,0CE8
MLSCF	0809	0822,0849,0ACA
MODE	0998	0832,087E,08F2,0946,0956,09BA,09C7,09CA,0A12,0A20, 0A66,0ADC,0AF9,0B1B,0B2B,0B96,0BAA,0BB9,0BDC,0C42, 0C66,0CD2
ONE	09A5	0834,08C6,09B9,09C8,09D1,09E7,0AE9,0B06,0B3C,0B4A, 0C0F
PEND	0DCB	080C
PID	07FF	0F2B,08FC
PRCTR	0C1F	0BF4,0BFF,0C0C,0C0E,0C7E,0C8C
PRTSW	0C20	0BE4,0C13,0C6F,0C97,0CB6
RAD	0801	
RDIO	09AD	0867,0881,08F5,0958,0A15
RDSW	0999	0836,09C9,0B8F,0BD8,0C1B,0C2D,0C62,0C9E
RELDV	0132	07FF,0ABE
REQDV	0131	07FF,0AAE
RID	0800	0870,08E3,0934,09B7
RID01	08E0	086F
RID02	0930	08E2
RID03	0994	0933
RID04	09B4	09B6
RLDV	0AB9	086D,08B7,090F,0977,0A05,0A45,0A63,0AC2,0D04
RLPC	0AC4	088F,08AF,08B3,08B9,08DC,0904,0911,0953,095B,0979, 0A07,0A18,0A65,0A83,0AB6,0AD4,0CC2,0CF1
RL1	0ACE	0AC5,0AC6,0AC7,0AC8
RQDV	0AA9	085E,0874,08E8,0938,09F9,0AB4,0AB8
RTNSW	09A4	081E,0872,08BC,08E6,0914,0937,0976,0CF4
RTN10	08A3	089C,08B1
RTN11	08B2	08AB
RTN12	08C3	08CF
RTN13	08B7	08D7,08DB
RTN20	090F	0928,092F
RTRN	0825	0820
RT01	086F	08C9,08E1
RT01E	0876	08DE
RT02	08E2	08CA,0921,0931
RT03	0933	0922,0984,0995
RT04	09B6	0985,0985
RT1ER	08DC	0CFC
RT1IN	08CB	0826
RT2ER	08EA	0CFD
RT2IN	0923	0827
RT3ER	0990	0CFE
RT3IN	0986	0828
SACA	0CA0	0C65
SACMP	0C21	0A6C,0CA0
SAC1	0C2A	0C36,0C61
SAC2	0C33	0C2F,0C3D,0C58
SAC3	0C38	0C30
SAC4	0C59	0C37
SAC5	0C62	0C5C

SAC6	0C78	0C71
SAC7	0C84	0C7F,0C83,0C93,0C94
SAC8	0C96	0C8F
SAC9	0C99	0C95
SAIND	099D	083F,09CE,09D2,09F4
SASET	0B59	09F0,0B7E
SA1	0B72	0B67
SA2	0B7E	086A,0B71
SC01	09A1	093E,0AF0,0B6B
SC11	09A2	0B0C,0B72
SENSE	09A8	0861
SPVCK	0996	0989
SRCA	0C16	0C09,0C0B,0C11
SRCB	0C1D	0BDB
SRCMP	0B80	0A6F,0C1D
SRC1	0B8D	0B9E,0BD7
SRC2	0B95	0B91,0BA5,0BCC
SRC3	0BA0	0B92
SRC4	0BB7	0BB0
SRC5	0BCD	0B9F
SRC6	0BD8	0BD0
SRC7	0BEE	0BE5
SRC8	0BF7	0BEE,0BF6,0C06,0C0A
SRC9	0C0C	0C02
SRSET	0AD6	09F7,0B57
SR1	0AE7	0ADF
SR2	0AF7	0AD9
SR3	0B04	0AFC
SR4	0B10	0AF6
SR5	0B17	0B23,0B56
SR6	0B3A	0B2E
SR7	0B46	0B39
SR8	0B57	0B27
START	012D	07FF,0ACC,0CBA
SW0	0802	08BE,0916,097B,0A1A,0A71,0CAC
SW1	0803	08C2,091A,097F
SW2	0804	09B8,09D5,09EE,09F5,0A3F,0A46,0A75
SW3	0805	
TERM	080B	093A,0964,0968,0AB3,0AC1
THREE	09A7	08C4,091C,0981,0982
TWO	09A6	0853,091E,093F,09CB,0AE3,0B00,0B34
WC1	099E	084D,0B57,085A,0AF7,0AFE,0B04,0B42,0B87
WC2	099F	085C,0B2F,0B32,0B3A,0BD1