SENSE DSW EXERCISER

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1. PURPOSE

THE SENSE DSW PROGRAM IS DESIGNED TO CONTINUOUSLY SENSE THE DSW, USING THE AREA CODE SET INTO THE DATA ENTRY SWITCHES. THE PROGRAM WILL PRINT THE FIRST SENSE WORD RECEIVED AND THEREAFTER PRINT THE WORD RECEIVED ANYTIME IT CHANGES. THE INITIAL SENSE WILL BE NON-RESETABLE. THE PROGRAM WILL THEN SENSE RESETABLE, FOLLOWED BY A SENSE NON-RESETABLE. THEREAFTER ALL SENSES WILL BE NON-RESETABLE, UNLESS THE WORD RECEIVED CHANGES. FOLLOWING ANY CHANGE IN THE WORD, THE NEW WORD WILL BE PRINTED AND A RESETABLE SENSE ISSUED.

2. REQUIREMENTS

2.1 PROGRAM REQUIREMENTS

THE BASIC DIAGNOSTIC LOADER IS REQUIRED, TO LOAD THE SENSE DSW PROGRAM.

2.2 EQUIPMENT REQUIREMENTS

A. 1442 CARD READ/PUNCH OR 1054 PAPER TAPE READER.
B. 1053/1816 TYPEWRITER, OR 1443 PRINTER.
C. 1800 PROCESSOR/CONTROLLER.

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3. OPERATING PROCEDURE

3.1 PROGRAM LOADING

REFER TO BASIC LOADER DOCUMENTATION FOR LOADING INSTRUCTIONS. AFTER LOADING PROGRAM WILL STOP AT WAIT 1. SEE SECT. 3.5, PROGRAM HALTS.

3.2 OPERATION

3.2.1 TYPICAL OPERATING PROCEDURE

A. WITH PROGRAM STOPPED AT WAIT 1, SET THE DESIRED AREA CODE PLUS ANY NECESSARY MODIFIERS IN THE DATA ENTRY SWITCHES EXACTLY AS THEY SHOULD APPEAR IN THE SENSE DSW IOCC WORD., SEE TABLE 1.

NOTE. DO NOT SET THE FUNCTION IN THE SWITCHES. ONLY THE AREA CODE AND MODIFIERS SHOULD BE SET.

B. PRESS START BUTTON.
C. WITH PROGRAM STOPPED AT WAIT 2, SET OPTIONS PER TABLE 2.

TABLE 1 - AREA CODE - REQUIRED

1. SWITCHES MAY BE SET PRIOR TO PROGRAM LOADING, OR AT WAIT 1.
2. ONCE PROGRAM EXECUTION HAS STARTED ANY CHANGE IN THESE SWITCHES WILL BECOME EFFECTIVE ONLY IF STOP, RESET, AND START BUTTONS ARE PRESSED, WHICH WILL RETURN PROGRAM TO WAIT 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 NOT TO BE USED
Y Y Y Y Y.....	DESIRED AREA CODE
M M M M M M M.....	MODIFIERS AS NECESSARY

3.2.2 OPERATING OPTIONS

IF OPTIONS ARE DESIRED SET SWITCHES DESIRED FROM TABLE 2 AND DEPRESS THE START BUTTON.

TABLE 2 - OPERATING OPTIONS

1. THESE SWITCHES MAY BE CHANGED AT ANY TIME.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 13 14 15	DESCRIPTION
1.....	BYPASS PRINTOUT
1.....	USE 1443 AS OUTPUT PRINTER

3.3 TERMINATING PROCEDURE

THIS PROGRAM WILL RUN CONTINUOUSLY. TO TERMINATE, DEPRESS STOP BUTTON

3.4 RESTART PROCEDURE

DEPRESS STOP, RESET, AND START BUTTONS. PROGRAM SHOULD RETURN TO WAIT 1. IF THIS DOES NOT OCCUR, PROGRAM MUST BE RELOADED.

3.5 PROGRAM HALTS

PROGRAM WAITS ARE USED IN THIS PROGRAM, AND ARE IDENTIFIED BY REFERENCING THE B REG AND I REG.

A PROGRAM WAIT IS OF THE FORM,

30XX, (B REG).

A DESCRIPTION OF THE INDIVIDUAL PROGRAM WAITS CAN BE FOUND AT THE BEGINNING OF THE PROGRAM LISTING. A TYPICAL WAIT DESCRIPTION FOLLOWS. IT IS INCLUDED TO SHOW THE FORMAT OF THE LISTING, AND IT IS NOT NECESSARILY A DESCRIPTION OF AN ACTUAL WAIT.

```
**************************************************************************
3001 0  01ED            DC      WAIT1+1
                *
                *                       WAIT 1
                *
                *               ONE OF THE METERED I/O UNITS
                *               FAILED TO SEND A RESPONSE
                *               INTERRUPT TO THE PROGRAM.  INDEX
                *               REGISTER 1 WILL HAVE THE ADDRESS
                *               OF THE IOCC.  THE AREA CODE WILL
                *               INDICATE THE I/O UNIT NOT READY.
                *               IF A 2401/02 DRIVE IS NOT READY,
                *               PROGRAM WILL NOT STOP AT WAIT 1.
                *
**************************************************************************
```

B REG, (FIRST 4 DIGIT GROUP) CORRESPONDS TO B REG READING.

I REG, (SECOND 4 DIGIT GROUP) CORRESPONDS TO I REG READING.

4. PRINTOUTS

THIS PROGRAM HAS ONLY ONE PRINTOUT. THIS PRINTOUT WILL OCCUR ON THE INITIAL SENSE OF THE DSW AND ON ANY CHANGE OF THE SENSE WORD RECEIVED. THE PRINTOUT APPEARS AS FOLLOWS,

```
PID  MID  DSW RECEIVED

BA00 A001 XXXX
```

5. COMMENTS

THIS PROGRAM IS DESIGNED PRIMARILY AS A SCOPING AID. THE PROGRAM HAS NO DIAGNOSTIC ABILITY, BUT WILL MERELY SENSE DSW OF SPECIFIED DEVICE. THE PRINTOUT IS PROVIDED AS A CONVENIENCE. ONE POSSIBLE USE IS AT INSTALLATION, WHERE POINTS COULD BE SHORTED AND PROGRAM WOULD PRINT WHAT IT RECEIVED.

6. APPENDIX (NONE)

```
                        ABS
                        ORG     /3001
02BC                *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                    *XXXXXXXXXXXXXXXX PROGRAMMED WAITS XXXXXXXXXX
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                    *
3001 0  0137            DC      WAIT1+1     WAIT FOR AREA CODE
                    *                       AND MODIFIER TO BE
                    *                       SET IN THE DATA SWS.
                    *                       PUSH START TO CONTINUE.
3002 0  013D            DC      WAIT2+1     WAIT FOR PROGRAM CONTROL
                    *                       SWITCHES TO BE SET.
                    *                       PUSH START TO CONTINUE.
3003 0  01DC            DC      WAIT3+1     1443 PRINTER IS NOT
                    *                       READY.  MAKE THE
                    *                       PRINTER READY AND
                    *                       PUSH START TO
                    *                       CONTINUE.
3004 0  0263            DC      WAIT4+1     THE TYPEWRITER IS
                    *                       NOT READY.  MAKE THE
                    *                       TYPEWRITER READY AND
                    *                       PUSH START TO CONTINUE.
3005
                        ORG     300
012C 0  BA00            DC      /BA00       PID
012D 00 0C0001EC BEGN   XIO  L  MASK0       MASK ALL INTRPTS
012F 00 0C0001EE        XIO  L  MASK1
0131 0  C856            LDD     REST        GET RESTART
0132 00 DC000000        STD  L  0           SET IN ZERO
                    *
0134 0  1000        START NOP
0135 0  C051            LD      DSW+1       GET SNSE IOCC
0136 0  3001        WAIT1 WAIT  1           WAIT FOR SW SETTING
0137 0  084C            XIO     RDBSW       READ DATA SWS
                    *
0138 0  C051            LD      BSW         GET DATA SWS
0139 0  F04C            EOR     DSW         SET IN SENSE IOCC
013A 0  D04C            STO     DSW+1       SAVE
013B 0  C04B            LD      DSW+1       GET AREA CODE
013C 0  3002        WAIT2 WAIT  2           WAIT FOR CONTROL SWS
                    *
013D 0  0848            XIO     DSW         SENSE DEVICE
013E 0  D04C            STO     DSW1        SAVE
                    *
013F 0  0844        PRINT XIO   RDBSW       READ DATA SWS
0140 0  C049            LD      BSW         GET SWS
0141 0  1802            SRA     2
0142 0  4804            BSC     E           IS BYPASS PRINT ON
0143 0  7013            MDX     BYPAS       YES
0144 0  C046            LD      DSW1        GET SENSE WD
0145 00 D400018E        STO  L  HEXWD       STORE IN CONV RTN
0147 00 440001A4        BSI  L  HEXCV       GO CONVERT TO HEX       SRC
0149 00 CC0001C4        LDD  L  HEXCD       GET CONVERTED WD
014B 00 DC000196        STD  L  MSG         SET IN MSG
                    *
014D 0  0836            XIO     RDBSW       READ DATA SWS
014E 0  C03B            LD      BSW         GET SWS
014F 0  1009            SLA     9
0150 0  4828            BSC     +Z          SKIP = USE TYPE
0151 0  7003            MDX     PR143
0152 00 440001F2        BSI  L  LOGC        CONVERT AND TYPE        SRC
0154 0  7002            MDX     BYPAS
0155 00 440001D6    PR143 BSI   L  PR43     PRINT ON 1443           SRC
0157 0  C02F        BYPAS LD    DSW+1       GET SENSE IOCC
0158 0  F034            EOR     ONE         ADD RESET BIT
```

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0159 0  D02D            STO     DSW+1       SAVE
                    *
015A 0  082B            XIO     DSW         SENSE WITH RESET
015B 0  D02F            STO     DSW1        SAVE
                    *
015C 0  C02A        SNNRS LD    DSW+1       GET SENSE IOCC
015D 0  1801            SRA     1           ELIMINATE RESET BIT
015E 0  1001            SLA     1
015F 0  D027            STO     DSW+1       SAVE
                    *
0160 0  0825            XIO     DSW         SENSE-NO RESET
0161 0  D02A            STO     DSW2        SAVE
0162 0  F028            EOR     DSW1
0163 00 4C18015C        BSC  L  SNNRS,+-    HAS WD CHANGED
0165 0  C026            LD      DSW2        GET NEW DSW
0166 0  D024            STO     DSW1        SAVE
0167 0  081C            XIO     RDBSW       READ DATA SWS
0168 0  C021            LD      BSW         GET SWS
0169 0  1802            SRA     2
016A 00 4C04017F        BSC  L  BPAS1,E     BRANCH = BYPAS.  ON T
016C 0  C01E            LD      DSW1        GET DSW
016D 00 D400018E        STO  L  HEXWD       SET
016F 00 440001A4        BSI  L  HEXCV       GO CONVERT              SRC
0171 00 CC0001C4        LDD  L  HEXCD       GET CONVERTED WD
0173 00 DC000196        STD  L  MSG         SET IN MSG
0175 0  080E            XIO     RDBSW       READ DATA SWS
0176 0  C013            LD      BSW         GET SWS
0177 0  1009            SLA     9
0178 00 4C280170        BSC  L  PR433,+Z    BRANCH = USE 1443
017A 00 440001F2        BSI  L  LOGC        CONVERT AND TYPE        SRC
017C 0  7002            MDX     BPAS1
017D 00 440001D6    PR433 BSI   L  PR43     PRINT ON 1443           SRC
017F 0  C007        BPAS1 LD    DSW+1       GET SENSE IOCC
0180 0  F00C            EOR     ONE         SET RESET BIT
0181 0  D005            STO     DSW+1       SAVE
0182 0  0803            XIO     DSW         SENSE WITH RESET
0183 0  7008            MDX     SNNPS
                    *
                    *
                    *
                    *
0184    0000            BSS  E  0
0184 0  018A        RDBSW DC    BSW         READ DATA SWS IOCC
0185 0  0240            DC      /0240
                    *
0186 0  0700        DSW   DC    /0700       SENSE DSW IOCC
0187 0  0000            DC      /0000
                    *
0188 00 4C00012D    REST  BSC L BEGN        RESTART
                    *
018A 0  0000        BSW   DC    0           DATA SW STORAGE
018B 0  0000        DSW1  DC    0           1ST DSW STORAGE
018C 0  0000        DSW2  DC    0           2ND DSW STORAGE
018D 0  0001        ONE   DC    1           CONSTANT ONE
                    *
                    *
                    *
018E    0000            BSS  E  0
018E 0  0009        PRARO DC    9           WORD COUNT
018F 0  3231        PRAR1 DC    /3231       B   A
0190 0  0A0A              DC    /0A0A       0   0
0191 0  0000              DC    /0000
0192 0  310A              DC    /310A       A   0
0193 0  0A01              DC    /0A01       0   1
0194 0  0000              DC    /0000
0195 0  0000              DC    /0000
0196 0  0000        MSG   DC    /0000
0197 0  0000              DC    /0000
```

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0198 0  FFFF        TERM  DC      /FFFF       TERMINATOR                    8BA01350
                    *                                                       8BA01360
0199 0  8121        OUTP1 DC      /8121       TPWRITER MSG AREA             8BA01370
019A 0  0000        OUTPT DC      0                                         8BA01380
019B 0  0000              DC      0                                         8BA01390
019C 0  0000              DC      0                                         8BA01400
019D 0  0000              DC      0                                         8BA01410
019E 0  0000              DC      0                                         8BA01420
019F 0  0000              DC      0                                         8BA01430
01A0 0  0000              DC      0                                         8BA01440
01A1 0  0000              DC      0                                         8BA01450
01A2 0  0000              DC      0                                         8BA01460
01A3 0  FFFF              DC      /FFFF                                     8BA01470
                    *                                                       8BA01480
                    *                   HEXADECIMAL CONVERSION              8BA01490
                    *                                                       8BA01500
01A4 0  0000        HEXCV DC      0                                    SE   8BA01510
01A5 0  6204              LDX   2 4           CONVERSION INDEX              8BA01520
                    *                                                       8BA01530
01A6 0  C017              LD      HEXWD       GET WORD TO CONVERT           8BA01540
01A7 0  1890              SRT     16          SET IN Q                      8BA01550
01A8 0  1010              SLA     16          CLEAR A                       8BA01560
01A9 0  1084        HEXC1 SLT     4           GET CHARACTER                 8BA01570
01AA 0  D001              STO     HEXC1+3                                   8BA01580
01AB 00 67000000          LDX   L3 0          SET CODE TABLE INDEX          8BA01590
                    *                                                       8BA01600
01AD 00 C70001C6          LD    L3 CODEH      GET CHARACTER                 8BA01610
01AF 00 D60001BE          STO   L2 HEX00-1    SAVE                          8BA01620
01B1 0  1010              SLA     16                                        8BA01630
                    *                                                       8BA01640
01B2 0  72FF              MDX   2 -1         CHECK IF DONE                  8BA01650
01B3 0  70F5              MDX     HEXC1                                     8BA01660
                    *                                                       8BA01670
01B4 0  C00D              LD      HEX00+3     PACK CODED WORDS              8BA01680
01B5 0  1008              SLA     8                                         8BA01690
01B6 0  E80A              OR      HEX00+2                                   8BA01700
01B7 0  D00C              STO     HEXCD                                     8BA01710
01B8 0  C007              LD      HEX00+1                                   8BA01720
01B9 0  1008              SLA     8                                         8BA01730
01BA 0  E804              OR      HEX00                                     8BA01740
01BB 0  D009              STO     HEXCD+1                                   8BA01750
                    *                                                       8BA01760
01BC 00 4C8001A4          BSC   I HEXCV       RETURN TO USER           SX   8BA01770
                    *                                                       8BA01780
                    *                   CONSTANTS                           8BA01790
                    *                                                       8BA01800
018E 0  0000        HEXWD DC      0           WORD TO CONVERT               8BA01810
018F 0  0000        HEX00 DC      0           *                             8BA01820
01C0 0  0000              DC      0           * UNPACKED CODED              8BA01830
01C1 0  0000              DC      0           * WORD                        8BA01840
01C2 0  0000              DC      0           *                             8BA01850
                    *                                                       8BA01860
01C4    0000              BSS   E 0                                         8BA01870
                    *                                                       8BA01880
01C4 0  0000        HEXCD DC      0           * PACKED CODED WORD           8BA01890
01C5 0  0000              DC      0           *                             8BA01900
                    *                                                       8BA01910
                    *                   CONVERSION TABLE                    8BA01920
                    *                                                       8BA01930
01C6 0  000A        CODEH DC      /000A       0                             8BA01940
01C7 0  0001              DC      /0001       1                             8BA01950
01C8 0  0002              DC      /0002       2                             8BA01960
01C9 0  0003              DC      /0003       3                             8BA01970
01CA 0  0004              DC      /0004       4                             8BA01980
01CB 0  0005              DC      /0005       5                             8BA01990
01CC 0  0006              DC      /0006       6                             8BA02000
01CD 0  0007              DC      /0007       7                             8BA02010
01CE 0  0008              DC      /0008       8                             8BA02020
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01CF 0  0009              DC      /0009       9                             8BA02030
01D0 0  0031              DC      /0031       A                             8BA02040
01D1 0  0032              DC      /0032       B                             8BA02050
01D2 0  0033              DC      /0033       C                             8BA02060
01D3 0  0034              DC      /0034       D                             8BA02070
01D4 0  0035              DC      /0035       E                             8BA02080
01D5 0  0036              DC      /0036       F                             8BA02090
                    *                                                       8BA02100
                    *                                                       8BA02110
                    *                   PRINT ON 1443 PRINTER               8BA02120
                    *                                                       8BA02130
01D6 0  0000        PR43  DC      0                                    SE   8BA02140
01D7 0  C012              LD      SNSPR       GET SENSE IOCC                8BA02150
01D8 0  D012              STO     SNSPR+1     SET                           8BA02160
                    *                                                       8BA02170
                    *                                                       8BA02180
01D9 0  0810              XIO     SNSPR       CK FOR PRINTER READY          8BA02190
01DA 0  4804              BSC     E                                         8BA02200
01DB 0  3003        WAIT3 WAIT    3           PRINTER IS NOT READY          8BA02210
01DC 0  0813              XIO     WRPR        WRITE                         8BA02220
                    *                                                       8BA02230
01DD 0  080C        PR431 XIO     SNSPR       WAIT FOR NOT COMPLTE          8BA02240
01DE 0  1002              SLA     2                                         8BA02250
01DF 0  4010              BSC     -           IS PRINTER COMPLETE           8BA02260
01E0 0  70FC              MDX     PR431       NO                            8BA02270
                    *                                                       8BA02280
01E1 0  C009              LD      SNSPR+1     GET IOCC                      8BA02290
01E2 0  F0AA              EOR     ONE         SET BIT 15                    8BA02300
01E3 0  D007              STO     SNSPR+1     SAVE                          8BA02310
                    *                                                       8BA02320
01E4 0  0805        PR432 XIO     SNSPR       SENSE                         8BA02330
01E5 0  1801              SRA     1                                         8BA02340
01E6 0  4804              BSC     E           IS PRINTER BUSY               8BA02350
01E7 0  70FC              MDX     PR432       YES                           8BA02360
                    *                                                       8BA02370
                    *                                                       8BA02380
01E8 00 4C8001D6          BSC   I PR43        EXIT                     SX   8BA02390
                    *                                                       8BA02400
                    *                   CONSTANTS                           8BA02410
                    *                                                       8BA02420
01EA    0000              BSS   E 0                                         8BA02430
01EA 0  3700        SNSPR DC      /3700       SENSE IOCC                    8BA02440
01EB 0  0000              DC      0                                         8BA02450
                    *                                                       8BA02460
01EC 0  FFFF        MASKO DC      /FFFF       MASK IOCCS                    8BA02470
01ED 0  0480              DC      /0480                                     8BA02480
01EE 0  FFFF        MASK1 DC      /FFFF                                     8BA02490
01EF 0  0481              DC      /0481                                     8BA02500
                    *                                                       8BA02510
                    *                                                       8BA02520
01F0 0  018E        WRPR  DC      PRARO       WRITE IOCC                    8BA02530
01F1 0  3500              DC      /3500                                     8BA02540
                    *                                                       8BA02550
                    *                   ROUTINE TO CONVERT PRINTER          8BA02560
                    *                   PACKED CODE TO PACKED TYPE          8BA02570
                    *                                                       8BA02580
01F2 0  0000        LOGC  DC      0                                    SE   8BA02590
01F3 0  1010              SLA     16                                        8BA02600
01F4 0  D036              STO     LOX00       CLEAR HALF WD SW              8BA02610
01F5 0  692E              STX   1 LOGC7+1     SAVE IX 1                     8BA02620
01F6 0  6A2F              STX   2 LOGC8+1     SAVE IX 2                     8BA02630
01F7 0  6B30              STX   3 LOGC9+1     SAVE IX 3                     8BA02640
01F8 00 67000000          LDX   L3 /0000      IX 3 = MSG WORD               8BA02650
01FA 00 C700018F    LOGC1 LD    L3 PRAR1      GET WD TO CONVERT             8BA02660
01FC 0  D02F              STO     LOX02       SAVE                          8BA02670
01FD 00 F4000198          EOR   L TERM                                      8BA02680
01FF 0  4818              BSC     +-          IS IT A TERM                  8BA02690
0200 0  7022              MDX     LOGC7       YES                           8BA02700
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0201 0  C02A       LOGC2 LD      LOX02      GET WD                    8BA02710
0202 0  180C             SRA     12         SAVE ZONE                 8BA02720
0203 0  D001             STO     LOGC3+1                              8BA02730
0204 00 65000000   LOGC3 LDX  L1 0          IX 1 = ZONE               8BA02740
0206 00 C500022E         LD   L1 LOX04      GET ADRS OF ZONE          8BA02750
0208 0  D007             STO     LOGC5+1    SAVE                      8BA02760
0209 0  C022             LD      LOX02      GET WD TO CONVERT         8BA02770
020A 0  1004             SLA     4          SAVE POSITION             8BA02780
020B 0  180C             SRA     12                                   8BA02790
020C 0  D001             STO     LOGC4+1                              8BA02800
020D 00 66000000   LOGC4 LDX  L2 0          IX 2 = POSITION           8BA02810
020F 00 C6000000   LOGC5 LD   L2 0          GET TYPEWRITER CODE       8BA02820
0211 00 7400022B         MDX  L  LOX00,0    IS THIS FIRST HALF        8BA02830
0213 0  7007             MDX     LOGC6      NO                        8BA02840
0214 0  D018             STO     LOX03      YES                       8BA02850
0215 00 7401022B         MDX  L  LOX00,1    SET TO SECOND HALF        8BA02860
0217 0  C014             LD      LOX02      GET WD TO CONVERT         8BA02870
0218 0  1006             SLA     8          SET TO SECOND HALF        8BA02880
0219 0  D012             STO     LOX02      SAVE                      8BA02890
021A 0  70E6             MDX     LOGC2      GO CONVERT                8BA02900
                  *                                                   8BA02910
                  *                SECOND HALF WORD                   8BA02920
                  *                                                   8BA02930
021B 0  1808       LOGC6 SRA     8          MOVE TO SECOND HALF       8BA02940
021C 0  F010             EOR     LOX03      COMBINE WITH FIRST        8BA02950
021D 00 D700019A   LOGCB STO  L3 OUTPT      SET IN MSG                8BA02960
021F 0  1010             SLA     16                                   8BA02970
0220 0  D00A             STO     LOX00      SET TO FIRST HALF         8BA02980
0221 0  7301             MDX  3  1          IX 3 = NEXT WD            8BA02990
0222 0  70D7             MDX     LOGC1      CONVERT NEXT WD           8BA03000
                  *                                                   8BA03010
                  *                FOUND A TERMINATOR                 8BA03020
                  *                                                   8BA03030
0223 00 65000000   LOGC7 LDX  L1 0          RESTORE IX 1              8BA03040
0225 00 66000000   LOGC8 LDX  L2 0          RESTORE IX 2              8BA03050
0227 00 67000000   LOGC9 LDX  L3 0          RESTORE IX 3              8BA03060
0229 00 4C00025F         BSC  L  LOG00      GO PRINT                  8BA03070
                  *                                                   8BA03080
                  *                CONSTANTS                          8BA03090
                  *                                                   8BA03100
022B 0  0000       LOX00 DC      0          HALF WORD SW              8BA03110
022C 0  0000       LOX02 DC      0          TEMP STORAGE FOR          8BA03120
                  *                       WORD TO CONVERT            8BA03130
022D 0  0000       LOX03 DC      0          TEMP STORAGE FOR          8BA03140
                  *                       TYPEWRITER CODE            8BA03150
022E 0  0234       LOX04 DC      PR00       ADRS OF ZONE 0            8BA03160
022F 0  023D             DC      PR01-2     ADRS OF ZONE 1            8BA03170
0230 0  0248             DC      PR02       ADRS OF ZONE 2            8BA03180
0231 0  0254             DC      PR03-1     ADRS OF ZONE 3            8BA03190
                  *                                                   8BA03200
                  *                                                   8BA03210
                  *                                                   8BA03220
0232 0  C02B       LOGCA LD      PRSP       GET CARRIAGE RETURN       8BA03230
0233 0  70E9             MDX     LOGCB                                8BA03240
                  *                                                   8BA03250
                  *                PRINTER CODE TO TYPEWRITER         8BA03260
                  *                CODE CONVERSION TABLE              8BA03270
                  *                                                   8BA03280
0234 0  2100       PR00  DC      /2100      BLANK                     8BA03290
0235 0  FC00             DC      /FC00      1                         8BA03300
0236 0  D800             DC      /D800      2                         8BA03310
0237 0  DC00             DC      /DC00      3                         8BA03320
0238 0  F000             DC      /F000      4                         8BA03330
0239 0  F400             DC      /F400      5                         8BA03340
023A 0  D000             DC      /D000      6                         8BA03350
023B 0  D400             DC      /D400      7                         8BA03360
023C 0  E400             DC      /E400      8                         8BA03370
023D 0  E000             DC      /E000      9                         8BA03380
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023E 0  C400       PR01  DC      /C400      0                         8BA03390
023F 0  9A00             DC      /9A00      S                         8BA03400
0240 0  9E00             DC      /9E00      T                         8BA03410
0241 0  B200             DC      /B200      U                         8BA03420
0242 0  B600             DC      /B600      V                         8BA03430
0243 0  9200             DC      /9200      W                         8BA03440
0244 0  9600             DC      /9600      X                         8BA03450
0245 0  A600             DC      /A600      Y                         8BA03460
0246 0  A200             DC      /A200      Z                         8BA03470
0247 0  2100             DC      /2100      BLANK                     8BA03480
0248 0  BE00       PR02  DC      /BE00      -                         8BA03490
0249 0  7E00             DC      /7E00      J                         8BA03500
024A 0  5A00             DC      /5A00      K                         8BA03510
024B 0  5E00             DC      /5E00      L                         8BA03520
024C 0  7200             DC      /7200      M                         8BA03530
024D 0  7600             DC      /7600      N                         8BA03540
024E 0  5200             DC      /5200      O                         8BA03550
024F 0  5600             DC      /5600      P                         8BA03560
0250 0  6600             DC      /6600      Q                         8BA03570
0251 0  6200             DC      /6200      R                         8BA03580
0252 0  4200             DC      /4200      -                         8BA03590
0253 0  4000             DC      /4000      $                         8BA03600
0254 0  0600             DC      /0600      *                         8BA03610
0255 0  3E00       PR03  DC      /3E00      A                         8BA03620
0256 0  1A00             DC      /1A00      B                         8BA03630
0257 0  1E00             DC      /1E00      C                         8BA03640
0258 0  3200             DC      /3200      D                         8BA03650
0259 0  3600             DC      /3600      E                         8BA03660
025A 0  1200             DC      /1200      F                         8BA03670
025B 0  1600             DC      /1600      G                         8BA03680
025C 0  2600             DC      /2600      H                         8BA03690
025D 0  2200             DC      /2200      I                         8BA03700
025E 0  8100       PRSP  DC      /8100      CARRIAGE RETURN           8BA03710
                  *                                                   8BA03720
                  *                TYPEWRITER ROUTINE                 8BA03730
                  *                                                   8BA03740
025F 0  0824       LOG00 XIO     SENSE      SENSE FOR READY           8BA03750
0260 0  180A             SRA     10                                   8BA03760
0261 0  4804             BSC     E                                    8BA03770
                  *                                                   8BA03780
0262 0  3004       WAIT4 WAIT    4          TYPEWRTR IS NOT READY     8BA03790
                  *                                                   8BA03800
0263 0  1010             SLA     16                                   8BA03810
0264 0  D022             STO     WRDSW      CLEAR HALF WD SW          8BA03820
0265 0  6300             LDX  3  0                                    8BA03830
                  *                                                   8BA03840
0266 00 C7000199   LOG01 LD   L3 OUTP1      GET PRINT WD              8BA03850
0268 0  D01D             STO     IOARA      SET IN OUTPUT AREA        8BA03860
                  *                                                   8BA03870
0269 00 F4000198         EOR  L  TERM       CK FOR TERMINATOR         8BA03880
026B 00 4C18027F         BSC  L  LOG02,+-   EXIT                      8BA03890
                  *                                                   8BA03900
                  *                OUTPUT A CHARACTER                 8BA03910
                  *                                                   8BA03920
026D 0  0814       XIOWR XIO     WRITE      WRITE CHARACTER           8BA03930
                  *                                                   8BA03940
026E 0  0815       XIOSN XIO     SENSE      CHECK BUSY                8BA03950
                  *                                                   8BA03960
026F 0  180B             SRA     11                                   8BA03970
0270 0  4804             BSC     E                                    8BA03980
0271 0  70FC             MDX     XIOSN      BUSY                      8BA03990
                  *                                                   8BA04000
                  *                                                   8BA04010
                  *                CHECK FOR 1ST 1/2 WORD             8BA04020
                  *                                                   8BA04030
0272 0  C014             LD      WRDSW      GET 1/2 WORD SWITCH       8BA04040
0273 0  4804             BSC     E          SKIP = FIRST HALF         8BA04050
0274 0  7006             MDX     LOG03      GO SETUP FOR NEXT WD      8BA04060
```

```
                        *
                        *
                        *                SET UP FOR 2ND 1/2 WORD
                        *
0275 0  C010            LD      IOARA    GET WORD IN IO AREA
0276 0  1008            SLA     8        POSITION 2ND 1/2 WD
0277 0  D00E            STO     IOARA
0278 00 74010287        MDX  L  WRDSW,1  BUMP WORD SWITCH
027A 0  70F2            MDX     XIOWR    GO WRITE 2ND 1/2 WD
                        *
                        *                SET UP FOR NEXT WORD
                        *
027B 0  7301    LOG03   MDX     3 1      NEXT WORD INDEX
027C 00 74010287        MDX  L  WRDSW,1  BUMP WORD SW
027E 0  70E7            MDX     LOG01    GO GET NEXT WORD
                        *
                        *                EXIT
                        *
027F 00 4C8001F2 LOG02  BSC  I  LOGC     EXIT                    SX
                        *
                        *                CONSTANTS
                        *
0282    0000            BSS  E  0
0282 0  0286    WRITE   DC      IOARA    WRITE IOCC
0283 0  0902            DC      /0902
0284 0  0000    SENSE   DC      /0000    SENSE IOCC
0285 0  0F03            DC      /0F03
0286 0  0000    IOARA   DC      0        OUTPUT AREA
0287 0  0000    WRDSW   DC      0        HALF WORD SW
0288    012D            END     BEGN                    8BA0435
```

```
8BA04070
8BA04080
8BA04090
8BA04100
8BA04110
8BA04120
8BA04130
8BA04140
8BA04150
8BA04160
8BA04170
8BA04180
8BA04190
8BA04200
8BA04210
8BA04220
8BA04230
8BA04240
8BA04250
8BA04260
8BA04270
8BA04280
8BA04290
8BA04300
8BA04310
8BA04320
8BA04330
8BA04340
8BA04350
8BA04360
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BEGN	012D	0188,0288
BPAS1	017F	016A,017C
BSW	018A	0138,0140,014E,0168,0176,0184
BYPAS	0137	0143,0154
CODEH	01C6	01AD
DSW	0186	0135,0139,013A,013B,013D,0157,0159,015A,015C,015F, 0160,017F,0181,0182
DSW1	C18B	013E,0144,015B,0162,0166,016C
DSW2	018C	0161,0165
HEXCD	01C4	0149,0171,01B7,01BB
HEXCV	01A4	0147,016F,01BC
HEXC1	01A9	01AA,01B3
HEXWD	018E	0145,016D,01A6
HEXOO	01BF	01AF,01B4,01B6,01B8,01BA
IOARA	0286	0268,0275,0277,0282
LOGC	01F2	0152,017A,027F
LOGCA	0232	
LOGCB	021D	0233
LOGC1	01FA	0222
LOGC2	0201	021A
LOGC3	0204	0203
LOGC4	020D	020C
LOGC5	020F	0208
LOGC6	021B	0213
LOGC7	0223	01F5,0200
LOGC8	0225	01F6
LOGC9	0227	01F7
LOGOO	025F	0229
LOG01	0266	027F
LOG02	027F	026B
LOG03	027B	0274
LOX00	022B	01F4,0211,0215,0220
LOX02	022C	01FC,0201,0209,0217,0219
LOX03	022D	0214,021C
LOX04	022E	0206
MASK0	01EC	012D
MASK1	01EE	012F
MSG	0196	0148,0173
ONE	018D	0158,0180,01E2
OUTPT	019A	021D
OUTP1	0199	0266
PRAR0	018E	01F0
PRAR1	018F	01FA
PRINT	013F	
PRSP	025E	0232
PROO	0234	022E
PRO1	023F	022F
PRO2	0248	0230
PRO3	0255	0231
PR143	0155	0151
PR43	01D6	0155,017D,01E8
PR431	01DD	01E0
PR432	01E4	01E7
PR433	017D	0178
RDBSW	0184	0137,013F,014D,0167,0175
REST	0188	0131
SENSE	0284	025F,026E
SNNRS	015C	0163,0183
SNSPR	01EA	01D7,01D8,01D9,01DD,01E1,01E3,01E4
START	0134	
TERM	0198	01FD,0269
WAIT1	0136	3001
WAIT2	013C	3002
WAIT3	01DB	3003
WAIT4	0262	3004

SENSE DSW EXERCISER

WRDSW	0287	0264,0272,0276,027C
WRITE	0282	026D
WRPR	01F0	01DC
XIOSN	026E	0271
XIOWR	026D	027A

TABLE OF CONTENTS

1.0 PURPOSE

TO PROVIDE THE CUSTOMER ENGINEER WITH A PROGRAM THAT SETS CORE TO SELECTED PATTERNS TO ALLOW V (REF) TO BE OPTIMIZED AS SPECIFIED ON LOGIC PAGE SA022 (SJ-2 ADJUSTMENT PROCEDURE) OR LOGIC PAGE SD011 (SJ-4 ADJUSTMENT PROCEDURE).

2.0 PREREQUISITES

2.1 EQUIPMENT REQUIREMENT

1442 CARD READ-PUNCH OR 1054 PAPER TAPE READER.

2.2 PROGRAM REQUIREMENT

1800 BASIC DIAGNOSTIC LOADER.

3.0 USE PROCEDURE

3.1 LOADING

TWO PROGRAM DECKS ARE PROVIDED. THE ONLY DIFFERENCE BETWEEN THE TWO DECKS IS THE CORE LOCATIONS INTO WHICH THEY ARE LOADED. THE FIRST DECK (08C0--LOW CORE ADJUSTMENT PROGRAM) LOADS INTO THE LAST 2K OF LOWER 32K CORE AND IS USED TO ADJUST THE FIRST 8K OF CORE. (NOTE. THE FIRST DECK IS ASSEMBLED FOR A 32K MACHINE, THE USER SHOULD IGNORE HIGHER ORDER BITS WHEN REFERENCING THE LISTING AND DOCUMENTATION.)

THE SECOND DECK (08C1 -- HIGH CORE ADJUSTMENT PROGRAM) LOADS INTO THE FIRST 2K OF CORE AND IS ONLY USED TO ADJUST ABOVE 8K. (THIS DECK IS NOT USED IF THE MACHINE HAS 8K OR LESS.)

CLEAR ALL STORAGE PROTECTION BITS BEFORE LOADING EITHER PROGRAM.
SET SENSE/PROGRAM SWITCHES TO 00.
SEE 1800 BASIC DIAGNOSTIC LOADER DOCUMENTATION FOR LOADING PROCEDURE.

3.2 OPERATING

3.2.1 SELECT THE PROGRAM DECK THAT IS REQUIRED FOR THE 8K WHICH IS ASSOCIATED WITH THE V(REF) POTENTIOMETER THAT IS TO BE ADJUSTED. (SEE SECTION 3.1.1 FOR DECK SELECTION.)

3.2.2 LOAD PROGRAM WITH SENSE/PROGRAM SWITCHES SET TO 00.
(SEE LOGIC PAGE SA022 OR SD011, FIGURE 1 FOR V(Z) VALUE.)
PERCENT. (SEE LOGIC PAGE SA022 OR SD011, FIGURE 1 FOR V(Z) VALUE.)
PROGRAM WILL STOP AT WAIT 1.

3.2.4 SET SENSE/PROGRAM SWITCHES TO 01. (SELECTING BEST CASE PATTERN .)

3.2.5 SET MODE SWITCH TO 'RUN'.

SET WRITE STORAGE PROTECT SWITCH TO 'YES'.
SET CHECK STOP SWITCH TO 'ON'.
DEPRESS THE RESET PUSHBUTTON.
DEPRESS THE START PUSHBUTTON.

3.2.6 PROGRAM COMPLETED AT WAIT 2.

SET MODE SWITCH TO 'DISPLAY'.
SET WRITE STORAGE PROTECT SWITCH TO 'NO'.
WHILE HOLDING DOWN THE CLEAR STORAGE PUSHBUTTON DEPRESS THE START PUSHBUTTON.

3.2.7 LOWER V(REF) UNTIL A PARITY FAILURE OCCURS.

RECORD THE VALUE OF V(REF).

3.2.8 SET SENSE/PROGRAM SWITCHES TO 01.

3.2.9 SET V(REF) TO A POINT WITHIN THE OPERATABLE RANGE AND REPEAT STEPS 3.2.5 AND3.2.6.

3.2.10 RAISE V(REF) UNTIL A PARITY ERROR OCCURS.
RECORD THE VALUE OF V(REF).

3.2.11 SET SENSE/PROGRAM SWITCHES TO 02. (SELECTING COMPLEMENT BEST CASE PATTERN).

3.2.12 SET V(REF) TO A POINT WITHIN THE OPERATABLE RANGE AND REPEAT STEPS 3.2.5, 3.2.6, AND 3.2.7.

3.2.13 SET SENSE/PROGRAM SWITCHES TO 02. (SELECTING COMPLEMENT BEST CASE PATTERN.)

3.2.14 SET V(REF) TO A POINT WITHIN THE OPERATABLE RANGE AND REPEAT STEPS 3.2.5, 3.2.6, AND 3.2.10.

3.2.15 SET V(Z) AT V(Z) NOMINAL+6 PERCENT.

3.2.16 REPEAT SETS 3.2.4 THROUGH 3.2.14 FOR THIS VALUE OF V(Z).

3.2.17 TAKE THE HIGHEST OF THE 4 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.

3.2.18 REPEAT STEPS 3.2.1 THROUGH 3.2.17 UNTIL ALL V(REF) POTENTIOMETERS HAVE BEEN ADJUSTED.

3.3 SENSE/PROGRAM SWITCHES

SETTING	MEANING
01	RUN BEST CASE PATTERN. A WAIT WILL OCCUR AFTER THE PATTERN HAS BEEN SET UP TO ADJUST V(REF).
02	RUN COMPLEMENT BEST CASE PATTERN. A WAIT WILL OCCUR AFTER THE PATTERN HAS BEEN SET UP TO ADJUST V(REF). DETERMINE AN UPPER LIMIT.

3.4 WAITS

3.4.1 NORMAL WAITS

PROGRAM WAITS ARE IDENTIFIED BY THE B AND I REGISTER AND ARE FOUND AT THE BEGINNING OF THE LISTING.

3.4.2 ERROR WAITS - (NONE)

3.5 RESTART PROCEDURE. DEPRESSING 'RESET' AND THE 'START' PUSHBUTTON

WILL CAUSE THE PROGRAM TO BE RE-ENTERED AND THE SENSE/PROGRAM SWITCHES READ.

4.0 PRINTOUTS (NONE)

5.0 COMMENTS

5.1 PATTERNS

5.1.1 BEST CASE PATTERN. FOR EACH ADDRESS BIT 7 IS EXCLISIVE CRED WITH BIT 9. IF THE RESULT IS A ONE, FFFF IS WRITTEN INTO THAT ADDRESS. IF THE RESULT IS A ZERC, 0000 IS WRITTEN INTO THAT ADDRESS.

THIS SHOULD SET UP GRCUPS OF 64 POSITIONS CF EITHER ONES OR ZERDS IN THE FOLLOWING MANNER. SELECT X AND Y LINE ADDRESSES TO DETERMINE THE VALUE SET.

BIT VALUE FOR BEST CASE PATTERN

.X- LINE ADRS	.Y- LINE ADDRESS	.Y- LINE ADDRESS
.	.	.
.	.0000000-0111111	.1000000-1111111
.0 0 0 0 0 0	. 0	. 1
.0 0 0 0 0 1	. 0	. 1
.0 0 0 0 1 0	. 1	. 0
.C 0 0 0 1 1	. 1	. 0
.0 0 0 1 0 0	. 0	. 1
.0 0 0 1 0 1	. 0	. 1
. .	.	.
. .	.	.
. .	.	.
.0 0 1 1 1 1	. 1	. 0
. A U X 0	. 0	. 1
. A U X 1	. 0	. 1
. A U X 2	. 0	. 1
. A U X 3	. 0	. 1
.1 0 0 C 0 0	. 1	. 0
.1 0 0 0 0 1	. 1	. 0
.1 0 0 0 1 0	. 0	. 1
. .	.	.
. .	.	.
. .	.	.
.1 1 1 1 1 0	. 0	. 1
.1 1 1 1 1 1	. 0	. 1

5.1.2 COMPLEMENT BEST CASE PATTERN. CORE IS SET UP AS SPECIFIED BY 5.1.1, THEN THE CONTENTS OF EACH CORE LOCATION ARE COMPLEMENTED.

5.2 SUBROUTINES

5.2.1 BEST CASE PATTERN AND COMPLEMENT BEST CASE PATTERN SUBROUTINE (BCP).

THIS SUBROUTINE IS ENTERING WITH INDEX REGISTER 1 SET TO 0000 AND INDEX REGISTER 2 SET TO FFFF TO SET UP THE BEST CASE PATTERN AND INDEX REGISTER 1 SET TO FFFF AND INDEX REGISTER 2 SET TO 0000 TO SET UP THE COMPLEMENT BEST CASE PATTERN. SYMBOLIC LOCATION 'PLOC' CONTAINS THE STARTING LOCATION OF AREA WHERE THE PATTERN IS TO BE SET UP. INDEX REGISTER 3 CONTAINS A COUNT OF THE NUMBER OF CORE WORDS TO BE SET UP.

5.2.2 SET STORAGE PROTECTION BITS SUBROUTINE (SPV).

THIS SUBROUTINE SETS SPV BITS IN THOSE CORE LOCATIONS WHICH CONTAINS FFFF. INDEX REGISTER 1 CONTAINS THE STARTING LOCATION OF THE AREA WHERE THE PATTERN IS SET UP.

INDEX REGISTER 3 CONTAINS A COUNT OF THE NUMBER OF CORE WORDS CONTAINED IN THE PATTERN AREA.

BECAUSE OF THE ODD PARITY RESTRICTION IMPOSED BY THE HARD-WARE, ONLY 17 BITS CAN BE ON OR OFF IN ANY CORE LOCATION. HOWEVER EXECUTING THE COMPLEMENT OF A PATTERN CAUSES THE PARITY BIT TO BE COMPLETELY CHECKED.

6. APPENDIX (NONE)

LAST PAGE

```
                        ABS                                                 8C000020
3001                    ORG     /3001                                       8C000030
                *                                                           8C000040
                *               1800 CORE ADJUSTMENT PROGRAM                8C000050
                *                                                           8C000060
                *                                                           8C000070
                ***************  NOTES  ******************                 8C000080
                *                                                           8C000090
                *                                                           8C000100
                *                   OPERATOR SHOULD CLEAR                   8C000110
                *                   SPV BITS EACH TIME BEFORE               8C000120
                *                   THE CORE ADJUSTMENT PROG                8C000130
                *                   IS LOADED                               8C000140
                *                                                           8C000150
                *                   SET CK STOP SW TO ON.                   8C000160
                *                                                           8C000170
                *                   SET WRITE STORAGE PROTECT               8C000180
                *                      SWITCH TO YES FOR                    8C000190
                *                      EXECUTING PROGRAM AND                8C000200
                *                      TO NO WHILE ADJUSTING                8C000210
                *                      V REF.                               8C000220
                *                                                           8C000230
                *                   SENSE/PROGRAM SW SETTINGS               8C000240
                *                                                           8C000250
                *                      01  SET UP BEST CASE                 8C000260
                *                            PATTERN                        8C000270
                *                                                           8C000280
                *                      02  SET UP COMPLEMENT                8C000290
                *                            BEST CASE PATTERN              8C000300
                *                                                           8C000310
                *                                                           8C000320
                *                                                           8C000330
                *********************************************             8C000340
                *                                                           8C000350
                ***************  WAITS  ******************                 8C000360
                *                                                           8C000370
3001 0 783B             DC      WAIT1&1     SELECT PATTERN                  8C000380
                *                                                           8C000390
                *                   SET PATTERN NUMBER                      8C000400
                *                   OF DESIRED PATTERN                      8C000410
                *                   IN SENSE/PROG SWS                       8C000420
                *                                                           8C000430
                *                   DEPRESS RESET BUTTON                    8C000440
                *                                                           8C000450
                *                   DEPRESS START BUTTON                    8C000460
                *                                                           8C000470
                *                   NOTE-- ACCUMULATOR                      8C000480
                *                   SHOWS THE SETTING OF                    8C000490
                *                   THE PRESENT SENSE/                      8C000500
                *                   PROGRAM SWITCHES                        8C000510
                *                                                           8C000520
                *                                                           8C000530
3002 0 785E             DC      WAIT2&1     PROGRAM COMPLETED               8C000540
                *                                                           8C000550
                *                   ACCUMULATOR SHOWS                       8C000560
                *                   PATTERN NUMBER OF                       8C000570
                *                   PATTERN THAT WAS SET                    8C000580
                *                   UP IN CORE.                             8C000590
                *                                                           8C000600
                *                   ADJUST V REF WHILE                      8C000610
                *                   CYCLING IN THE                          8C000620
                *                   AUTOMATIC DISPLAY                       8C000630
                *                   MODE.                                   8C000640
                *                                                           8C000650
                *                   TO SET UP NEXT                          8C000660
                *                   PATTERN AFTER V REF                     8C000670
                *                   HAS BEEN ADJUSTED--                     8C000680
                *                                                           8C000690
```



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                *                   PLACE NEXT PATTERN                      8C000700
                *                   NUMBER IN THE                           8C000710
                *                   SENSE/PROGRAM SWS                       8C000720
                *                                                           8C000730
                *                   TURN MODE SW TO                         8C000740
                *                   RUN ** PLUS **                          8C000750
                *                   TURN ON WR SPV SW                       8C000755
                *                                                           8C000760
                *                   DEPRESS RESET                           8C000770
                *                   PUSHBUTTON                              8C000780
                *                                                           8C000790
                *                   DEPRESS START                           8C000800
                *                   PUSHBUTTON                              8C000810
                *                                                           8C000820
                *                                                           8C000830
                *********************************************             8C000840
                *                                                           8C000850
                *                                                           8C000860
7800                    ORG     /7800                                       8C000870
7800 C C000             DC      /C000       PID                             8C000880
                ************************************************            8C000890
                *                                              *            8C000900
                *              CORE SIZE DETERMINER            *            8C000910
                *                                              *            8C000920
                ************************************************            8C000930
7801 0 61C0     START   LDX     1 0         SET CTRL INDEX 1                8C000940
7802 0 C007             LD      STGCK&1     GET CONSTANT FFFF & SET         8C000950
7803 0 D1FF             STO     1 -1        IN MAXIMUM ADDRESS              8C000960
                *                                                           8C000970
7804 0 7500 1000 STGLP  MDX     L1 /1000    ADVANCE CONTROL INDEX           8C000980
7806 0 1000             NOP     0           SAFETY NOP FOR 32K CORE         8C000990
7807 0 1010             SLA     16          CLEAR ACCUMULATOR AND SET       8C001000
7808 0 D1FF             STO     1 -1        IN 4K CORE BLOCK MAX ADDR       8C001010
                *                                                           8C001020
7809 0 C400 FFFF STGCK  LD      L   /FFFF   GET MAX CORE ADDRESS DATA       8C001030
780B 0 4C20 7804        BSC     L   STGLP,Z CHECK IT FOR ZERO               8C001040
                *                           BRANCH LOOP IF NOT MAX          8C001050
                *                                                           8C001060
780D 0 71FF             MDX     1 -1        DECREMENT X1 TO ACTUAL          8C001070
                *                           MAXIMUM ADDRESS THIS CPU        8C001080
                *                                                           8C001090
780E 0 1000             NOP     0           SAFETY NOP FOR 32K CORE         8C001100
780F 0 6D00 78A4        STX     L1 SIZE     SET PROPER LIMIT                8C001110
                *                                                           8C001120
                *                                                           8C001130
                *                       SET UP RESTART LINKAGE              8C001140
                *                                                           8C001150
                *                                                           8C001160
7811 0 CC00 7898 SETLK  LDD     L   LINK    LOAD RESTART ADDR               8C001170
7813 0 DC00 0000        STD     L   0       * WITHOUT CORE SIZE CK          8C001180
                *                                                           8C001190
7815 0 1010             SLA     16          CLEAR A REG                     8C001200
7816 0 D400 78AA        STO     L   X3CTL   RESET CTRLS                     8C001210
7818 0 D001             STO         CSP&1   RESET CTRLS                     8C001220
                *                                                           8C001230
7819 0 2C40 0000 CSP    STS     L   0,/40   CLEAR ALL SPV BITS              8C001240
781B 0 C0FE             LD          CSP&1   GET CLEAR ADDR                  8C001250
781C 0 8400 78A1        A       L   ONE     ADV ADDR PLUS ONE               8C001260
781E 0 D0FB             STO         CSP&1   SAVE NEW ADDR                   8C001270
781F 0 F400 78A4        EOR     L   SIZE    CK FOR ALL OF CORE              8C001280
7821 0 4C20 7819        BSC     L   CSP,Z   BR LOOP                         8C001290
                *                                                           8C001300
                *                       ADJUST CORE SIZE AND                8C001310
                *                       * CONSTANTS                         8C001320
                *                                                           8C001330
7823 0 C07B             LD          LLIM2   ADJUST CONSTANT                 8C001340
7824 0 E07F             AND         SIZE                                    8C001350
7825 0 D079             STO         LLIM2   SET LO LIMIT 2                  8C001360
```

```
7826 0 C400 78A7          LD    L  ULIM1                              8C001370
7828 0 E07B               AND      SIZE                               8C001380
7829 0 D07D               STO      ULIM1       SET UP LIMIT 1         8C001390
                     *                     FIND LOOP CONTROLS         8C001400
782A 0 C07C               LD       ULIM1                              8C001410
782B 0 9072               S        LLIM1                              8C001420
782C 0 D073               STO      LOWRL       SET LO CTRL LIMIT      8C001430
782D 0 C076               LD       SIZE                               8C001440
782E 0 9070               S        LLIM2                              8C001450
782F 0 9071               S        ONE                                8C001460
7830 0 D077               STO      UPERL       UPPER LIMIT CONTROL    8C001470
                     *                     READ SENSE/PROG SWITCHES   8C001480
7831 0 0868          READ XIO      RDSWS                              8C001490
                     *                                                8C001500
                     *                     CK SW VALIDITY             8C001510
                     *                                                8C001520
7832 0 1808               SRA      8                                  8C001530
7833 0 D06E               STO      PATNO       SAVE PATTERN NUMBER    8C001540
7834 0 4C18 783A          BSC   L  WAIT1,&-                           8C001550
7836 0 906F               S        TWO                                8C001560
7837 0 4C08 783C          BSC   L  PIVOT,&                            8C001570
7839 0 C068               LD       PATNO                              8C001580
783A 0 3001          WAIT1 WAIT    1           SELECT SENSE/PROGRAM   8C001590
                     *                        * SW OPTIONS AND       8C001600
                     *                        * DEPRESS RESET AND    8C001610
                     *                        * START PUSHBUTTONS    8C001620
                     *                                               8C001630
783B 0 70F5               MDX      READ                               8C001640
                     *                                               8C001650
                     *                     PIVOT ON SELECTED PATTERN  8C001660
                     *                                               8C001670
783C 0 C065          PIVOT LD       PATNO                             8C001680
783D 0 4C04 7842          BSC   L  PAT01,E                            8C001690
                     *                                               8C001700
                     *                     SET UP BCP OR COMPL. BCP   8C001710
                     *                                               8C001720
783F 0 61FF          PAT02 LDX      1 -1        SET FOR COMPL BCP      8C001730
7840 0 6200               LDX      2 0                                8C001740
7841 0 7002               MDX      PAT01&2                            8C001750
7842 0 6100          PAT01 LDX      1 0         SET INDEXES FOR BCP    8C001760
7843 0 62FF               LDX      2 -1                               8C001770
7844 0 C059               LD       LLIM1       SET UP TO START AT     8C001780
7845 0 D05D               STO      PLOC        * 1ST LOWER LIMIT      8C001790
7846 0 404C               BSI      X3CRS       RESET ADDR CTRL        8C001800
7847 0 6780 78A0          LDX   I3 LOWRL       SET UP LOOP CONTROL    8C001810
7849 0 4016               BSI      BCP         SET CORES              8C001820
784A 0 C054               LD       LLIM2       SET UP TO START AT     8C001830
784B 0 D057               STO      PLOC        * 2ND LOWER LIMIT      8C001840
784C 0 4046               BSI      X3CRS       RESET ADDR CTRL        8C001850
784D 0 6780 78A8          LDX   I3 UPERL       SET UP LOOP CONTROL    8C001860
784F 0 4010               BSI      BCP         SET CORES              8C001870
                     *                                               8C001880
                     *                     SET SPV BITS              8C001890
                     *                                               8C001900
7850 0 6580 789E     STSPV LDX      I1 LLIM1    SET UP TO START AT     8C001910
                     *                        * 1ST LOWER LIMIT      8C001920
7852 0 6780 78A0          LDX   I3 LOWRL       SET UP LOOP CONTROL    8C001930
7854 0 4020               BSI      SPV         SET SPV BIT SUBRT      8C001940
7855 0 403D               BSI      X3CRS       RESET ADDR CTRL        8C001950
7856 0 6580 789F          LDX   I1 LLIM2       SET UP TO START AT     8C001960
                     *                        * 2ND LOWER LIMIT      8C001970
7858 0 6780 78A8          LDX   I3 UPERL       SET UP LOOP CONTROL    8C001980
785A 0 401A               BSI      SPV         SET SPV BIT SUBRT      8C001990
785B 0 4037               BSI      X3CRS       RESET ADDR CTRL        8C002000
                     *                                               8C002010
                     *                     LOAD PATTERN NUMBER WHICH  8C002020
                     *                     HAS BEEN SET UP AND WAIT   8C002030
                     *                     TO ALLOW CE TO MANUALLY    8C002040
```



```
                     *                     ADJUST V REF               8C002050
                     *                                                8C002060
785C 0 C045          DONE  LD       PATNO       SET UP PATTERN NO.     8C002070
785D 0 3002          WAIT2 WAIT     2           END OF PROGRAM         8C002080
785E 0 4C00 7801           BSC   L  START                             8C002090
                     *                                                8C002100
                     *                                                8C002110
                     *                     BCP AND COMPL. BCP  SUBRT  8C002120
                     *                                                8C002130
7860 0 0000          BCP   DC       0                                 8C002140
7861 0 6B47                STX    3 X3HLD     SAVE X3 DATA             8C002150
7862 0 C040                LD       PLOC      EXCUSIVE OR BITS 7       8C002160
7863 0 1806                SRA      6         * AND 9                  8C002170
7864 0 D040                STO      TEMP                               8C002180
7865 0 1802                SRA      2                                  8C002190
7866 0 F03E                EOR      TEMP                               8C002200
7867 0 4C04 786C           BSC   L  ODD,E                              8C002210
7869 0 6D80 78A3           STX   I1 PLOC                               8C002220
786B 0 7002                MDX      ODD&2                              8C002230
786C 0 6E80 78A3     ODD   STX   I2 PLOC                               8C002240
786E 0 7401 78A3           MDX   L  PLOC,1    INCREMENT ADDRESS        8C002250
7870 0 1000                SLA      0                                  8C002260
7871 0 4015                BSI      CKX3X     BR TO CK X3 CTRL         8C002270
7872 0 70EF                MDX      BCP&2     REPEAT                   8C002280
7873 0 4C80 7860           BSC   I  BCP       EXIT                     8C002290
                     *                                                8C002300
                     *                                                8C002310
                     *                     SET SPV SUBRT              8C002320
                     *                                                8C002330
7875 0 0000          SPV   DC       0                                 8C002340
7876 0 6B32                STX    3 X3HLD     SAVE X3 DATA             8C002350
7877 0 6933                STX    1 PGMX      SAVE X1 VALUE            8C002351
7878 0 C032                LD       PGMX      GET X1 DATA              8C002352
7879 0 F02D                EOR      ULIM1     CK FOR START OF PGM      8C002353
787A 0 4C18 7883           BSC   L  SPVX,&-   BR IF START FO PGM       8C002354
787C 0 C100                LD     1 0         SET ADDR CTRL            8C002360
787D 0 4C18 7881           BSC   L  SPVB,&-   BRANCH IF CONTAINS 0     8C002370
787F 0 2D41 0000           STS   L1 0,/41     SET SPV                  8C002380
7881 0 7101          SPVB  MDX    1 1         INCREMENT ADDRESS        8C002390
7882 0 1000                SLA      0                                  8C002400
7883 0 4003          SPVX  BSI      CKX3X     BR TO CK X3 CTRL         8C002410
7884 0 70F2                MDX      SPV&2     REPEAT                   8C002420
7885 0 4C80 7875           BSC   I  SPV       EXIT                     8C002430
                     *                                                8C002440
                     *                                                8C002450
                     *                                                8C002460
7887 0 0000          CKX3X DC       0         ENTRY                    8C002470
                     *                                                8C002480
7888 0 C021                LD       X3CTL                              8C002490
7889 0 8017                A        ONE       ADD TO ADV ADDR          8C002500
788A 0 D01F                STO      X3CTL                              8C002510
788B 0 F01D                EOR      X3HLD     TEST AGAINST CTRL MAX    8C002520
788C 0 4CA0 7887           BSC   I  CKX3X,Z   BR IF NOT ZERO           8C002530
788E 0 7401 7887           MDX   L  CKX3X,1   ADV FOR EXIT RETURN       8C002540
7890 0 1000                NOP      0         SAFTY NOP                8C002550
7891 0 4C80 7887           BSC   I  CKX3X     RETURN TO EXIT RTN CTRL  8C002560
                     *                                                8C002570
                     *                     RESET ADDR CTRL            8C002580
                     *                                                8C002590
7893 0 0000          X3CRS DC       0         ENTRY                    8C002600
7894 0 1010                SLA      16        CLR A REG                8C002610
7895 0 D014                STO      X3CTL     RESET ADDR CTRL CTR      8C002620
7896 0 4C80 7893           BSC   I  X3CRS     RETURN EXIT              8C002630
                     *                                                8C002640
                     *                                                8C002650
7898   0000                BSS   E  0                                 8C002660
7898 0 4C00 7811     LINK  BSC   L  SETLK     RESTART LINKAGE ROUTINE  8C002670
789A 0 0000          RDSWS DC       0         SENSE INTO A REG         8C002680
```

```
7898 0 0760          DC      /0760     SENSE/PROG SWS              8C002690
789C 0 6000    K6000 DC      /6000     24K CONSTANT                8C002700
789D 0 0800    K0800 DC      /0800     CONSTANT                    8C002710
789E 0 0002    LLIM1 DC      /0002     1ST LOWER LIMIT CTRL        8C002720
789F 0 78AC    LLIM2 DC      FNISH     2ND LOWER LIMIT CTRL        8C002730
78A0 0 0000    LOWRL DC      0         LO CORE BLOCK LOOP CTRL     8C002740
78A1 0 0001    ONE   DC      1         CONSTANT 1                  8C002750
78A2 0 0000    PATNO DC      0         PATTERN NUMBER              8C002760
78A3 0 0000    PLOC  DC      0         PRESENT LOC                 8C002770
78A4 0 0000    SIZE  DC      0         CORE SIZE & UPLIM2          8C002780
78A5 0 0000    TEMP  DC      0                                     8C002790
78A6 C 0002    TWO   DC      2         CONSTANT 2                  8C002800
78A7 0 7801    ULIM1 DC      START     1ST UPPER LIMIT             8C002810
78A8 0 0000    UPERL DC      0         HI CORE BLOCK LOOP CTRL     8C002820
78A9 C 0000    X3HLD DC      0         X3 DATA HOLDER              8C002830
78AA 0 0000    X3CTL DC      0         CTRL ADDR UPLIM             8C002840
78AB 0 0000    PGMX  DC      0         PGM SPV CK WORK AREA        8C002850
78AC 0 0000    FNISH DC      0         LAST LOC OF PROG            8C002860
78AE   7801          END     START                                 8C002870
  NO STATEMENTS FLAGGED IN THE ABOVE ASSEMBLY
```



```
BCP    7860  7849 784F 7872 7873
CKX3X  7887  7871 7883 788C 788E 7891
CSP    7819  7818 781B 781E 7821
DONE   785C
FNISH  78AC  789F
K0800  789D
K6000  789C
LINK   7898  7811
LLIM1  789E  782B 7844 7850
LLIM2  789F  7823 7825 782E 784A 7856
LOWRL  78A0  782C 7847 7852
ODD    786C  7867 786B
ONE    78A1  781C 782F 7889
PATNO  78A2  7833 7839 783C 785C
PAT01  7842  783D 7841
PAT02  783F
PGMX   78AB  7877 7878
PIVOT  783C  7837
PLOC   78A3  7845 784B 7862 7869 786C 786E
RDSWS  789A  7831
READ   7831  783B
SETLK  7811  7898
SIZE   78A4  780F 781F 7824 7828 782D
SPV    7875  7854 785A 7884 7885
SPVB   7881  787D
SPVX   7883  787A
START  7801  785E 78A7 78AE
STGCK  7809  7802
STGLP  7804  780B
STSPV  7850
TEMP   78A5  7864 7866
TWO    78A6  7836
ULIM1  78A7  7826 7829 782A 7879
UPERL  78A8  7830 784D 7858
WAIT1  783A  3001 7834
WAIT2  785D  3002
X3CRS  7893  7846 784C 7855 785B 7896
X3CTL  78AA  7816 7888 788A 7895
X3HLD  78A9  7861 7876 788B
END OF ASSEMBLY
```

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

```
                        ABS
3001                    ORG     /3001
                *
                *               1800 CORE ADJUSTMENT PROGRAM
                *
                *
                ****************  NOTES  ********************
                *
                *
                *                   OPERATOR SHOULD CLEAR
                *                   SPV BITS EACH TIME BEFORE
                *                   THE CORE ADJUSTMENT PROG
                *                   IS LOADED
                *
                *                   SET CK STOP SW TO ON.
                *
                *                   SET WRITE STORAGE PROTECT
                *                      SWITCH TO YES FOR
                *                      EXECUTING PROGRAM AND
                *                      TO NO WHILE ADJUSTING
                *                      V REF.
                *
                *                   SENSE/PROGRAM SW SETTINGS
                *
                *                      01  SET UP BEST CASE
                *                            PATTERN
                *
                *                      02  SET UP COMPLEMENT
                *                            BEST CASE PATTERN
                *
                *
                *********************************************
                *
                ****************  WAITS  ********************
                *
3001 0 0167             DC      WAIT1&1     SELECT PATTERN
                *
                *                           SET PATTERN NUMBER
                *                           OF DESIRED PATTERN
                *                           IN SENSE/PROG SWS
                *
                *                           DEPRESS RESET BUTTON
                *
                *                           DEPRESS START BUTTON
                *
                *                           NOTE-- ACCUMULATOR
                *                           SHOWS THE SETTING OF
                *                           THE PRESENT SENSE/
                *                           PROGRAM SWITCHES
                *
                *
3002 0 018A             DC      WAIT2&1     PROGRAM COMPLETED
                *
                *                           ACCUMULATOR SHOWS
                *                           PATTERN NUMBER OF
                *                           PATTERN THAT WAS SET
                *                           UP IN CORE.
                *
                *                           ADJUST V REF WHILE
                *                           CYCLING IN THE
                *                           AUTOMATIC DISPLAY
                *                           MODE.
                *
                *                           TO SET UP NEXT
                *                           PATTERN AFTER V REF
                *                           HAS BEEN ADJUSTED--
                *
```

8C100020 8C100030 8C100040 8C100050 8C100060 8C100070 8C100080 8C100090 8C100100 8C100110 8C100120 8C100130 8C100140 8C100150 8C100160 8C100170 8C100180 8C100190 8C100200 8C100210 8C100220 8C100230 8C100240 8C100250 8C100260 8C100270 8C100280 8C100290 8C100300 8C100310 8C100320 8C100330 8C100340 8C100350 8C100360 8C100370 8C100380 8C100390 8C100400 8C100410 8C100420 8C100430 8C100440 8C100450 8C100460 8C100470 8C100480 8C100490 8C100500 8C100510 8C100520 8C100530 8C100540 8C100550 8C100560 8C100570 8C100580 8C100590 8C100600 8C100610 8C100620 8C100630 8C100640 8C100650 8C100660 8C100670 8C100680 8C100690


```
                *                           PLACE NEXT PATTERN
                *                           NUMBER IN THE
                *                           SENSE/PROGRAM SWS
                *
                *                           TURN MODE SW TO
                *                           RUN  ** PLUS **
                *                           TURN ON WR SPV SW
                *
                *                           DEPRESS RESET
                *                           PUSHBUTTON
                *
                *                           DEPRESS START
                *                           PUSHBUTTON
                *
                *
                *********************************************
                *
                *
012C                    ORG     /012C
012C 0 C100             DC      /C100       PID
                ***************************************************
                *                                                 *
                *              CORE SIZE DETERMINER               *
                *                                                 *
                ***************************************************
012D 0 6100     START   LDX     1 0         SET CTRL INDEX 1
012E 0 C007             LD      STGCK&1     GET CONSTANT FFFF & SET
012F 0 D1FF             STO     1 -1        IN MAXIMUM ADDRESS
                *
0130 0 7500 1000 STGLP  MDX     L1 /1000    ADVANCE CONTROL INDEX
0132 0 1000             NOP     0           SAFETY NOP FOR 32K CORE
0133 0 1010             SLA     16          CLEAR ACCUMULATOR AND SET
0134 0 D1FF             STO     1 -1        IN 4K CORE BLOCK MAX ADDR
                *
0135 0 C400 FFFF STGCK  LD      L   /FFFF   GET MAX CORE ADDRESS DATA
0137 0 4C20 0130        BSC     L   STGLP,Z CHECK IT FOR ZERO
                *                           BRANCH LOOP IF NOT MAX
                *
0139 0 71FF             MDX     1 -1        DECREMENT X1 TO ACTUAL
                *                           MAXIMUM ADDRESS THIS CPU
                *
013A 0 1000             NOP     0           SAFETY NOP FOR 32K CORE
013B 0 6D00 01D0        STX     L1 SIZE     SET PROPER LIMIT
                *
                *
                *                       SETUP RESTART LINKAGE
                *
                *
013D 0 CC00 01C4 SETLK  LDD     L   LINK    LOAD RESTART ADDR
013F 0 DC00 0000        STD     L   0       * WITHOUT CORE SIZE CK
                *
0141 0 1010             SLA     16          CLEAR A REG
0142 0 D400 01D6        STO     L   X3CTL   RESET CTRLS
0144 0 D001             STO     CSP&1       RESET CTRLS
                *
0145 0 2C40 0000 CSP    STS     L   0,/40   CLEAR ALL SPV BITS
0147 0 C0FE             LD      CSP&1       GET CLEAR ADDR
0148 0 84C0 01CD        A       L   ONE     ADV ADDR PLUS ONE
014A 0 D0FB             STO     CSP&1       SAVE NEW ADDR
014B 0 F400 01D0        EOR     L   SIZE    CK FOR ALL OF CORE
014D 0 4C20 0145        BSC     L   CSP,Z   BR LOOP
                *
                *                       ADJUST CORE SIZE AND
                *                       * CONSTANTS
                *
014F 0 C07B             LD      LLIM2       ADJUST CONSTANT
0150 0 E07F             AND     SIZE
0151 0 D079             STO     LLIM2       SET LO LIMIT 2
```

8C100700 8C100710 8C100720 8C100730 8C100740 8C100750 8C100755 8C100760 8C100770 8C100780 8C100790 8C100800 8C100810 8C100820 8C100830 8C100840 8C100850 8C100860 8C100870 8C100880 8C100890 8C100900 8C100910 8C100920 8C100930 8C100940 8C100950 8C100960 8C100970 8C100980 8C100990 8C101000 8C101010 8C101020 8C101030 8C101040 8C101050 8C101060 8C101070 8C101080 8C101090 8C101100 8C101110 8C101120 8C101130 8C101140 8C101150 8C101160 8C101170 8C101180 8C101190 8C101200 8C101210 8C101220 8C101230 8C101240 8C101250 8C101260 8C101270 8C101280 8C101290 8C101300 8C101310 8C101320 8C101330 8C101340 8C101350 8C101360

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0152 0 C400 01D3          LD   L  ULIM1                          8C101370
0154 0 E078               AND      SIZE                          8C101380
0155 0 D07D               STO      ULIM1      SET UP LIMIT 1     8C101393
                     *                    FIND LOOP CONTROLS    8C101400
0156 0 C07C               LD       ULIM1                         8C101410
0157 0 9072               S        LLIM1                         8C101420
0158 0 D073               STO      LOWRL      SET LO CTRL LIMIT  8C101430
0159 0 C076               LD       SIZE                          8C101440
015A 0 9072               S        LLIM2                         8C101450
015B 0 9071               S        ONE                           8C101460
015C 0 D077               STO      UPERL      UPPER LIMIT CONTROL 8C101470
                     *                    READ SENSE/PROG SWITCHES 8C101480
015D 0 0868          READ XIO      RDSWS                         8C101490
                     *                                          8C101500
                     *                    CK SW VALIDITY        8C101510
                     *                                          8C101520
015E 0 1808               SRA      8                             8C101530
015F 0 D06E               STO      PATNO      SAVE PATTERN NUMBER 8C101540
0160 0 4C18 0166          BSC  L   WAIT1,&-                      8C101550
0162 0 906F               S        TWO                           8C101560
0163 0 4C08 0168          BSC  L   PIVOT,&                       8C101570
0165 0 C068               LD       PATNO                         8C101580
0166 0 3001          WAIT1 WAIT     1          SELECT SENSE/PROGRAM 8C101590
                     *                    * SW OPTIONS AND      8C101600
                     *                    * DEPRESS RESET AND   8C101610
                     *                    * START PUSHBUTTONS   8C101620
                     *                                          8C101630
0167 0 70F5               MDX      READ                          8C101640
                     *                                          8C101650
                     *                    PIVOT ON SELECTED PATTERN 8C101660
                     *                                          8C101670
0168 0 C065          PIVOT LD       PATNO                       8C101680
0169 0 4C04 016E          BSC  L   PAT01,E                       8C101690
                     *                                          8C101700
                     *                    SET UP BCP OR COMPL. BCP 8C101710
                     *                                          8C101720
0168 0 61FF          PAT02 LDX      1 -1       SET FOR COMPL BCP 8C101730
016C 0 6200               LDX      2 0                           8C101740
016D 0 7002               MDX      PAT01&2                       8C101750
016E 0 6100          PAT01 LDX      1 0        SET INDEXES FOR BCP 8C101760
016F 0 62FF               LDX      2 -1                          8C101770
0170 0 C059               LD       LLIM1      SET UP TO START AT 8C101780
0171 0 D05D               STO      PLOC       * 1ST LOWER LIMIT  8C101790
0172 0 404C               BSI      X3CRS      RESET ADDR CTRL    8C101800
0173 0 6780 01CC          LDX   I3 LOWRL      SET UP LOOP CONTROL 8C101810
0175 0 4016               BSI      BCP        SET CORES          8C101820
0176 0 C054               LD       LLIM2      SET UP TO START AT 8C101830
0177 0 D057               STO      PLOC       * 2ND LOWER LIMIT  8C101840
0178 0 4046               BSI      X3CRS      RESET ADDR CTRL    8C101850
0179 0 6780 01D4          LDX   I3 UPERL      SET UP LOOP CONTROL 8C101860
017B 0 4010               BSI      BCP        SET CORES          8C101870
                     *                                          8C101880
                     *                    SET SPV BITS          8C101890
                     *                                          8C101900
017C 0 6580 01CA     STSPV LDX   I1 LLIM1     SET UP TO START AT 8C101910
                     *                    * 2ND LOWER LIMIT     8C101920
017E 0 6780 01CC          LDX   I3 LOWRL      SET UP LOOP CONTROL 8C101930
0180 0 4020               BSI      SPV        SET SPV BIT SUBRT  8C101940
0181 0 403D               BSI      X3CRS      RESET ADDR CTRL    8C101950
0182 0 6580 01CB          LDX   I1 LLIM2      SET UP TO START AT 8C101960
                     *                    * 2ND LOWER LIMIT     8C101970
0184 0 6780 01D4          LDX   I3 UPERL      SET UP LOOP CONTROL 8C101980
0186 0 401A               BSI      SPV        SET SPV BIT CTRL   8C101990
0187 0 4037               BSI      X3CRS      RESET ADDR CTRL    8C102000
                     *                                          8C102010
                     *                    LOAD PATTERN NUMBER WHICH 8C102020
                     *                    HAS BEEN SET UP AND WAIT 8C102030
                     *                    TO ALLOW CE TO MANUALLY 8C102040
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                     *                    ADJUST V REF          8C102050
                     *                                          8C102060
0188 0 C045          DONE LD        PATNO      SET UP PATTERN NO. 8C102070
0189 0 3002          WAIT2 WAIT     2          END OF PROGRAM     8C102080
018A 0 4C00 012D          BSC  L   START                         8C102090
                     *                                          8C102100
                     *                                          8C102110
                     *                    BCP AND COMPL. BCP  SUBRT 8C102120
                     *                                          8C102130
018C 0 0000          BCP   DC       0                           8C102140
018D 0 6847               STX    3 X3HLD      SAVE X3 DATA       8C102150
018E 0 C040               LD       PLOC       EXCUSIVE OR BITS 7 8C102160
018F 0 1806               SRA      6          * AND 9            8C102170
0190 0 D040               STO      TEMP                          8C102180
0191 0 1802               SRA      2                             8C102190
0192 0 F03E               EOR      TEMP                          8C102200
0193 0 4C04 0198          BSC  L   ODD,E                         8C102210
0195 0 6D80 01CF          STX    I1 PLOC                         8C102220
0197 0 7002               MDX      ODD&2                         8C102230
0198 0 6E80 01CF     ODD  STX    I2 PLOC                         8C102240
019A 0 7401 01CF          MDX  L   PLOC,1     INCREMENT ADDRESS  8C102250
019C 0 1000               SLA      0                             8C102260
019D 0 4015               BSI      CKX3X      BR TO CK X3 CTRL   8C102270
019E 0 70EF               MDX      BCP&2      REPEAT             8C102280
019F 0 4C80 018C          BSC  I   BCP        EXIT               8C102290
                     *                                          8C102300
                     *                                          8C102310
                     *                    SET SPV SUBRT         8C102320
                     *                                          8C102330
01A1 0 0000          SPV   DC       0                           8C102340
01A2 0 6832               STX    3 X3HLD      SAVE X3 DATA       8C102350
01A3 0 6933               STX    1 PGMX       SAVE X1 VALUE      8C102351
01A4 0 C032               LD       PGMX       GET X1 DATA        8C102352
01A5 0 F02D               EOR      ULIM1      CK FOR START OF PGM 8C102353
01A6 0 4C18 01AF          BSC  L   SPVX,&-    BR IF START OF PGM 8C102354
01A8 0 C100               LD     1 0          SET ADDR CTRL      8C102360
01A9 0 4C18 01AD          BSC  L   SPVB,&-    BRANCH IF CONTAINS 0 8C102370
01AB 0 2D41 0C00          STS    L1 0,/41     SET SPV            8C102380
01AD 0 7101          SPVB MDX    1 1          INCREMENT ADDRESS  8C102390
01AE 0 1000               SLA      0                             8C102400
01AF 0 4003          SPVX BSI      CKX3X      BR TO CK X3 CTRL   8C102410
01B0 0 70F2               MDX      SPV&2      REPEAT             8C102420
01B1 0 4C80 01A1          BSC  I   SPV        EXIT               8C102430
                     *                                          8C102440
                     *                                          8C102450
                     *                                          8C102460
01B3 0 0000          CKX3X DC       0          ENTRY              8C102470
                     *                                          8C102480
01B4 0 C021               LD       X3CTL                         8C102490
01B5 0 8017               A        ONE        ADD TO ADV ADDR    8C102500
01B6 0 D01F               STO      X3CTL                         8C102510
01B7 0 F01D               EOR      X3HLD      TEST AGAINST CTRL MAX 8C102520
01B8 0 4CA0 01B3          BSC  I   CKX3X,Z    BR IF NOT ZERO     8C102530
01BA 0 7401 01B3          MDX  L   CKX3X,1    ADV FOR EXIT RETURN 8C102540
01BC 0 1000               NOP      0          SAFTY NOP          8C102550
01BD 0 4C80 01B3          BSC  I   CKX3X      RETURN TO EXIT RTN CTRL 8C102560
                     *                                          8C102570
                     *                    RESET ADDR CTRL       8C102580
                     *                                          8C102590
01BF 0 0000          X3CRS DC       0          ENTRY              8C102600
01C0 0 1010               SLA      16         CLR A REG          8C102610
01C1 0 D014               STO      X3CTL      RESET ADDR CTRL CTR 8C102620
01C2 0 4C80 01BF          BSC  I   X3CRS      RETURN EXIT        8C102630
                     *                                          8C102640
                     *                                          8C102650
01C4   0000               BSS  E   0                           8C102660
01C4 0 4C00 013D     LINK  BSC  L   SETLK     RESTART LINKAGE ROUTINE 8C102670
01C6 0 0000          RDSWS DC       0          SENSE INTO A REG   8C102680
```

```
01C7 0 0760          DC    /0760     SENSE/PROG SWS              8C102690
01C8 0 6000  K6000   DC    /6000     24K CONSTANT                8C102700
01C9 0 0800  K0800   DC    /0800     CONSTANT                    8C102710
01CA 0 0002  LLIM1   DC    /0002     1ST LOWER LIMIT CTRL        8C102720
01CB 0 01D8  LLIM2   DC    FNISH     2ND LOWER LIMIT CTRL        8C102730
01CC 0 0000  LOWRL   DC    0         LO CORE BLOCK LOOP CTRL     8C102740
01CD 0 0001  ONE     DC    1         CONSTANT 1                  8C102750
01CE 0 0000  PATNO   DC    0         PATTERN NUMBER              8C102760
01CF 0 0000  PLOC    DC    0         PRESENT LOC                 8C102770
01D0 0 0000  SIZE    DC    0         CORE SIZE & UPLIM2          8C102780
01D1 0 0000  TEMP    DC    0                                     8C102790
01D2 0 0002  TWO     DC    2         CONSTANT 2                  8C102800
01D3 0 012D  ULIM1   DC    START     1ST UPPER LIMIT             8C102810
01D4 0 0000  UPERL   DC    0         HI CORE BLOCK LOOP CTRL     8C102820
01D5 0 0000  X3HLD   DC    0         X3 DATA HOLDER              8C102830
01D6 0 0000  X3CTL   DC    0         CTRL ADDR UPLIM             8C102840
01D7 0 0000  PGMX    DC    0         PGM SPV CK WORK AREA        8C102850
01D8 0 0000  FNISH   DC    0         LAST LOC OF PROG            8C102860
01DA   012D          END   START                                 8C102870
  NO STATEMENTS FLAGGED IN THE ABOVE ASSEMBLY
```



```
BCP     018C  0175 017B 019E 019F
CKX3X   01B3  019D 01AF 01B8 01BA 01BD
CSP     0145  0144 0147 014A 014D
DONE    0188
FNISH   01D8  01CB
K0800   01C9
K6000   01C8
LINK    01C4  013D
LLIM1   01CA  0157 0170 017C
LLIM2   01CB  014F 0151 015A 0176 0182
LOWRL   01CC  0158 0173 017E
ODD     0198  0193 0197
ONE     01CD  0148 015B 0185
PATNO   01CE  015F 0165 0168 0188
PAT01   016E  0169 016D
PAT02   016B
PGMX    01D7  01A3 01A4
PIVOT   0168  0163
PLOC    01CF  0171 0177 018E 0195 0198 019A
RDSWS   01C6  015D
READ    015D  0167
SETLK   013D  01C4
SIZE    01D0  013B 014B 0150 0154 0159
SPV     01A1  0180 0186 01B0 01B1
SPVB    01AD  01A9
SPVX    01AF  01A6
START   012D  018A 01D3 01DA
STGCK   0135  012E
STGLP   0130  0137
STSPV   017C
TEMP    01D1  0190 0192
TWO     01D2  0162
ULIM1   01D3  0152 0155 0156 01A5
UPERL   01D4  015C 0179 0184
WAIT1   0166  0160 3001
WAIT2   0189  3002
X3CRS   01BF  0172 0178 0181 0187 01C2
X3CTL   01D6  0142 0184 0186 01C1
X3HLD   01D5  018D 01A2 01B7
END OF ASSEMBLY
```

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

TABLE OF CONTENTS

1. PURPOSE

THE MAGNETIC TAPE CRC FUNCTION TEST IS DESIGNED TO CHECK THE TAPE ERROR CORRECTION CIRCUITRY FOR PROPER OPERATION.

THE PROGRAM IS ABLE TO TEST,

1. SYSTEMS WITH ONE OR TWO TAPE DRIVES.
2. DRIVES WITH 9 TRACK READ-WRITE HEADS.
3. MODELS 1, 2 OR 3 WITH 2 OR 4 MICROSECOND STORAGE.

IF THE SYSTEM HAS TWO TAPE DRIVES WITH 9 TRACK HEADS, BOTH DRIVES MAY BE SEQUENTIALLY TESTED IN ONE CONTINUOUS RUN OF THE PROGRAM.

2. PREREQUISITES

THIS PROGRAM ASSUMES THAT THE 2400 MAGNETIC TAPE FUNCTION TEST RUNS AND NO TAPE CONTROL ERRORS EXIST. EQUIPMENT REQUIRED CONSISTS OF,

1. 1442 CARD READ/PUNCH OR 1054 PAPER TAPE READER.
2. 1053 OR 1816 TYPEWRITER OR 1443 PRINTER.
3. 1800 PROCESSOR CONTROLLER.
4. ONE OR TWO 2400 SERIES MAGNETIC TAPE DRIVES WITH 9 TRACK HEADS.
5. THIS PROGRAM REQUIRES THE RELOCATABLE DIAGNOSTIC LOADER FOR LOADING.

3. USE PROCEDURE

3.1 PROGRAM LOADING

PULL CARD 1C09 IN EACH TAPE DRIVE TO BE TESTED.

3.1.1 ON TAPE DRIVE (S) TO BE TESTED,

1. LOAD TAPE REEL.
2. DEPRESS LOAD-REWIND KEY.
3. DEPRESS START KEY.
   AFTER TAPE REWINDS TO LOAD POINT, DRIVE (S) SHOULD BECOME READY.

3.1.2 REFER TO RELOCATABLE DIAGNOSTIC LOADER DOCUMENTATION FOR LOADING PROCEDURE.

3.1.3 AFTER LOADING THE PROGRAM WILL HALT AT WAIT 2.

IF OPTIONS ARE DESIRED, GO TO 3.2.2.
IF NO OPTIONS ARE DESIRED, GO TO 3.2.1.

3.2 OPERATION

3.2.1 IF NO OPTIONS ARE SET THE PROGRAM ASSUMES,

1. ALL 9 TRACK DRIVES ON THE SYSTEM ARE TO BE RUN.
2. OUTPUT DEVICE IS TO BE 1C53 OR 1816 TYPEWRITER.
3. ALL ERRORS ARE TO BE PRINTED.

TO EXECUTE THE PROGRAM-DEPRESS THE START BUTTON.

3.2.2 OPERATING OPTIONS

IF OPTIONS ARE DESIRED, SET SWITCHES FROM TABLES 0 AND 1 AND DEPRESS THE START BUTTON.

TABLE 0-CONTROL SWITCHES

1. SWITCHES MAY BE SET PRIOR TO PROGRAM LOADING OR AT WAIT 2.
2. SWITCHES 0 AND 1 MAY BE CHANGED ONLY BY A RESET-START OPERATION, BUT ALL OTHER SWITCHES MAY BE CHANGED AT ANYTIME.

DATA ENTRY SWITCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	DESCRIPTION
. 1	HALT BEFORE ROUTINE
. . . . . 1 .	HALT ON ERROR
. . . . . 1 . . .	BYPASS PRINTOUTS
. . . . . 1	LOOP ON ERROR
. . . . . 1	LOOP PROGRAM
. . . . 1	USE 1443 AS OUTPUT DEVICE
. . . 1	PRINT ONLY FIRST BAD DATA WORD (THIS IS AUTOMATIC IF SW 12 IS ON)
. 1	DO NOT RUN DRIVE 1
1	DO NOT RUN DRIVE 0

TABLE 1-LOOP ROUTINE

1. THESE SWITCHES MAY BE CHANGED AT ANYTIME.
2. IF ZERO IS ENTERED, THE PROGRAM WILL NOT LOOP ANY ROUTINE, BUT WILL RUN ALL ROUTINES IN SEQUENCE.
3. IF IT IS DESIRED TO START ON A ROUTINE OTHER THAN ROUTINE 1, AND CONTINUE THE PROGRAM FROM THAT POINT,
   A. SET STARTING ROUTINE PER TABLE 1.
   B. START PROGRAM.
   C. WHILE PROGRAM IS RUNNING SELECT ROUTINE 0. THE PROGRAM WILL COMPLETE THE SELECTED ROUTINE AND THEN RUN THE REMAINING ROUTINES IN THEIR NORMAL SEQUENCE.

PROGRAM/SENSE SWITCHES	DESCRIPTION
0 1 2 3 4 5 6 7	
0 0 0 X X X X	ROUTINE TO BE LOOPED (ENTER 0 THROUGH 15 HEXADECIMAL)

3.3 TERMINATING PROCEDURE

1. THE PROGRAM WILL TERMINATE WHEN ALL DRIVES SELECTED HAVE BEEN TESTED, UNLESS LOOP PROGRAM SWITCH IS ON.

2. THE PROGRAM WILL TERMINATE IF CERTAIN ERRORS OCCUR. (SEE SECTION 4-PRINTOUTS)

3. THE PROGRAM CAN BE MANUALLY TERMINATED AT ANY TIME BY DEPRESSING THE STOP BUTTON.

3.4 RESTART PROCEDURE

PRESS THE STOP, RESET AND START KEYS. THE PROGRAM SHOULD GO TO WAIT 2. IF THIS DOES NOT OCCUR THE PROGRAM MUST BE RELOADED.

3.5 PROGRAM HALTS

PROGRAM WAITS ARE USED IN THIS PROGRAM, AND ARE IDENTIFIED BY REFERENCING THE B REGISTER AND I REGISTER.

A PROGRAM WAIT IS OF THE FORM,

30XX (B REGISTER)

A DESCRIPTION OF THE INDIVIDUAL PROGRAM WAITS CAN BE FOUND AT THE BEGINNING OF THE PROGRAM LISTING. A TYPICAL WAIT DESCRIPTION FOLLOWS. IT IS INCLUDED TO SHOW THE FORMAT IN THE LISTING, AND IT IS NOT NECESSAPILY A DESCRIPTION OF AN ACTUAL WAIT.

```
3001 0  01ED            DC      WAIT1+1
                *
                *               ONE OF THE METERED I/O UNITS FAILED
                *               TO SEND A RESPONSE INTERRUPT TO THE
                *               PROGRAM.  INDEX REGISTER 1 WILL
                *               HAVE THE ADDRESS OF THE IOCC.  THE
                *               AREA CODE WILL INDICATE THE I/O UNIT
                *               NOT READY.  IF A 2401/02 DRIVE IS
                *               NOT READY, PROGRAM WILL NOT STOP AT
                *               WAIT 1.
```

B REG., (FIRST 4 DIGIT GROUP) CORRESPONDS TO B REG. READING.
I REG., (SECOND 4 DIGIT GROUP) CORRESPONDS TO I REG. READING.

4. PRINTOUTS

4.1 COMMAND MESSAGES

```
PID  MID  RID  RAD  UNIT
BD00 C000 XXXX XXXX 000X
          DRIVE 0 IS SELECTED TO BE RUN BUT IS NOT READY.
          PROGRAM IS TERMINATED.

BD00 C001 XXXX XXXX 000X
          DRIVE 1 IS SELECTED TO BE RUN BUT IS NOT READY.
          PROGRAM IS TERMINATED.

BD00 C002 XXXX XXXX 000X
          ALL ROUTINES ARE COMPLETE ON THE DRIVE INDICATED.
```

4.2 INFORMATION MESSAGES

```
                                NUMBER OF
                                RETRYS
BD00 A001 XXXX XXXX 000X XXXX
          RECOVERED WRITE ERROR.  A CORRECT WRITE WAS ACCOMPLISHED AFTER THE
          NUMBER OF RETRYS SHOWN.

BD00 A002 XXXX XXXX 000X YYXX
          RECOVERED READ ERROR.  A CORRECT READ WAS ACCOMPLISHED AFTER THE
          NUMBER OF RETRYS SHOWN.  NUMBER RETRYS = YY TIMES 10 PLUS XX.
```

4.3 ERROR MESSAGES

```
                                A    B    C    D
BD00 E001 XXXX XXXX 000X XXXX XXXX XXXX XXXX
          DATA RECEIVED WAS NOT CORRECT

              A-EXPECTED DATA
              B-RECEIVED DATA
              C-WORD NUMBER IN ERROR
              D-TRACK BEING TESTED (FFFF=LOST CHARACTER RTN)

                          DSW
                          RECEIVED
BD00 E002 XXXX XXXX 000X XXXX
          DRIVE WAS NOT READY PRIOR TO A WRITE.
          PROGRAM IS TERMINATED-SUGGEST RUNNING THE 2400 F. T.

BD00 E003 XXXX XXXX 000X XXXX
          COULD NOT WRITE CORRECTLY IN THREE TRIES.
          PROGRAM IS TERMINATED-SUGGEST RUNNING THE 2400 F. T.

BD00 E004 XXXX XXXX 000X XXXX
          DRIVE WAS NOT READY PRIOR TO A READ.
          PROGRAM IS TERMINATED-SUGGEST RUNNING THE 2400 F. T.

BD00 E005 XXXX XXXX 000X XXXX
          UNCORRECTABLE READ ERROR.

BD00 E006 XXXX XXXX 000X XXXX
          DSW INCORRECT AFTER BACKSPACE.
          PROGRAM IS TERMINATED-SUGGEST RUNNING THE 2400 F. T.

BD00 E007 XXXX XXXX 000X XXXX
          DRIVE WAS NOT READY PRIOR TO A BACKSPACE.
          PROGRAM IS TERMINATED- SUGGEST RUNNING THE 2400 F. T.

BD00 E008 XXXX XXXX 000X XXXX
          DRIVE WAS NOT READY PRIOR TO A REWIND.
          PROGRAM IS TERMINATED-SUGGEST RUNNING THE 2400 F. T.
```

5. COMMENTS

THIS PROGRAM CONSISTS OF A SUPERVISOR ROUTINE, A SERIES OF COMMON MAGNETIC TAPE ROUTINES AND A SERIES OF TESTS. SECTION 5.1 GIVES A DESCRIPTION OF EACH SUBROUTINE AND ITS CALLING SEQUENCE. SECTION 5.2 GIVES A DESCRIPTION OF EACH TEST ROUTINE.

5.1 COMMON SUBROUTINES

ALL ROUTINES ASSUME THAT INDEX REGISTER ONE CONTAINS THE NUMBER OF THE TAPE DRIVE PRESENTLY BEING RUN.

NAME CALL

BSP BSI L BSP
USE-BACKSPACE ONE RECORD ON THE DRIVE INDICATED BY INDEX REGISTER ONE.

DSL BSI L DSL
USE-RESET THE CRC CIRCUITRY BY SELECTING THE OTHER DRIVE.

HEXCV BSI L HEXCV
USE-CONVERT A BINARY WORD TO ITS 1443 CODE HEXADECIMAL EQUIVILENT.

INTR INTERRUPT ROUTINE
USE-SENSE ILSW AND DSW. SAVES THE DSW WORD RECEIVED AND RESETS THE INTERRUPT LEVEL.

LOGC BSI L LOGC
USE-THIS ROUTINE IS ENTERED BY ROUTINE LOGOO. THIS ROUTINE PRINTS THE MESSAGE SET UP BY ROUTINE LOGOO, ON THE 1053 OR 1816 TYPEWRITER.

LOGOO BSI L LOGCO
USE-THIS ROUTINE CONVERTS A 1443 CODED MESSAGE TO A 1053 OR 1816 TYPEWRITER CODED MESSAGE. THIS ROUTINE THEN CALLS ON ROUTINE LOGC.

PR43 BSI L PR43
USE-OUTPUT A MESSAGE ON THE 1443 PRINTER.

PRINT BSI L PRINT
DC MESSAGE ID
DC FORM NUMBER
MDX CONTINUE ADDRESS
MDX LOOP ON ERROR ADDRESS
USE-SET UP THE DESIRED MESSAGE FROM THE MESSAGE ID AND FORM NUMBER. THIS ROUTINE THEN CALLS ON ROUTINE HEXCV. UPON COMPLETION OF THE CONVERSION THIS ROUTINE CALLS ON EITHER LOGOO OR PR43 DEPENDING ON THE OUTPUT DEVICE SELECTED. AFTER PRINTING IS COMPLETE THE HALT ON ERROR SWITCH IS CHECKED. IF ON, THE ROUTINE WAITS. FINALLY THE LOOP ON ERROR SWITCH IS CHECKED AND THE ROUTINE EXITS TO THE PROPER MDX INSTRUCTION FOLLOWING THE CALL.

RD BSI L RD
USE-READ A RECORD FROM THE TAPE DRIVE SPECIFIED BY INDEX REGISTER ONE. IF NO UNEXPECTED ERRORS EXIST THE ROUTINE BACKSPACES AND REREADS WITH CORRECTION. IF UNEXPECTED ERRORS EXIST ON EITHER READ, THE ROUTINE WILL RETRY ONE HUNDRED TIMES BEFORE PRINTING UNCORRECTABLE ERROR.

RWD BSI L RWD
USE-REWIND THE DRIVE SPECIFIED BY INDEX REGISTER ONE.

SNDSW BSI L SNDSW
USE-SENSE THE DRIVE SPECIFIED BY INDEX REGISTER ONE. RETURN WITH THE DSW WORD RECEIVED IN THE A REGISTER.

SP7F BSI L SP7F
USE-SET THE FIRST EIGHT WORDS OF THE I/O AREA TO HEXADECIMAL 7F7F. ALSO SET WORDS TEN AND TWELVE TO HEXADECIMAL 007F AND ALL OTHER WORDS TO ZERO.

SP8F BSI L SP8F
USE-SET THE FIRST EIGHT WORDS IN THE I/O AREA TO HEXADECIMAL 8F8F. ALSO SET WORDS TEN AND TWELVE TO HEXADECIMAL 008F AND ALL OTHER WORDS TO ZERO.

SP80 BSI L SP80
USE-SET THE FIRST EIGHT WORDS IN THE I/O AREA TO HEXADECIMAL 8080. ALSO SET WORDS TEN AND TWELVE TO HEXADECIMAL 0080 AND ALL OTHER WORDS TO ZERO.

WRT BSI L WRT
USE-WRITE ONE RECORD ON THE TAPE DRIVE SPECIFIED BY INDEX REGISTER ONE. IF ERRORS EXIST THE ROUTINE WILL BACKSPACE, ERASE AND REWRITE. IF THE ERROR STILL EXISTS AFTER THREE RETRYS IT IS AS UNCORRECTABLE WRITE ERROR.

5.2 TEST ROUTINES

CRC CHECKING METHOD USED BY THIS PROGRAM

THE FOLLOWING METHOD IS USED FOR CHECKING THE ERROR CORRECTION CIRCUITRY IN THE MAGNETIC TAPE CONTROL UNIT. A RECORD IS SELECTED SUCH THAT ITS DATA CHARACTERS, ITS CRC CHARACTER AND ITS LRC CHARACTER DO NOT HAVE ANY BITS IN THE PARITY TRACK. FOR EXAMPLE, THE RECORD CONSISTING OF THE SIXTEEN CHARACTERS 7F, 7F, ETC. WOULD ON A NORMAL WRITE HAVE A CRC CHARACTER AND A LRC CHARACTER OF 7F. THIS RECORD BY CHANGING ONE OR MORE OF THE CHARACTERS TO HAVE BAD PARITY WHEN NO
BY CHANGING ONE OR MORE OF THE CHARACTERS TO HAVE BAD PARITY WHEN NO
BY CHANGING ONE OR MORE OF THE CHARACTERS TO HAVE BAD PARITY WHEN NO
PARITY BIT IS WRITTEN. THE FOLLOWING CHARACTERS ARE SENT TO TAPE,

CHAR =	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25-625
TR			*														*	*	*		*	*	*		*
P	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0
7	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0

WHEN THIS RECORD IS RECEIVED FROM TAPE, THE PARITY BITS (*) WILL NOT BE READ. THIS WILL CAUSE CHARACTER 3 TO HAVE BAD PARITY ON TAPE. CHARACTERS 17, 18 AND 19 WILL APPEAR AS NO BITS ON TAPE AS WILL CHARACTERS 21, 22, 23 AND 25 THROUGH 625. WHEN READING THIS RECORD, CHARACTER POSITIONS 17, 18 AND 19 WILL FORM A GAP SO THAT CHARACTER 20 WILL APPEAR AS THE CRC CHARACTER. THE GAP CAUSED BY THE NO BITS IN CHARACTERS 21, 22 AND 23 WILL FORCE CHARACTER 24 TO BE TREATED AS A LRC CHARACTER. THE ABSENCE OF BITS IN CHARACTERS 25 THROUGH 625 FORM THE INTERRECORD GAP. WHEN CHARACTER 3 IS READ IT WILL ACTIVATE THE ERROR CORRECTION CIRCUITRY AND CALCULATE THE TRACK IN ERROR. THIS TRACK MUST BE TRACK 7 SINCE THE CRC CORRESPONDS TO CHARACTER 3 HAVING A BIT IN TRACK 7.

IN A SIMILAR MANNER, TRACK IN ERROR DETECTION CAN BE FORCED IN ALL TRACKS EXCEPT THE PARITY TRACK. IT MUST BE REALIZED THAT THIS PROGRAM CANNOT CHECK THE PARITY TRACK SINCE A CARD IS REMOVED WHICH WILL PREVENT THE PARITY BIT FROM BEING WRITTEN, TO ALLOW THIS METHOD OF CHECKING TO WORK.

DECIMAL ROUTINE NUMBER	HEXADECIMAL ROUTINE NUMBER	DESCRIPTION
1	1	SET THE I/O AREA TO 7F7F. THE ROUTINE THEN SETS A LOST BIT IN CHARACTER ONE, TRACK ONE AND WRITES THE DATA. THE RECORD IS THEN READ WITH CORRECTION AND THE DATA IS CHECKED TO SEE IF IT WAS CORRECTED. THE TEST IS THEN REPEATED UNTIL THE LOST BIT HAS BEEN PLACED IN EACH OF THE SIXTEEN CHARACTERS USED, IN TRACK ONE.
2	2	THE SAME TEST AS ROUTINE ONE EXCEPT THE LOST BITS ARE PLACED IN TRACK TWO.
3	3	THE SAME TEST AS ROUTINE ONE EXCEPT THE LOST BITS ARE PLACED IN TRACK THREE.
4	4	THE SAME TEST AS ROUTINE ONE EXCEPT THE LOST BITS ARE PLACED IN TRACK FOUR.
5	5	THE SAME TEST AS ROUTINE ONE EXCEPT THE LOST BITS ARE PLACED IN TRACK FIVE.
6	6	THE SAME TEST AS ROUTINE ONE EXCEPT THE LOST BITS ARE PLACED IN TRACK SIX.
7	7	THE SAME TEST AS ROUTINE ONE EXCEPT THE LOST BITS ARE PLACED IN TRACK SEVEN.
8	8	THE SAME TEST AS ROUTINE ONE EXCEPT THE PATTERN USED IS 8F8F AND LOST BITS ARE PLACED IN TRACK ZERO.
9	9	THIS ROUTINE SETS A PATTERN OF 8F70 IN THE EIGHT I/O WORDS. ALL BITS ON ONE TRACK ARE THEN SET TO ZERO INCLUDING THE CRC AND LRC CHARACTERS, THUS SIMULATING A DEAD TRACK. AFTER THE READ, THE DATA IS CHECKED TO SEE IF RECOVERY WAS CORRECT. THE TEST IS REPEATED UNTIL TRACKS 0 THROUGH 7 HAVE ALL BEEN TESTED AS DEAD TRACKS.
10	A	THIS ROUTINE SETS A PATTERN OF 8F70 IN THE I/O AREA. ALTERNATE PICKED AND DROPPED BITS ARE THEN SET IN TRACK 0. AFTER THE READ WITH CORRECTION THE DATA IS CHECKED. THE ROUTINE THEN REPEATS UNTIL TRACKS 0 THROUGH 7 HAVE BEEN CHECKED.
11	B	THE I/O AREA IS SET TO THE PATTERN OF 8080. ALL EVEN NUMBERED CHARACTERS EXCEPT CHARACTER 16 ARE THEN CLEARED TO SIMULATE LOST CHARACTERS. AFTER THE READ THE DATA IS CHECKED FOR PROPER RECOVERY.
12	C	THE I/O AREA IS SET TO THE PATTERN OF 8080. THE ROUTINE THEN SETS A PICKED BIT IN CHARACTER ONE, TRACK ONE AND WRITES THE DATA. THE RECORD IS READ WITH CORRECTION AND THE DATA IS CHECKED TO SEE IF IT WAS CORRECTED. THE TEST IS THEN REPEATED UNTIL THE PICKED BIT HAS BEEN PLACED IN EACH OF THE SIXTEEN CHARACTERS USED, IN TRACK ONE.
13	D	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PICKED BITS ARE PLACED IN TRACK TWO.
14	E	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PICKED BITS ARE PLACED IN TRACK THREE.

15	F	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PICKED BITS ARE PLACED IN TRACK FOUR.
16	10	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PICKED BITS ARE PLACED IN TRACK FIVE.
17	11	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PICKED BITS ARE PLACED IN TRACK SIX.
18	12	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PICKED BITS ARE PLACED IN TRACK SEVEN.
19	13	THE SAME TEST AS ROUTINE TWELVE EXCEPT THE PATTERN USED IS 7F7F AND THE PICKED BITS ARE PLACED IN TRACK ZERO.
20	14	THIS ROUTINE SETS A PATTERN OF 8080 IN THE EIGHT I/O WORDS. ALL BITS OF ONE TRACK ARE SET TO ONE. AFTER THE READ THE DATA IS CHECKED TO SEE IF RECOVERY WAS MADE. THE TEST IS REPEATED UNTIL TRACK 1 THROUGH 7 HAVE BEEN TESTED.
21	15	THE SAME TEST AS ROUTINE TWENTY EXCEPT THE PATTERN IS 7F7F AND TRACK 0 IS TESTED.

6 APPENDIX

6.1 EDIT PROCEDURE

THE FOLLOWING PROCEDURE IS FOR CARD INPUT. FOR PAPER TAPE INPUT, REFER TO 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.

ALL FIELDS SHOWN MUST BE PUNCHED IN THE CARD.

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	45	51	56	61	66	71
		PROGRAM ID					CARD SEQUENCE NUMBER				NUMBER OF EDIT ENTRIES						ENTRY 1: MAGNETIC TAPE AREA CODE IN HEX EXAMPLE: AREA 14 = 7000					ENTRY 2: MAGNETIC TAPE ILSW BIT IN HEX EXAMPLE: BIT 0 = 8000, BIT 1 = 4000, BIT 15 = 0001					ENTRY 3: MAGNETIC TAPE INTRPT ADRS IN HEX EXAMPLE: LVL 7 = 0012, LVL 6 = 0011, LVL 5 = 0010					ENTRY 4: NUMBER OF TRACKS DRIVE 0, 0000 = 9 TRACK, 0001 = 7 TRACK					ENTRY 5: NUMBER OF TRACKS DRIVE 1, 0000 = 9 TRACK, 0001 = 7 TRACK, FFFF=NOT AVAILABLE										
CARD 0	E	B	D	0	C		E	D	0	0		0	0	0	5																														
CARD 1	E	B	D	0	C		F	F	F	F																																			

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 (COLUMNS 2 AND 3).
3. A TERMINATOR WORD OF "FFFF" (COLUMNS 7 - 10).

2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
02BC                   ABS
                       ORG    /3001
               *
               *              PROGRAMMED WAITS
               *
3001 0 0143            DC     WAIT1+1    LAST CARD OF THE
               *                         DECK IS NOT AN END
               *                         OF EDIT CARD. ARRANGE
               *                         THE DECK AND RELOAD.
               *
3002 0 015A            DC     WAIT2+1    WAIT FOR SWITCHES TO
               *                         BE SET UP. SET DESIRED
               *                         SWITCHES AND PRESS
               *                         START.
               *
3003 0 0199            DC     WAIT3+1    HALT BEFORE ROUTINE.
               *                         THIS WAIT WAS REACHED
               *                         DUE TO SW. REQUEST.
               *                         PUSH START TO CONTINUE.
               *
3004 0 02E3            DC     WAIT4+1    LOST INTERRUPT AFTER
               *                         WRITE. PUSH RESET AND
               *                         START TO RESTART THE
               *                         PROGRAM.
               *
3005 0 02FB            DC     WAIT5+1    PROGRAM TERMINATED
               *                         DUE TO LAST PRINTED
               *                         ERROR. SUGGEST THAT
               *                         THE 2400 F. T. BE RUN.
               *                         THIS PROGRAM CAN BE
               *                         RETRIED BY PUSHING
               *                         RESET AND START.
               *
3006 0 0315            DC     WAIT6+1    LOST INTERRUPT AFTER
               *                         ERASE. PUSH RESET
               *                         AND START TO RESTART
               *                         THE PROGRAM.
               *
3007 0 0340            DC     WAIT7+1    LOST INTERRUPT AFTER
3008 0 0349            DC     WAIT8+1    READ. PUSH RESET
               *                         AND START TO RESTART
               *                         THE PROGRAM.
               *
3009 0 03D6            DC     WAIT9+1    LOST INTERRUPT AFTER
               *                         BACKSPACE. PUSH RESET
               *                         AND START TO RESTART
               *                         THE PROGRAM
               *
300A 0 0405            DC     WAITA+1    LOST INTERRUPT AFTER
               *                         REWIND. PUSH RESET
               *                         AND START TO RESTART
               *                         THE PROGRAM.
               *
300B 0 04EA            DC     WAITB+1    WAIT BECAUSE HALT ON
               *                         ERROR SWITCH IS ON
               *                         AND AN ERROR HAS
               *                         OCCURRED. PUSH START
               *                         TO CONTINUE THE
               *                         PROGRAM.
               *
300C 0 0588            DC     WAITC+1    TYPEWRITER IS NOT
               *                         READY. MAKE IT
               *                         READY AND PUSH START.
               *
300D 0 05F9            DC     WAITD+1    1443 IS NOT READY.
               *                         MAKE IT READY AND
               *                         PUSH START.
               *
```


2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
300E 0 0242            DC     WAITE+1    FOUND A BLANK ILSW
               *                         AT INTERRUPT. PUSH
               *                         RESET AND START TO
               *                         RESTART THE PROGRAM.
               *
300F 0 038E            DC     WAITF+1    LOST INTRPT ON READ
               *                         WHILE TRYING TO REST-
               *                         ORE RECORD FOR RETRY
               *                         AFTER PASSING CLEANER.
               *
3010                   ORG    300
               *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
               *
               *              EDIT ROUTINE
               *
               *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
012C 0  8D00           DC        /8D00     PID
012D 00 67000152 START LDX    L3 EDT       IX 3 = LDR RETURN
012F 00 6F000124       STX    L3 /0124     STORE IN LOADER
0131 0  6050           LDX    X  /0050     GO TO LOADER
0132 0  62FB     EDT   LDX     2 -5        IX 2 = NO./ENTRIES
0133 0  C208     EDT1  LD      2 8         GET AN ENTRY
0134 00 D60001CB       STO    L2 EDIT+5    SET IN EDIT AREA
0136 0  7201           MDX     2 1         DECR IX 2
0137 0  70FB           MDX       EDT1      LOOP
0138 00 6700013D       LDX    L3 EDT2      IX 3 = LDR RETURN
013A 00 6F000124       STX    L3 /0124     STORE IN LOADER
013C 0  6050           LDX    X  /0050     GO TO LOADER
013D 00 C4000001 EDT2  LD     L  /0001     GET LOC 1
013F 00 F4000513       EOR    L  TERM
0141 0  4820           BSC       Z         IS THIS END EDIT
0142 0  3001     WAIT1 WAIT      1         NO
               *
0143 00 6700001B BEGIN LDX    L3 27        IX = NO LEVELS
0145 00 C400023E       LD     L  INTR2     GET COMMON INTR TRAP
0147 00 D7000007 BEGAN STO    L3 7         SET
0149 0  73FF           MDX     3 -1        DECR IX 3
014A 0  70FC           MDX       BEGAN     LOOP
014B 00 D4000001       STO    L  /0001     SET CE TRAP
014D 00 C400023F       LD     L  TPINT     GET TAPE TRAP
014F 00 D48001C8       STO    I  EDIT+2    SET
0151 00 CC0001D0       LDD    L  RSTRT     GET RESTART
0153 00 DC000006       STD    L  /0006     SET RESTART
0155 00 C40001D2       LD     L  RSRT      GET RESTART MDX
0157 00 D4000000       STO    L  /0000     SET
0159 0  3002     WAIT2 WAIT      2         WAIT FOR SWITCHES
               *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
               *
               *              PROGRAM INITILIZATION
               *
               *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
015A 0  1010     MTST  SLA       16        CLEAR ALL NECESSARY
015B 0  D05C           STO       TAPE0     *LOCATIONS
015C 0  D05C           STO       TAPE1
015D 00 D40004F1       STO    L  RID
015F 00 D4000328       STO    L  WRERR
0161 0  0858           XIO       UNMK0     UNMASK ALL LEVELS
0162 0  0859           XIO       UNMK1
               *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
               *
               *              SUPERVISOR ROUTINE
               *
               *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
0163 0  085E     SUPR  XIO       RDBSW     READ DATA SWS
0164 00 C40001CB       LD     L  SWO       GET SWS
0166 0  4828           BSC       +Z        IS DRIVE 0 TO BE RUN
0167 0  700E           MDX       SUPR3     NO
0168 00 C40001C9       LD     L  EDIT+3    GET NO TRACKS DR 0
```

2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
016A 0   4820               BSC      Z          IS IT A 9 TRACK                8BD01350
016B 0   700A               MDX      SUPR3      NO                             8BD01360
016C 00 C40001C6            LD    L  EDIT       GET AREA CODE                  8BD01370
016E 0   D049               STO      TAPE0      SAVE                           8BD01380
016F 0   6100               LDX    1 0          SET IXING-DR 0                 8BD01390
0170 00 4400041E            BSI   L  SNDSW      SENSE DRIVE              SRC   8BD01400
0172 0   4804               BSC      E          IS DRIVE READY                 8BD01410
0173 0   7034               MDX      SUPR4      NO                             8BD01420
0174 00 440003F6            BSI   L  RWD        REWIND DRIVE             SRC   8BD01430
0176 00 C40001CA      SUPR3 LD    L  EDIT+4     GET NO TRACKS DR 1             8BD01440
0178 0   4828               BSC      +Z         IS DR 1 AVAIL                  8BD01450
0179 0   7012               MDX      SUPR8      NO                             8BD01460
017A 0   4820               BSC      Z          IS IT A 9 TRACK DR             8BD01470
017B 0   7010               MDX      SUPR8      NO                             8BD01480
017C 00 C40001CB            LD    L  SW0        GET DATA SWS                   8BD01490
017E 0   1001               SLA      1                                         8BD01500
017F 0   4828               BSC      +Z         IS DR 1 TO BE RUN              8BD01510
0180 0   700B               MDX      SUPR8      NO                             8BD01520
0181 00 C40001C6            LD    L  EDIT       GET AREA CODE                  8BD01530
0183 0   F04A               EOR      MOD+1      SET DR 1 MOD                   8BD01540
0184 0   D034               STO      TAPE1      SAVE                           8BD01550
0185 0   6101               LDX    1 1          SET IXING DR 1                 8BD01560
0186 00 4400041E            BSI   L  SNDSW      SENSE DRIVE              SRC   8BD01570
0188 0   4804               BSC      E          IS DR READY                    8BD01580
0189 0   7026               MDX      SUPR6      NO                             8BD01590
018A 00 440003F6            BSI   L  RWD        REWIND DRIVE             SRC   8BD01600
018C 0   C02B         SUPR8 LD       TAPE0      GET DR 0 AREA CODE             8BD01610
018D 00 4C180191            BSC   L  SUPR0,+-   IS IT ZERO                     8BD01620
018F 0   6100               LDX    1 0          NO-SET TO DR 0                 8BD01630
0190 0   7004               MDX      SUPR1      START PROGRAM                  8BD01640
0191 0   C027         SUPR0 LD       TAPE1      GET DR 1 AREA CODE             8BD01650
0192 00 4C1801F1            BSC   L  RETR1,+-   BRANCH IF CLEAR                8BD01660
0194 0   6101               LDX    1 1          SET IXING TO DR 1              8BD01670
0195 0   082C         SUPR1 XIO      RDBSW      READ DATA SWS                  8BD01680
0196 0   C034               LD       SW0        GET SWS                        8BD01690
0197 0   4804               BSC      E          IS HLT BEFORE RTN ON           8BD01700
0198 0   3003         WAIT3 WAIT     3          YES                            8BD01710
0199 0   082A               XIO      RDSSW      READ SNS/PRG SWS               8BD01720
019A 0   C031               LD       SW1        GET SNS/PRG SWS                8BD01730
019B 0   1808               SRA      8                                         8BD01740
019C 00 4C2001A2            BSC   L  SUPR2,Z    IS A RTN SEL                   8BD01750
019E 00 C40004F1            LD    L  RID        NO-GET RTN NO                  8BD01760
01A0 00 84000684            A     L  ONE        ADD ONE                        8BD01770
01A2 00 D40004F1      SUPR2 STO   L  RID        SET RTN NO                     8BD01780
01A4 00 678004F1            LDX   I3 RID        IX 3 = ROUTINE NO              8BD01790
01A6 00 4F8001D3            BSC   I3 CMRTT      GO TO ROUTINE                  8BD01800
                      *                                                        8BD01810
                      *                DRIVE 0 SELECTED BUT NOT                8BD01820
                      *                READY                                   8BD01830
                      *                                                        8BD01840
01A8 0   1010         SUPR4 SLA      16         CLEAR DR 0 AREA CODE           8BD01850
01A9 0   D00E               STO      TAPE0                                     8BD01860
01AA 00 4400043A            BSI   L  PRINT      GO PRINT                 SRC   8BD01870
01AC 0   C000               DC       /C000      MSG 0                          8BD01880
01AD 0   0002               DC       /0002      FORM 2                         8BD01890
01AE 0   7094               MDX      BEGIN      CONTINUE                       8BD01900
01AF 0   70B3         SUPR5 MDX      SUPR       LOOP ON ERROR                  8BD01910
                      *                                                        8BD01920
                      *                DRIVE 1 SELECTED BUT NOT                8BD01930
                      *                READY                                   8BD01940
                      *                                                        8BD01950
01B0 0   1010         SUPR6 SLA      16         CLEAR DR 1 AREA CODE           8BD01960
01B1 0   D007               STO      TAPE1                                     8BD01970
01B2 00 4400043A            BSI   L  PRINT      GO PRINT                 SRC   8BD01980
01B4 0   C001               DC       /C001      MSG 1                          8BD01990
01B5 0   0002               DC       /0002      FORM 2                         8BD02000
01B6 0   708C               MDX      BEGIN      CONTINUE                       8BD02010
01B7 0   708E         SUPR7 MDX      SUPR3      LOOP ON ERROR                  8BD02020
```


2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
                      *                                                        8BD02030
                      *                  CONSTANTS                             8BD02040
                      *                                                        8BD02050
01B8     0000               BSS   E  0                                         8BD02060
01B8 0   0000         TAPE0 DC       0          AREA CODE                      8BD02070
01B9 0   0000         TAPE1 DC       0          AREA CODE                      8BD02080
01BA 0   0000         UNMK0 DC       0          UNMASK LOWER                   8BD02090
01BB 0   0480               DC       /0480                                     8BD02100
01BC 0   0000         UNMK1 DC       0          UNMASK UPPER                   8BD02110
01BD 0   0481               DC       /0481                                     8BD02120
01BE 0   FFFF         MK0   DC       /FFFF      MASK LOWER                     8BD02130
01BF 0   0480               DC       /0480                                     8BD02140
01C0 0   FFFF         MK1   DC       /FFFF      MASK UPPER                     8BD02150
01C1 0   0481               DC       /0481                                     8BD02160
01C2 0   01CB         RDBSW DC       SW0        READ DATA SWS                  8BD02170
01C3 0   0240               DC       /0240                                     8BD02180
01C4 0   01CC         RDSSW DC       SW1        READ SNS/PRG SWS               8BD02190
01C5 0   0260               DC       /0260                                     8BD02200
01C6 0   0000         EDIT  DC       0          AREA CODE                      8BD02210
01C7 0   0000               DC       0          ILSW BIT                       8BD02220
01C8 0   0000               DC       0          INTR ADRS                      8BD02230
01C9 0   0000               DC       0          TRKS DR 0                      8BD02240
01CA 0   0000               DC       0          TRKS DR 1                      8BD02250
01CB 0   0000         SW0   DC       0          DATA SW STORAGE                8BD02260
01CC 0   0000         SW1   DC       0          SNS/PRG SW STORAGE             8BD02270
01CD 0   0000         MOD   DC       0                                         8BD02280
01CE 0   0020               DC       /0020      MOD FOR DR 1                   8BD02290
01D0     0000               BSS   E  0                                         8BD02300
01D0 00 4C000143      RSTRT BSC   L  BEGIN      RESTART BRANCH                 8BD02310
01D2 0   7005         RSRT  MDX   X  /0005      RESTART MDX                    8BD02320
                      *                                                        8BD02330
                      *                  ROUTINE TABLE                         8BD02340
                      *                                                        8BD02350
01D3 0   0016         CMRTT DC       22         NUMBER OF ROUTINES             8BD02360
01D4 0   0624               DC       CMRT       ROUTINE 1                      8BD02370
01D5 0   0624               DC       CMRT               2                      8BD02380
01D6 0   0624               DC       CMRT               3                      8BD02390
01D7 0   0624               DC       CMRT               4                      8BD02400
01D8 0   0624               DC       CMRT               5                      8BD02410
01D9 0   0624               DC       CMRT               6                      8BD02420
01DA 0   0624               DC       CMRT               7                      8BD02430
01DB 0   0689               DC       RTN8               8                      8BD02440
01DC 0   06E3               DC       RTN9               9                      8BD02450
01DD 0   0758               DC       RTN10              10                     8BD02460
01DE 0   07B4               DC       RTN11              11                     8BD02470
01DF 0   07F7               DC       CMR12              12                     8BD02480
01E0 0   07F7               DC       CMR12              13                     8BD02490
01E1 0   07F7               DC       CMR12              14                     8BD02500
01E2 0   07F7               DC       CMR12              15                     8BD02510
01E3 0   07F7               DC       CMR12              16                     8BD02520
01E4 0   07F7               DC       CMR12              17                     8BD02530
01E5 0   07F7               DC       CMR12              18                     8BD02540
01E6 0   0855               DC       RTN19              19                     8BD02550
01E7 0   08AD               DC       RT20               20                     8BD02560
01E8 0   08F7               DC       RT21               21                     8BD02570
01E9 0   01EA               DC       RETRN      END PROG                       8BD02580
                      *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX         8BD02590
                      *                                                        8BD02600
                      *                  ROUTINES RETURN HERE                  8BD02610
                      *                                                        8BD02620
                      *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX         8BD02630
01EA 00 C40004F1      RETRN LD    L  RID        GET RTN NUMBER                 8BD02640
01EC 0   F0E6               EOR      CMRTT                                     8BD02650
01ED 00 4C1801F1            BSC   L  RETR1,+-   BRANCH = ALL RTNS              8BD02660
01EF 00 4C000195            BSC   L  SUPR1      CONTINUE PROG                  8BD02670
01F1 00 4400043A      RETR1 BSI   L  PRINT      PRINT-PROG COMPLETE  SRC       8BD02680
01F3 0   C002               DC       /C002      MSG 2                          8BD02690
01F4 0   0002               DC       /0002      FORM 2                         8BD02700
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01F5 0  7000           MDX      RETR2      CONTINUE ADRS          88D02710
01F6 0  1010     RETR2 SLA      16         CLEAR AREA CODE        88D02720
01F7 00 D50001B8       STO  L1  TAPE0                             88D02730
01F9 00 C40001B8       LD   L   TAPE0      GET DR 0 AREA CODE     88D02740
01FB 00 4C180203       BSC  L   RETR3,+-   IS IT CLEAR            88D02750
01FD 0  6100           LDX   1  0          NO-SET TO DR 0         88D02760
01FE 0  1010           SLA      16         CLEAR RTN NUMBER       88D02770
01FF 00 D40004F1       STO  L   RID                               88D02780
0201 00 4C000195       BSC  L   SUPR1      GO TO SUPERVISOR       88D02790
0203 00 C40001B9 RETR3 LD   L   TAPE1      GET DR 1 AREA CODE     88D02800
0205 00 4C18020D       BSC  L   END,+-     IS IT CLEAR            88D02810
0207 0  6101           LDX   1  1          NO-SET TO DR 1         88D02820
0208 0  1010           SLA      16         CLEAR ROUTINE NUMBER   88D02830
0209 00 D40004F1       STO  L   RID                               88D02840
020B 00 4C000195       BSC  L   SUPR1      GO TO SUPERVISOR       88D02850
                 *                                                88D02860
020D 00 0C0001C2 END   XIO  L   RDBSW      READ DATA SWS          88D02870
020F 0  1010           SLA      16         CLEAR A REG            88D02880
0210 00 D40004F1       STO  L   RID        CLEAR RTN NO           88D02890
0212 00 C40001CB       LD   L   SW0        GET DATA SWS           88D02900
0214 0  1804           SRA      4                                 88D02910
0215 00 4C040163       BSC  L   SUPR,E     IS LOOP PROG ON        88D02920
0217 00 4C000143       BSC  L   BEGIN      NO                     88D02930
                 *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88D02940
                 *                                                88D02950
                 *               TAPE INTERRUPT ROUTINE           88D02960
                 *                                                88D02970
                 *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88D02980
0219 0  0000     INTR  DC       0                           IE    88D02990
021A 0  2818           STS      TASS       SAVE STATUS            88D03000
021B 0  D81A           STD      TAAQ       SAVE A AND Q           88D03010
021C 0  081B           XIO      ILSW       SENSE ILSW             88D03020
021D 0  D01D           STO      TAILS      SAVE                   88D03030
021E 00 44180240       BSI  L   TERR,+-    BRANCH IF BLANK        88D03040
0220 00 F40001C7       EOR  L   EDIT+1                            88D03050
0222 00 4C180227       BSC  L   INTR1,+-   BRANCH IF TAPE         88D03060
0224 00 44000242       BSI  L   SVINT      NOT TAPES              88D03070
0226 0  7008           MDX      INTR3                             88D03080
0227 0  C014     INTR1 LD       SDSW       GET FNC                88D03090
0228 00 F50001B8       EOR  L1  TAPE0      SET AREA CODE          88D03100
022A 0  D012           STO      SDSW+1     SAVE                   88D03110
022B 0  0810           XIO      SDSW       SENSE-NO RESET         88D03120
022C 0  C010           LD       SDSW+1     GET IOCC               88D03130
022D 00 F4000684       EOR  L   ONE        SET BIT 15             88D03140
022F 0  D00D           STO      SDSW+1     SAVE                   88D03150
0230 0  080B           XIO      SDSW       SENSE-RESET            88D03160
0231 0  D008           STO      DSW        SAVE SENSE WD          88D03170
0232 0  C803     INTR3 LDD      TAAQ       RESTORE A AND Q        88D03180
0233 0  2000     TASS  LDS      0          RESTORE STATUS         88D03190
0234 00 4CC00219       BOSC I   INTR       EXIT             IX    88D03200
0236    0000           BSS  E   0                                 88D03210
0236 0  0000     TAAQ  DC       0          A AND Q STORAGE        88D03220
0237 0  0000           DC       0                                 88D03230
                 *                                                88D03240
0238 0  0000     ILSW  DC       0          SENSE ILSW IOCC        88D03250
0239 0  0300           DC       /0300                             88D03260
                 *                                                88D03270
023A 0  0000     DSW   DC       0          DSW STORAGE            88D03280
023B 0  0000     TAILS DC       0          ILSW STORAGE           88D03290
                 *                                                88D03300
023C 0  0700     SDSW  DC       /0700      DSW IOCC               88D03310
023D 0  0000           DC       0                                 88D03320
                 *                                                88D03330
023E 0  0242     INTR2 DC       SVINT      COMMON INT TRAP        88D03340
023F C  0219     TPINT DC       INTR       TAPE INT TRAP          88D03350
                 *                                                88D03360
0240 0  1000     TERR  NOP                                        88D03370
0241 0  300E     WAITE DC       /300E      BLANK ILSW WAIT        88D03380
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```
                 *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88D03390
                 *                                                88D03400
                 *               ROUTINE TO SERVICE NON-          88D03410
                 *               PROGRAM GENEPATED                88D03420
                 *               INTERRUPTS                       88D03430
                 *                                                88D03440
                 *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  88D03450
0242 0  0000     SVINT DC       0                           IE    88D03460
0243 00 0C0001BE       XIO  L   MK0        MASK ALL LVLS          88D03470
0245 00 0C0001C0       XIO  L   MK1                               88D03480
0247 0  D044           STO      SVIO       SAVE A REG             88D03490
0248 00 C400000A       LD   L   /000A      GET LOX 10             88D03500
024A 00 9400023E       S    L   INTR2      SUB ADRS SVINT         88D03510
024C 0  4818           BSC      +-         SKIP = ADRS 10         88D03520
024D 0  7006           MDX      SVIN3      NOT ADRS 10            88D03530
024E 00 C400000A       LD   L   /000A      GET ADRS 10            88D03540
0250 0  D0F1           STO      SVINT      SET RETURN             88D03550
0251 0  C0EC           LD       INTR2      RESTORE LOC 10         88D03560
0252 00 D400000A       STO  L   /000A                             88D03570
0254 00 0C000238 SVIN3 XIO  L   ILSW       RESET ILSW             88D03580
0256 00 7402028A       MDX  L   SV7,2      SET PASS SW            88D03590
0258 0  1010           SLA      16                                88D03600
0259 0  D02D           STO      SV4        CLEAR AREA CODE CTR    88D03610
025A 0  C02A           LD       SV2                               88D03620
025B 0  D02D           STO      SV6        SET IOCC IN USE SW     88D03630
025C 0  C027     SVIN0 LD       SV1                               88D03640
025D 0  D02A           STO      SV5        SET MODIFIER CTR       88D03650
025E 0  C028     SVIN1 LD       SV4        *                      88D03660
025F 0  1008           SLA      11         *                      88D03670
0260 0  E827           OR       SV5        *BUILD IOCC            88D03680
0261 0  E827           OR       SV6        *                      88D03690
0262 0  D02A           STO      SVIO+1     *                      88D03700
0263 0  0828           XIO      SVIO       SENSE AND RESET DSW    88D03710
0264 00 74FF0288       MDX  L   SV5,-1                            88D03720
0266 0  70F7           MDX      SVIN1      BRANCH IF NOT ALL MD   88D03730
0267 00 74010287 SVIN2 MDX  L   SV4,1      INCREMENT AREA CODE    88D03740
0269 00 C40001C6       LD   L   EDIT       GET TAPE AREA CODE     88D03750
026B 0  180B           SRA      11                                88D03760
026C 0  901A           S        SV4                               88D03770
026D 0  4818           BSC      +-         SKIP = NOT TAPE        88D03780
026E 0  70F8           MDX      SVIN2      SET TO NEXT A C        88D03790
026F 0  C017           LD       SV4                               88D03800
0270 0  9012           S        SV0        CK IF ALL A C USED     88D03810
0271 0  4808           BSC      +                                 88D03820
0272 0  70E9           MDX      SVIN0      GO USE NEXT A C        88D03830
0273 00 74FF028A       MDX  L   SV7,-1     SKIP IF SECOND PASS    88D03840
0275 0  7001           MDX      *+1                               88D03850
0276 0  7005           MDX      SVEXT                             88D03860
0277 0  C00E           LD       SV3                               88D03870
0278 0  D010           STO      SV6        SET IOCC FOR PI        88D03880
0279 0  1010           SLA      16                                88D03890
027A 0  D00C           STO      SV4        SET AC FOR NEXT        88D03900
027B 0  70E0           MDX      SVIN0      *PASS                  88D03910
027C 0  C00F     SVEXT LD       SVIO       RESTORE ACCUM          88D03920
027D 00 0C0001BA       XIO  L   UNMK0      UNMASK ALL LEVELS      88D03930
027F 00 0C0001BC       XIO  L   UNMK1                             88D03940
0281 00 4CC00242       BOSC I   SVINT      EXIT             IX    88D03950
                 *                                                88D03960
                 *               CONSTANTS                        88D03970
                 *                                                88D03980
0283 0  001F     SV0   DC       /001F      NUMBER OF AREA CODES   88D03990
0284 0  00FF     SV1   DC       /00FF      NUMBER OF MODIFIERS    88D04000
0285 0  0701     SV2   DC       /0701      RESET DSW              88D04010
0286 0  0700     SV3   DC       /0700      RESET PISW             88D04020
0287 0  0000     SV4   DC       0          AREA CODE INDICATOR    88D04030
0288 0  0000     SV5   DC       0          MODIFIER INDICATOR     88D04040
0289 0  0000     SV6   DC       0          IOCC IN USE            88D04050
028A 0  0000     SV7   DC       0          PASS SWITCH            88D04060
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```
028C     0000              BSS  E  0
028C 0   0000       SVIO   DC      0              SENSE DSW IOCC               8BD04070
028D 0   0000              DC      0                                           8BD04080
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX            8BD04090
                    *                                                          8BD04100
                    *               ROUTINE TO SET 7F PATTERN                  8BD04110
                    *                                                          8BD04120
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX            8BD04130
028E 0   0000       SP7F   DC      0                                     SE    8BD04140
028F 0   6308              LDX  3 8           IX 3 = 16 CHARACTERS             8BD04150
0290 0   C012              LD      P7F         GET 7F7F                        8BD04160
0291 00  D7000938   SP7F0  STO  L3 IOAA-1      SET IN I/O AREA                 8BD04170
0293 0   73FF              MDX   3 -1          DECR IX 3                       8BD04180
0294 0   70FC              MDX     SP7F0       LOOP                            8BD04190
0295 00  67000131          LDX  L3 305         IX 3= 608 CHARACTERS            8BD04200
0297 0   1010              SLA     16          CLEAR A REG                     8BD04210
0298 00  D7000940   SP7F1  STO  L3 IOAA+7      SET IN I/O AREA                 8BD04220
029A 0   73FF              MDX   3 -1          DECR IX 3                       8BD04230
029B 0   70FC              MDX     SP7F1       LOOP                            8BD04240
029C 0   C007              LD      CRC7F       GET 007F                        8BD04250
029D 00  D4000942          STO  L  IOAA+9      SET AS CRC CHARACTER            8BD04260
029F 00  D4000944          STO  L  IOAA+11     SET AS LRC CHARACTER            8BD04270
02A1 00  4C80028E          BSC  I  SP7F        EXIT                      SX    8BD04280
                    *                                                          8BD04290
                    *               CONSTANTS                                  8BD04300
                    *                                                          8BD04310
02A3 0   7F7F       P7F    DC      /7F7F       PATTERN WORD                    8BD04320
02A4 0   007F       CRC7F  DC      /007F       CRC/LRC CHARACTER               8BD04330
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX            8BD04340
                    *                                                          8BD04350
                    *               ROUTINE TO SET 8F PATTERN                  8BD04360
                    *                                                          8BD04370
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX            8BD04380
02A5 0   0000       SP8F   DC      0                                     SE    8BD04390
02A6 0   6308              LDX  3 8           IX 3 = 16 CHARACTERS             8BD04400
02A7 00  C40006E1          LD   L  P8F         GET PATTERN                     8BD04410
02A9 00  D7000938   SP8F0  STO  L3 IOAA-1      SET IN I/O AREA                 8BD04420
02AB 0   73FF              MDX   3 -1          DECR IX 3                       8BD04430
02AC 0   70FC              MDX     SP8F0       LOOP                            8BD04440
02AD 00  67000131          LDX  L3 305         IX 3= 608 CHARACTERS            8BD04450
02AF 0   1010              SLA     16          CLEAR A REG                     8BD04460
02B0 00  D7000940   SP8F1  STO  L3 IOAA+7      SET IN I/O AREA                 8BD04470
02B2 0   73FF              MDX   3 -1          DECR IX 3                       8BD04480
02B3 0   70FC              MDX     SP8F1       LOOP                            8BD04490
02B4 0   C006              LD      CRC8F       GET 008F                        8BD04500
02B5 00  D4000942          STO  L  IOAA+9      SET AS CRC CHARACTER            8BD04510
02B7 00  D4000944          STO  L  IOAA+11     SET AS LRC CHARACTER            8BD04520
02B9 00  4C8002A5          BSC  I  SP8F        EXIT                      SX    8BD04530
                    *                                                          8BD04540
                    *               CONSTANTS                                  8BD04550
                    *                                                          8BD04560
02BB 0   008F       CRC8F  DC      /008F       CRC/LRC CHARACTER               8BD04570
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX            8BD04580
                    *                                                          8BD04590
                    *               SET I/O AREA TO 8080                       8BD04600
                    *                                                          8BD04610
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX            8BD04620
02BC 0   0000       SP80   DC      0                                     SE    8BD04630
02BD 0   6308              LDX  3 8           IX 3 = 16 CHARACTERS             8BD04640
02BE 00  C40002D3          LD   L  P80         GET 8080                        8BD04650
02C0 00  D7000938   RT11J  STO  L3 IOAA-1      SET IN I/O AREA                 8BD04660
02C2 0   73FF              MDX   3 -1          DECR IX 3                       8BD04670
02C3 0   70FC              MDX     RT11J       LOOP                            8BD04680
02C4 00  67000131          LDX  L3 305         IX 3 = 608 CHARACTERS           8BD04690
02C6 0   1010              SLA     16          CLEAR A REG                     8BD04700
02C7 00  D7000940   RT11K  STO  L3 IOAA+7      SET IN I/O AREA                 8BD04710
02C9 0   73FF              MDX   3 -1          DECR IX 3                       8BD04720
02CA 0   70FC              MDX     RT11K       LOOP                            8BD04730
                                                                               8BD04740
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02CB 0   C006              LD      CRC80       GET CRC/LRC CHARACTER           8BD04750
02CC 00  D4000942          STO  L  IOAA+9      SET AS CRC CHARACTER            8BD04760
02CE 00  D4000944          STO  L  IOAA+11     SET AS LRC CHARACTER            8BD04770
02D0 00  4C8002BC          BSC  I  SP80        EXIT                      SX    8BD04780
02D2 0   0080       CRC80  DC      /0080       CRC/LRC CHARACTER               8BD04790
02D3 0   8080       P80    DC      /8080       PATTERN                         8BD04800
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX            8BD04810
                    *                                                          8BD04820
                    *               WRITE ROUTINE                              8BD04830
                    *                                                          8BD04840
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX            8BD04850
02D4 0   0000       WRT    DC      0                                     SE    8BD04860
02D5 00  C50001B8   WRT01  LD   L1 TAPEO       GET AREA CODE                   8BD04870
02D7 0   F04E              EOR     WRTCC       SET WRT FNC                     8BD04880
02D8 0   D04A              STO     WRIOC+1     SAVE                            8BD04890
02D9 0   C051              LD      WRTWC       GET WRT WD CT                   8BD04900
02DA 00  D4000938          STO  L  IOA         SET                             8BD04910
                    *                                                          8BD04920
02DC 00  4400041E   WRT02  BSI  L  SNDSW       SENSE DRIVE               SRC   8BD04930
02DE 0   1801              SRA     1                                           8BD04940
02DF 0   4804              BSC     E           IS DR READY                     8BD04950
02E0 0   7011              MDX     WRT04       NO                              8BD04960
                    *                                                          8BD04970
02E1 0   0840              XIO     WRIOC       WRITE ONE RECORD                8BD04980
02E2 0   3004       WAIT4  WAIT    4           WAIT FOR INTRPT                 8BD04990
                    *                                                          8BD05000
02E3 00  C400023A          LD   L  DSW         GET SENSE WORD                  8BD05010
02E5 0   1802              SRA     2                                           8BD05020
02E6 0   4804              BSC     E           IS TAPE MARKER ON               8BD05030
02E7 0   7036              MDX     WRT11       YES                             8BD05040
                    *                                                          8BD05050
02E8 00  C400023A          LD   L  DSW         GET SENSE WD                    8BD05060
02EA 0   E03C              AND     WRTSW                                       8BD05070
02EB 0   4820              BSC     Z           IS WORD AS EXPECTED             8BD05080
02EC 0   700E              MDX     WRT06       NO                              8BD05090
                    *                                                          8BD05100
02ED 0   C03A              LD      WRERR       GET ERROR COUNT                 8BD05110
02EE 0   4820              BSC     Z           WERE THERE ANY EPRS             8BD05120
02EF 0   7026              MDX     WRT09       YES                             8BD05130
02F0 00  4C8002D4   WRT03  BSC  I  WRT         EXIT                      SX    8BD05140
                    *                                                          8BD05150
                    *               DRIVE WAS NOT READY                        8BD05160
                    *                                                          8BD05170
02F2 00  4400043A   WRT04  BSI  L  PRINT       PRINT DR NOT READY              8BD05180
02F4 0   E002              DC      /E002       ERROR 2                         8BD05190
02F5 0   0003              DC      /0003       FORM 3                          8BD05200
02F6 0   7001              MDX     WRT05       CONTINUE                        8BD05210
02F7 0   70E4              MDX     WRT02       LOOP ON ERROR                   8BD05220
02F8 0   1010       WRT05  SLA     16          CLEAR ERROR CT                  8BD05230
02F9 0   D02E              STO     WRERR                                       8BD05240
02FA 0   3005       WAIT5  WAIT    5           TERMINATE PROG                  8BD05250
                    *                                                          8BD05260
                    *               DSW NOT AS EXPECTED                        8BD05270
                    *                                                          8BD05280
02FB 0   C02C       WRT06  LD      WRERR       GET ERROR CT                    8BD05290
02FC 00  84000684          A    L  ONE         ADD ONE                         8BD05300
02FE 0   D029              STO     WRERR       SAVE                            8BD05310
02FF 0   9029              S       FOUR        SUB 4                           8BD05320
0300 0   4820              BSC     Z           RETRIED 3 TIMES                 8BD05330
0301 0   7008              MDX     WRT08       NO                              8BD05340
0302 00  C400023A          LD   L  DSW         GET SENSE WD                    8BD05350
0304 00  D4000438          STO  L  SNSV        SAVE                            8BD05360
0306 00  4400043A          BSI  L  PRINT       PRINT-CAN NOT WRITE       SRC   8BD05370
0308 0   E003              DC      /E003       ERROR 3                         8BD05380
0309 0   0003              DC      /0003       FORM 3                          8BD05390
030A 0   70ED              MDX     WRT05       CONTINUE                        8BD05400
030B 0   1010       WRT07  SLA     16          CLEAR ERR CT                    8BD05410
030C 0   D01B              STO     WRERR                                       8BD05420
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                        *
030D 00 440003C4        WRT08 BSI  L  BSP       GO BACKSPACE                    8BD05430
030F 00 C50001B8              LD   L1 TAPE0     GET AREA CODE                   8BD05440
0311 0  F012                  EOR     ERA       SET ERASE FNC                   8BD05450
0312 0  D012                  STO     ERA+1     SET                             8BD05460
0313 0  0810                  XIO     ERA       ISSUE ERASE                     8BD05470
                        *                                                       8BD05480
0314 0  3006            WAIT6 WAIT    6         WAIT FOR INTRPT                 8BD05490
                        *                                                       8BD05500
0315 0  70BF                  MDX     WRT01     TRY AGAIN                       8BD05510
                        *                                                       8BD05520
                        *                 HAD ERRORS                            8BD05530
                        *                                                       8BD05540
0316 00 4400043A        WRT09 BSI  L  PRINT     PRINT RECOVERED WRT             8BD05550
0318 0  A001                  DC      /A001     MSG 1                           8BD05560
0319 0  0004                  DC      /0004     FORM 4                          8BD05570
031A 0  7000                  MDX     WRT10     CONTINUE                        8BD05580
0318 0  1010            WRT10 SLA     16        CLEAR ERROR CT                  8BD05590
031C 0  D00B                  STO     WRERR                                     8BD05600
031D 0  70D2                  MDX     WRT03     CO EXIT                         8BD05610
031E 00 440003F6        WRT11 BSI  L  RWD       GO REWIND                 SRC   8BD05620
0320 0  7084                  MDX     WRT01     WRITE                           8BD05630
                        *                                                       8BD05640
                        *                 CONSTANTS                             8BD05650
                        *                                                       8BD05660
0322    0000                  BSS  E  0                                         8BD05670
0322 0  0938            WRIOC DC      IOA       WRITE IOCC                      8BD05680
0323 0  0000                  DC      0                                         8BD05690
                        *                                                       8BD05700
0324 0  0402            ERA   DC      /0402     ERASE IOCC                      8BD05710
0325 0  0000                  DC      0                                         8BD05720
                        *                                                       8BD05730
0326 0  0500            WRTCC DC      /0500     WRITE FNC                       8BD05740
0327 0  3DBF            WRTSW DC      /3DBF     DSW CK-WRITE                    8BD05750
0328 0  0000            WRERR DC      0         ERROR CT                        8BD05760
0329 0  0004            FOUR  DC      4         CONSTANT                        8BD05770
032A 0  000B            ELE   DC      11        CONSTANT                        8BD05780
032B 0  4139            WRTWC DC      /4139     WRT WD CT                       8BD05790
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  8BD05800
                        *                                                       8BD05810
                        *                 READ ROUTINE                          8BD05820
                        *                                                       8BD05830
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  8BD05840
032C 0  0000            RD    DC      0                                   SE    8BD05850
032D 00 C50001B8              LD   L1 TAPE0     GET AREA CODE                   8BD05860
032F 00 F40003BE              EOR  L  RDFNC     SET READ FNC                    8BD05870
0331 00 D40003BD              STO  L  RDIOC+1   SAVE                            8BD05880
0333 00 C40003BA              LD   L  RDTWC     GET READ WD CT                  8BD05890
0335 00 D4000938              STO  L  IOA       SET                             8BD05900
0337 00 6F000353              STX  L3 RDE+1     SAVE IX 3                       8BD05910
0339 00 4400041E        RD01  BSI  L  SNDSW     SENSE DRIVE               SRC   8BD05920
033B 0  1801                  SRA     1                                         8BD05930
033C 0  4804                  BSC     E         IS DRIVE READY                  8BD05940
033D 0  7018                  MDX     RD02      NO                              8BD05950
                        *                                                       8BD05960
033E 0  087D                  XIO     RDIOC     ISSUE READ                      8BD05970
                        *                                                       8BD05980
033F 0  3007            WAIT7 WAIT    7         WAIT FOR INTRPT                 8BD05990
                        *                                                       8BD06000
0340 00 C400023A              LD   L  DSW       GET SENSE WD                    8BD06010
0342 0  E07C                  AND     RD1DS                                     8BD06020
0343 0  4820                  BSC     Z         IS DSW AS EXPECTED              8BD06030
0344 0  7019                  MDX     RD04      NO                              8BD06040
                        *                                                       8BD06050
0345 00 440003C4              BSI  L  BSP       GO BACKSPACE              SRC   8BD06060
                        *                                                       8BD06070
0347 0  0874                  XIO     RDIOC     ISSUE READ                      8BD06080
                        *                                                       8BD06090
                                                                                8BD06100
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0348 0  3008            WAIT8 WAIT    8         WAIT FOR INTRPT                 8BD06110
                        *                                                       8BD06120
0349 00 C400023A              LD   L  DSW       GET SENSE WD                    8BD06130
0348 0  E074                  AND     RD2DS                                     8BD06140
034C 0  4820                  BSC     Z         IS DSW OK                       8BD06150
034D 0  7010                  MDX     RD04      NO                              8BD06160
                        *                                                       8BD06170
034E 00 C4000328              LD   L  WRERR     GET ERROR CT                    8BD06180
0350 0  4820                  BSC     Z         ANY ERRORS                      8BD06190
0351 0  7059                  MDX     RD07      YES                             8BD06200
0352 00 67000000        RDE   LDX  L3 0         RESTORE IX 3                    8BD06210
0354 00 4C80032C              BSC  I  RD        EXIT                      SX    8BD06220
                        *                                                       8BD06230
                        *                 DRIVE IS NOT READY                    8BD06240
                        *                                                       8BD06250
0356 00 4400043A        RD02  BSI  L  PRINT     PRINT-NOT READY                 8BD06260
0358 0  E004                  DC      /E004     ERROR 4                         8BD06270
0359 0  0003                  DC      /0003     FORM 3                          8BD06280
035A 0  7001                  MDX     RD03      CONTINUE                        8BD06290
035B 0  70DD                  MDX     RD01      LOOP ON ERROR                   8BD06300
035C 00 4C0002F8        RD03  BSC  L  WRT05     GO TERMINATE PROG               8BD06310
                        *                                                       8BD06320
                        *                 SENSE WORD IS NOT CORRECT             8BD06330
                        *                                                       8BD06340
035E 00 C400023A        RD04  LD   L  DSW       GET SENSE WORD                  8BD06350
0360 0  E060                  AND     CORDS                                     8BD06360
0361 0  4820                  BSC     Z         IS ERROR CORRECTABLE            8BD06370
0362 0  7036                  MDX     RD05      NO                              8BD06380
0363 00 C4000328              LD   L  WRERR     GET ERROR CT                    8BD06390
0365 0  E044                  AND     RDTX0     SAVE RETRY CT                   8BD06400
0366 0  9042                  S       K009      SUB 9                           8BD06410
0367 0  4818                  BSC     +-        IS CT = 9                       8BD06420
0368 0  7007                  MDX     CLN       YES                             8BD06430
0369 00 C4000328              LD   L  WRERR     GET ERROR CT                    8BD06440
036B 00 84000684              A    L  ONE       ADD 1                           8BD06450
036D 00 D4000328              STO  L  WRERR     SAVE                            8BD06460
036F 0  7044                  MDX     RD09      GO RETRY                        8BD06470
                        *                                                       8BD06480
                        *                 GO PAST CLEANER                       8BD06490
                        *                                                       8BD06500
0370 00 C4000328        CLN   LD   L  WRERR     GET ERROR CT                    8BD06510
0372 0  1808                  SRA     8         SAVE CLEAN CT                   8BD06520
0373 0  9035                  S       K009      SUB 9                           8BD06530
0374 00 4C180399              BSC  L  RD05,+-   BRANCH = 9                       8BD06540
0376 0  8031                  A       K010      ADD 10                          8BD06550
0377 0  1008                  SLA     8                                         8BD06560
0378 00 D4000328              STO  L  WRERR     SAVE                            8BD06570
037A 0  6305            CLN1  LDX     3 5       SET TO PASS CLEANER             8BD06580
037B 0  6B08            CLN2  STX     3 CLN3+1  SAVE IX 3                       8BD06590
037C 00 440003C4              BSI  L  BSP       GO BACKSPACE              SRC   8BD06600
037E 00 4400041E              BSI  L  SNDSW     SENSE DRIVE               SRC   8BD06610
0380 0  1803                  SRA     3                                         8BD06620
0381 0  4804                  BSC     E         IS DR AT LD PT                  8BD06630
0382 0  7010                  MDX     CLN8      YES                             8BD06640
0383 00 67000000        CLN3  LDX  L3 0         RESTORE IX 3                    8BD06650
0385 0  73FF                  MDX     3 -1      DECR IX 3                       8BD06660
0386 0  7CF4                  MDX     CLN2      LOOP                            8BD06670
0387 0  6305                  LDX     3 5       SET TO RESTORE                  8BD06680
0388 0  6B06            CLN5  STX     3 CLN7+1  SAVE IX 3                       8BD06690
0389 0  73FF                  MDX     3 -1      DECR IX 3                       8BD06700
038A 0  7001                  MDX     CLN6                                      8BD06710
038B 0  70AD                  MDX     RD01      GO RETRY RECORD                 8BD06720
038C 0  082F            CLN6  XIO     RDIOC     SKIP RECORD                     8BD06730
038D 0  300F            WAITF DC      /300F     WAIT FOR INTRPT                 8BD06740
038E 00 67000000        CLN7  LDX  L3 0         RESTORE IX 3                    8BD06750
0390 0  73FF                  MDX     3 -1      DECR IX 3                       8BD06760
0391 0  70F6                  MDX     CLN5      GO SKIP                         8BD06770
0392 0  70F5                  MDX     CLN5                                      8BD06780
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                        *
                        *                RESTORE TAPE TO THE
                        *                RECORD IN ERROR
                        *
0393 0  C013    CLN8    LD      K005    GET 5
0394 0  90EF            S       CLN3+1  SUB PRESENT LOC
0395 0  D0EE            STO     CLN3+1  SAVE
0396 00 67800384        LDX  I3 CLN3+1  LOAD IX 3
0398 0  70EF            MDX     CLN5    GO RESTORE
0399 00 C400023A RD05   LD   L  DSW     GET SENSE WD
039B 00 D4000438        STO  L  SNSV    SAVE
039D 00 4400043A        BSI  L  PRINT   PRINT UNCORRECTABLE
039F 0  E005            DC      /E005   ERROR 5
03A0 0  0003            DC      /0003   FORM 3
03A1 0  700E            MDX     RD08    CONTINUE
03A2 0  1010    RD06    SLA     16      CLEAR ERROR CT
03A3 00 D4000328        STO  L  WRERR
03A5 00 4C0003B4        BSC  L  RD09    LOOP ON ERROR
03A7 0  0005    K005    DC      5       CONSTANT 5
03A8 0  000A    K010    DC      10      CONSTANT 10
03A9 0  0009    K009    DC      9       CONSTANT 9
03AA 0  00FF    RDTX0   DC      /00FF   SAVE RETRY CT
                        *
                        *                HAD PREVIOUS ERRORS
                        *
03AB 00 4400043A RD07   BSI  L  PRINT   PRINT-RECOVERED READ SRC
03AD 0  A002            DC      /A002   MSG 2
03AE 0  0004            DC      /0004   FORM 4
03AF 0  7000            MDX     RD08    CONTINUE
03B0 0  1010    RD08    SLA     16      CLEAR ERROR CT
03B1 00 D4000328        STO  L  WRERR
03B3 0  709E            MDX     RDE     GO EXIT
                        *
                        *                SET UP TO RETRY
                        *
03B4 00 440003C4 RD09   BSI  L  BSP     GO BACKSPACE          SRC
03B6 00 44000617        BSI  L  DSLT    GO DESELECT           SRC
03B8 00 4C000339        BSC  L  RD01    GO RETRY
                        *
                        *                CONSTANTS
                        *
03BA 0  4008    RDTWC   DC      /4008   READ WD CT
03BC    0000            BSS  E  0
03BC 0  0938    RDIOC   DC      IOA     READ IOCC
03BD 0  0000            DC      0
                        *
03BE 0  0602    RDFNC   DC      /0602   READ FUNCTION
03BF 0  3D9F    RD1DS   DC      /3D9F   DSW CK-FIRST WORD
03C0 0  3F9F    RD2DS   DC      /3F9F   DSW CK-SECOND WORD
03C1 0  3C0F    CORDS   DC      /3C0F   DSW CK-CORRECTABLE
03C2 0  0001    SELDR   DC      1       SEL OTHER DR
03C3 0  0000            DC      0
*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                        *
                        *                BACKSPACE ROUTINE
                        *
*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
03C4 0  0000    BSP     DC      0                             SE
03C5 00 4400041E BSP01  BSI  L  SNDSW   SENSE DR              SRC
03C7 0  1801            SRA     1
03C8 0  4804            BSC     E       IS DR READY
03C9 0  701D            MDX     BSP06   NO
03CA 0  1802            SRA     2
03CB 00 4C0403CE        BSC  L  BSP02,E IS DR AT  LD PT
03CD 0  7002            MDX     BSP03   NO
03CE 00 4C8003C4 BSP02  BSC  I  BSP     EXIT                  SRC
                        *
03D0 00 C5000188 BSP03  LD   L1 TAPE0   GET AREA CODE
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03D2 0  F021            EOR     BSPIO   SET BSP FNC
03D3 0  D021            STO     BSPIO+1 SAVE
                        *
03D4 0  081F            XIO     BSPIO   ISSUE BACKSPACE
                        *
03D5 0  3009    WAIT9   WAIT    9       WAIT FOR INTRPT
                        *
03D6 00 C400023A        LD   L  DSW     GET SENSE WD
03D8 0  4804            BSC     E       IS DR READY
03D9 0  7001            MDX     BSP04   NO
03DA 0  70F3            MDX     BSP02   YES-EXIT
                        *
                        *                DSW WRONG AFTER BSP
03DB 00 C400023A BSP04  LD   L  DSW     GET SENSE WD
03DD 00 D4000438        STO  L  SNSV    SAVE
03DF 00 4400043A        BSI  L  PRINT   PRINT WRONG DSW
03E1 0  E006            DC      /E006   ERROR 6
03E2 0  0003            DC      /0003   FORM-3
03E3 0  7001            MDX     BSP05   CONTINUE
03E4 0  70EB            MDX     BSP03   LOOP ON ERROR
03E5 00 4C0002F8 BSP05  BSC  L  WRT05   TERMINATE
                        *
                        *                DRIVE NOT READY
                        *
03E7 00 C400023A BSP06  LD   L  DSW     GET SENSE WD
03E9 00 D4000438        STO  L  SNSV    SAVE
03EB 00 4400043A        BSI  L  PRINT   PRINT-NOT READY       SRC
03ED 0  E007            DC      /E007   ERROR 7
03EE 0  0003            DC      /0003   FORM 3
03EF 0  7001            MDX     BSP07   CONTINUE
03F0 0  7004            MDX     BSP01   LOOP ON ERROR
03F1 00 4C0002F8 BSP07  BSC  L  WRT05   TERMINATE
                        *
                        *                CONSTANTS
                        *
03F4    0000            BSS  E  0
03F4 0  0403    BSPIO   DC      /0403   BACKSPACE IOCC
03F5 0  0000            DC      0
*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                        *
                        *                REWIND ROUTINE
                        *
*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
03F6 0  0000    RWD     DC      0                             SE
03F7 00 4400041E RWD01  BSI  L  SNDSW   SENSE DR              SRC
03F9 0  1801            SRA     1
03FA 0  4804            BSC     E       IS DR READY
03FB 0  7014            MDX     RWD04   NO
03FC 0  1802            SRA     2
03FD 0  4804            BSC     E       IS DR AT LD PT
03FE 0  700F            MDX     RWD03   YES
03FF 00 C5000188        LD   L1 TAPE0   GET AREA CODE
0401 0  F01A            EOR     RWDIO   SET FNC
0402 0  D01A            STO     RWDIO+1 SAVE
                        *
0403 0  0818            XIO     RWDIO   ISSUE REWIND
                        *
0404 0  300A    WAITA   DC      /300A   WAIT FOR INTRPT
                        *
0405 00 4400041E RWD02  BSI  L  SNDSW   SENSE DR              SRC
0407 0  1801            SRA     1
0408 0  4804            BSC     E       IS REWIND COMPLETE
0409 0  70FB            MDX     RWD02   NO
040A 0  1802            SRA     2
040B 0  4804            BSC     E       IS DR AT LD PT
040C 0  7001            MDX     RWD03   YES
040D 0  70F7            MDX     RWD02   NO
                        *
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040E 00 4C8003F6   RWD03 BSC  I  RWD        EXIT                 SX
                   *
                   *                DRIVE IS NOT READY
                   *
0410 00 C400023A   RWD04 LD   L  DSW        GET SENSE WD
0412 00 D4000438         STO  L  SNSV       SAVE
0414 00 4400043A         BSI  L  PRINT      PRINT-NOT READY      SRC
0416 0  E008             DC      /E008      ERROR 8
0417 0  0003             DC      /0003      FORM 3
0418 0  7001             MDX     RWD05      CONTINUE
0419 0  700D             MDX     RWD01      LOOP ON ERROR
041A 00 4C0002F8   RWD05 BSC  L  WRT05      TERMINATE
                   *
                   *                CONSTANTS
                   *
041C    0000             BSS  E  0
041C 0  0404       RWDIO DC      /0404      REWIND IOCC
041D 0  0000             DC      0
                   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                   *
                   *                ROUTINE TO SENSE DRIVE
                   *
                   *XXXXXXXXXXXXXXXXXXXXXXXXXYXXXXXXXXXXXXXXXXXXX
041E 0  0000       SNDSW DC      0                               SE
041F 0  6B13             STX   3 SNDS3+1    SAVE IX 3
0420 00 C40001C6   SNDS1 LD   L  EDIT       GET AREA CODE
0422 00 F50001CD         EOR  L1 MOD        SET MODIFIER
0424 0  F011             EOR     SNS        SET SENSE FNC
0425 0  D011             STO     SNS+1      SAVE
0426 00 67000002         LDX  L3 2
0428 0  080D       SNDS2 XIO     SNS        ISSUE SENSE
0429 00 D7000437         STO  L3 SNSV-1     SAVE
042B 0  73FF             MDX   3 -1         DECR IX
042C 0  70FB             MDX     SNDS2      LOOP
042D 0  C00A             LD      SNSV       GET SECOND
042E 0  F00A             EOR     SNSV+1     COMPARE WITH FIRST
042F 0  4820             BSC     Z          IS DR FULLY SEL
0430 0  70EF             MDX     SNDS1      NO
0431 0  C006             LD      SNSV       GET SENSE WD
0432 00 67000000   SNDS3 LDX  L3 0          RESTORE IX 3
0434 00 4C80041E         BSC  I  SNDSW      EXIT                 SX
                   *
                   *                CONSTANTS
                   *
0436    0000             BSS  E  0
0436 0  0700       SNS   DC      /0700      SENSE IOCC
0437 0  0000             DC      0
0438 0  0000       SNSV  DC      0          TEMP STORAGE
0439 0  0000             DC      0
                   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                   *
                   *                COMMON PRINT ROUTINE
                   *
                   *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
043A 0  0000       PRINT DC      0                               SE
043B 00 6E0004E1         STX  L2 FRMC8+1    SAVE IX 2
043D 00 6D0004DF         STX  L1 FRMC7+1    SAVE IX 1
043F 00 0C0001C2         XIO  L  RDBSW      READ DATA SWS
0441 00 C40001C8         LD   L  SWO        GET DATA SWS
0443 0  1802             SRA     2
0444 00 4C0404CE         BSC  L  FRMC4,E    BRANCH = BYPASS PR
0446 0  1010             SLA     16         CLEAR MSG WDS
0447 00 D40004F5         STO  L  MSG2
0449 00 D40004F6         STO  L  MSG3
044B 00 D40004F4         STO  L  MSG1
044D 00 D40004F8         STO  L  MSG
044F 00 D40004F7         STO  L  MSG4
0451 00 668004F1         LDX  I2 RID        IX 2 = RTN NO
```



```
0453 00 C60001D3         LD   L2 CMRTT      GET RTN ADRS
0455 00 D40004F2         STO  L  RAD        SAVE
0457 00 6680043A         LDX  I2 PRINT      IX 2 = ADRS OF CALL
0459 0  C200             LD    2 0          GET MSG ID
045A 00 D40004F0         STO  L  MID        SAVE
045C 0  C201             LD    2 1          GET FORM NO
045D 0  D003             STO     PR1+1
045E 00 6D0004F3         STX  L1 UNIT       SAVE DR NO
0460 00 66000000   PR1   LDX  L2 0          IX 2 = FORM NO
0462 00 C6000487         LD   L2 FRWC       GET 1443 WD CT
0464 00 D4000616         STO  L  PRWDC      SET
0466 00 94000684         S    L  ONE        SUB 1
0468 00 D40004AE         STO  L  STWC+1     SAVE
046A 00 C600048C         LD   L2 FRST       GET MSG WD CT
046C 00 D40004B0         STO  L  STWC+3     SAVE
046E 0  C010             LD      LOGX0      RESTORE RTN
046F 0  D042             STO     FRMC2+1
0470 0  C0F0             LD      PR1+1      GET FORM NO
0471 0  4810             BSC     -          IS IT NOT LINE 0
0472 0  700A             MDX     PR05       NO
0473 0  1001             SLA     1          CLEAR BIT 0
0474 0  1801             SRA     1
0475 0  D001             STO     PR04+1     SAVE
0476 00 66000000   PR04  LDX  L2 0          IX 2 = FORM NO
0478 0  C008             LD      LOGX2      SET FOR NOT LINE 0
0479 00 D40004B0         STO  L  STWC+3
047B 0  C004             LD      LOGX1
047C 0  D035             STO     FRMC2+1
047D 00 4E800482   PR05  BSC  I2 FORM       GO TO FORM
047F 0  04EE       LOGX0 DC      PID-1      LINE 0 CONSTANT
0480 0  04F2       LOGX1 DC      UNIT-1     NOT LINE 0 CONSTANT
0481 0  0005       LOGX2 DC      5          NOT LINE 0 WD CT
                   *
                   *                FORM ADDRESSES
                   *
0482 0  0000       FORM  DC      0
0483 0  0491             DC      FORM1
0484 0  049E             DC      FORM2
0485 0  049F             DC      FORM3
0486 0  04A3             DC      FORM4
0487 0  0000       FRWC  DC      0
0488 0  001A             DC      26         WD CT FORM 1
0489 0  000E             DC      14                    2
048A 0  0011             DC      17                    3
048B 0  0011             DC      17                    4
048C 0  0000       FRST  DC      0
048D 0  0009             DC      9          MSG LNGTH FORM 1
048E 0  0005             DC      5                         2
048F 0  0006             DC      6                         3
0490 0  0006             DC      6                         4
                   *
                   *
0491 00 C40006E2   FORM1 LD   L  PRPAT      GET EXPECTED DATA
0493 0  D060             STO     MSG1       SAVE
0494 00 C7000941         LD   L3 IOAA+8     GET DATA RECEIVED
0496 0  D05E             STO     MSG2       SAVE
0497 00 C4000685         LD   L  WDCT       GET WD NO IN ERROR
0499 0  D05C             STO     MSG3       SAVE
049A 00 C4000686         LD   L  MSG4T      GET TRK IN ERROR
049C 00 D40004F7         STO  L  MSG4       SET
049E 0  7007       FORM2 MDX     FORMC      GO TO COMMON RTN
                   *
                   *
049F 00 C4000438   FORM3 LD   L  SNSV       GET SENSE WORD
04A1 0  D052             STO     MSG1       SAVE
04A2 0  7003             MDX     FORMC      GO TO COMMON RTN
                   *
                   *
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04A3 00 C4000328    FORM4 LD   L  WRERR      GET NO OF RETRYS          8BD09510
04A5 0  D04E              STO     MSG1       SAVE                      8BD09520
                          *                                            8BD09530
                          *                                            8BD09540
                          *          COMMON ROUTINE                    8BD09550
                          *                                            8BD09560
04A6 00 6600001A    FORMC LDX  L2 26          IX 2 = LNGTH MSG          8BD09570
04A8 0  1010              SLA     16                                   8BD09580
04A9 00 D60004F8    FRMC1 STO  L2 MSGO-1      CLEAR MSG AREA            8BD09590
04AB 0  72FF              MDX     2 -1                                 8BD09600
04AC 0  70FC              MDX     FRMC1                                8BD09610
                          *                                            8BD09620
04AD 00 65000000    STWC  LDX  L1 0           SET IXING                 8BD09630
04AF 00 66000000          LDX  L2 0                                    8BD09640
04B1 00 C60004EE    FRMC2 LD   L2 PID-1       GET A WORD                8BD09650
04B3 00 D40005D6          STO  L  HEXWD       SET IN CONV RTN           8BD09660
04B5 00 440005B4          BSI  L  HEXCV       CONVERT TO HEX       SRC  8BD09670
04B7 00 CC0005DC          LDD  L  HEXCD       GET CONVERTED WD          8BD09680
04B9 00 D50004F8          STO  L1 MSGO-1      SET IN MSG                8BD09690
04BB 0  18D0              RTE     16          MOVE Q TO A               8BD09700
04BC 00 D50004F9          STO  L1 MSGO        SET IN MSG                8BD09710
04BE 0  71FD              MDX   1 -3          DECR IX 1                 8BD09720
04BF 0  1000              NOP                                          8BD09730
04C0 0  72FF              MDX   2 -1          DECR IX 2                 8BD09740
04C1 0  70EF              MDX     FRMC2       LOOP                      8BD09750
                          *                                            8BD09760
04C2 00 0C0001C2          XIO  L  RDBSW       READ DATA SWS             8BD09770
04C4 00 C40001CB          LD   L  SWO         GET SWS                   8BD09780
04C6 0  1009              SLA     9                                    8BD09790
04C7 0  4828              BSC     +Z          IS 1443 TO BE USED        8BD09800
04C8 0  7003              MDX     FRMC3       YES                       8BD09810
04C9 00 44000514          BSI  L  LOGC        GO TO TYPEWRITER     SRC  8BD09820
04CB 0  7002              MDX     FRMC4                                8BD09830
04CC 00 440005EE    FRMC3 BSI  L  PR43        GO TO 1443           SRC  8BD09840
04CE 00 0C0001C2    FRMC4 XIO  L  RDBSW       READ DATA SWS             8BD09850
04D0 00 C40001CB          LD   L  SWO         GET SWS                   8BD09860
04D2 0  1801              SRA     1                                    8BD09870
04D3 0  4804              BSC     E           IS HALT ON ERROR ON       8BD09880
04D4 0  700F              MDX     FRMC6       YES                       8BD09890
                          *                                            8BD09900
04D5 00 0C0001C2    FRMC5 XIO  L  RDBSW       READ DATA SWS             8BD09910
04D7 00 C40001CB          LD   L  SWO         GET SWS                   8BD09920
04D9 0  1803              SRA     3                                    8BD09930
04DA 0  4804              BSC     E           IS LOOP ON ERROR ON       8BD09940
04DB 0  700F              MDX     FRMC9       YES                       8BD09950
04DC 00 7402043A          MDX  L  PRINT,2     SET RETURN TO CONT        8BD09960
04DE 00 65000000    FRMC7 LDX  L1 0           RESTORE IX 1              8BD09970
04E0 00 66000000    FRMC8 LDX  L2 0           RESTORE IX 2              8BD09980
04E2 00 4C80043A          BSC  I  PRINT       EXIT                 SX   8BD09990
                          *                                            8BD10000
                          *          HALT ON ERROR SW IS ON            8BD10010
                          *                                            8BD10020
04E4 0  C00B        FRMC6 LD      MID         GET MSG ID                8BD10030
04E5 0  180C              SRA     12                                   8BD10040
04E6 0  F007              EOR     ERRR                                 8BD10050
04E7 0  4820              BSC     Z           IS THIS AN ERROR          8BD10060
04E8 0  70EC              MDX     FRMC5       NO                        8BD10070
04E9 0  300B        WAITB DC      /300B       ERROR WAIT                8BD10080
04EA 0  70EA              MDX     FRMC5                                8BD10090
                          *                                            8BD10100
                          *          LOOP ON ERROR SW IS ON            8BD10110
                          *                                            8BD10120
04EB 00 7403043A    FRMC9 MDX  L  PRINT,3     SET RETURN TO LOOP        8BD10130
04ED 0  70F0              MDX     FRMC7                                8BD10140
                          *                                            8BD10150
                          *          CONSTANTS                         8BD10160
                          *                                            8BD10170
04EE 0  000E        ERRR  DC      /000E       ERROR CK                  8BD10180
04EF 0  BD00        PID   DC      /BD00       PROGRAM ID
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04F0 0  0000        MID   DC      0           MESSAGE ID                8BD10190
04F1 0  0000        RID   DC      0           ROUTINE NUMBER            8BD10200
04F2 0  0000        RAD   DC      0           ROUTINE ADDRESS           8BD10210
04F3 0  0000        UNIT  DC      0           UNIT NUMBER               8BD10220
04F4 0  0000        MSG1  DC      0           MODIFIER1                 8BD10230
04F5 0  0000        MSG2  DC      0                 2                   8BD10240
04F6 0  0000        MSG3  DC      0                 3                   8BD10250
04F7 0  0000        MSG4  DC      0                 4                   8BD10260
                          *                                            8BD10270
                          *                                            8BD10280
                          *                OUTPUT MSG AREA             8BD10290
                          *                                            8BD10300
04F8 0  0000        MSG   DC      0           WD CT OR CAR RET          8BD10310
04F9 0  0000        MSGO  DC      0           OUTPUT MSG AREA           8BD10320
04FA    0019              BSS     25                                   8BD10330
0513 0  FFFF        TERM  DC      /FFFF       TERMINATOR                8BD10340
                          *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  8BD10350
                          *                                            8BD10360
                          *                ROUTINE TO CONVERT PRINTER  8BD10370
                          *                PACKED CODE TO PACKED TYPE  8BD10380
                          *                                            8BD10390
                          *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  8BD10400
0514 0  0000        LOGC  DC      0                                SE  8BD10410
0515 0  1010              SLA     16                                   8BD10420
0516 0  D039              STO     LOX00       CLEAR HALF WD SW          8BD10430
0517 0  C068              LD      PRSP        SET CARRIAGE RETURN       8BD10440
0518 00 D40004F8          STO  L  MSG                                  8BD10450
051A 0  692E              STX   1 LOGC7+1     SAVE IX 1                 8BD10460
051B 0  6A2F              STX   2 LOGC8+1     SAVE IX 2                 8BD10470
051C 0  6B30              STX   3 LOGC9+1     SAVE IX 3                 8BD10480
051D 00 670004F9          LDX  L3 MSGO        IX 3 = ADRS OF MSG        8BD10490
051F 0  C300        LOGC1 LD    3 0           GET WD TO CONVERT         8BD10500
0520 0  D030              STO     LOX02       SAVE                      8BD10510
0521 00 F4000513          EOR  L  TERM                                 8BD10520
0523 0  4818              BSC     +-          IS IT A TERM              8BD10530
0524 0  7021              MDX     LOGCO       YES                       8BD10540
0525 0  C02B        LOGC2 LD      LOX02       GET WD                    8BD10550
0526 0  180C              SRA     12          SAVE ZONE                 8BD10560
0527 0  D001              STO     LOGC3+1                               8BD10570
0528 00 65000000    LOGC3 LDX  L1 0           IX 1 = ZONE               8BD10580
052A 00 C5000553          LD   L1 LOX04       GET ADRS OF ZONE          8BD10590
052C 0  D007              STO     LOGC5+1     SAVE                      8BD10600
052D 0  C023              LD      LOX02       GET WD TO CONVERT         8BD10610
052E 0  1004              SLA     4           SAVE POSITION             8BD10620
052F 0  180C              SRA     12                                    8BD10630
0530 0  D001              STO     LOGC4+1                               8BD10640
0531 00 66000000    LOGC4 LDX  L2 0           IX 2 = POSITION           8BD10650
0533 00 C6000000    LOGC5 LD   L2 0           GET TYPEWRITER CODE       8BD10660
0535 00 74000550          MDX  L  LOX00,0     IS THIS FIRST HALF        8BD10670
0537 0  7007              MDX     LOGC6       NO                        8BD10680
0538 0  D019              STO     LOX03       YES                       8BD10690
0539 00 74010550          MDX  L  LOX00,1     SET TO SECOND HALF        8BD10700
053B 0  C015              LD      LOX02       GET WD TO CONVERT         8BD10710
053C 0  1008              SLA     8           SET TO SECOND HALF        8BD10720
053D 0  D013              STO     LOX02       SAVE                      8BD10730
053E 0  70E6              MDX     LOGC2       GO CONVERT                8BD10740
                          *                                            8BD10750
                          *          SECOND HALF WORD                  8BD10760
                          *                                            8BD10770
053F 0  1808        LOGC6 SRA     8           MOVE TO SECOND HALF       8BD10780
0540 0  F011              EOR     LOX03       COMBINE WITH FIRST        8BD10790
0541 0  D300        LOGC8 STO   3 0           SET IN MSG                8BD10800
0542 0  1010              SLA     16                                    8BD10810
0543 0  D00C              STO     LOX00       SET TO FIRST HALF         8BD10820
0544 0  7301              MDX   3 1           IX 3 = NEXT WD            8BD10830
0545 0  70D9              MDX     LOGC1       CONVERT NEXT WD           8BD10840
                          *                                            8BD10850
                          *          FOUND A TERMINATOR                8BD10860
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                        *
0546 00 4C000584        LOGC0 BSC  L  LOG00      GO PRINT
0548 00 65000000        LOGC7 LDX  L1 0          RESTORE IX 1
054A 00 66000000        LOGC8 LDX  L2 0          RESTORE IX 2
054C 00 67000000        LOGC9 LDX  L3 0          RESTORE IX 3
054E 00 4C800514              BSC  I  LOGC       EXIT                 SX
                        *
                        *                CONSTANTS
                        *
0550 0  0000            LOX00 DC      0          HALF WORD SW
0551 0  0000            LOX02 DC      0          TEMP STORAGE FOR
                        *                        WORD TO CONVERT
0552 0  0000            LOX03 DC      0          TEMP STORAGE FOR
                        *                        TYPEWRITER CODE
0553 0  0559            LOX04 DC      PR00       ADRS OF ZONE 0
0554 0  0562                  DC      PR01-2     ADRS OF ZONE 1
0555 0  056D                  DC      PR02       ADRS OF ZONE 2
0556 0  0579                  DC      PR03-1     ADRS OF ZONE 3
                        *
                        *
                        *
0557 0  C02B            LOGCA LD      PRSP       GET CARRIAGE RETURN
0558 0  70E8                  MDX     LOGC8
                        *
                        *                PRINTER CODE TO TYPEWRITER
                        *                CODE CONVERSION TABLE
                        *
0559 0  2100            PR00  DC      /2100      BLANK
055A 0  FC00                  DC      /FC00      1
055B 0  D800                  DC      /D800      2
055C 0  DC00                  DC      /DC00      3
055D 0  F000                  DC      /F000      4
055E 0  F400                  DC      /F400      5
055F 0  D000                  DC      /D000      6
0560 0  D400                  DC      /D400      7
0561 0  E400                  DC      /E400      8
0562 0  E000                  DC      /E000      9
0563 0  C400                  DC      /C400      0
0564 0  9A00            PR01  DC      /9A00      S
0565 0  9E00                  DC      /9E00      T
0566 0  B200                  DC      /B200      U
0567 0  B600                  DC      /B600      V
0568 0  9200                  DC      /9200      W
0569 0  9600                  DC      /9600      X
056A 0  A600                  DC      /A600      Y
056B 0  A200                  DC      /A200      Z
056C 0  2100                  DC      /2100      BLANK
056D 0  BE00            PR02  DC      /BE00      -
056E 0  7E00                  DC      /7E00      J
056F 0  5A00                  DC      /5A00      K
0570 0  5E00                  DC      /5E00      L
0571 0  7200                  DC      /7200      M
0572 0  7600                  DC      /7600      N
0573 0  5200                  DC      /5200      O
0574 0  5600                  DC      /5600      P
0575 0  6600                  DC      /6600      Q
0576 0  6200                  DC      /6200      R
0577 0  4200                  DC      /4200
0578 0  4000                  DC      /4000      $
0579 0  D600                  DC      /D600      *
057A 0  3E00            PR03  DC      /3E00      A
057B 0  1A00                  DC      /1A00      B
057C 0  1E00                  DC      /1E00      C
057D 0  3200                  DC      /3200      D
057E 0  3600                  DC      /3600      E
057F 0  1200                  DC      /1200      F
0580 0  1600                  DC      /1600      G
0581 0  2600                  DC      /2600      H
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0582 0  2200                  DC      /2200      I
0583 0  8121            PRSP  DC      /8121      CARRIAGE RETURN
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                        *
                        *                TYPEWRITER ROUTINE
                        *
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
0584 0  082B            LOG00 XIO     SENSE      SENSE FOR READY
0585 0  180A                  SRA     10
0586 0  4804                  BSC     E          IS TYPEWRITER READY
                        *
0587 0  300C            WAITC DC      /300C      NOT READY
0588 00 0C00060C              XIO  L  MASK0      MASK ALL LVLS
058A 00 0C00060E              XIO  L  MASK1
058C 0  1010                  SLA     16
058D 0  D025                  STO     WRDSW      CLEAR HALF WD SW
058E 0  6300                  LDX   3 0
                        *
058F 00 C70004F8        LOG01 LD   L3 MSG        GET PRINT WD
0591 0  D020                  STO     IOARA      SET IN OUTPUT AREA
                        *
0592 00 F4000513              EOR  L  TERM       CK FOR TERMINATOR
0594 00 4C1805A8              BSC  L  LOG02,+-   EXIT
                        *
                        *                OUTPUT A CHARACTER
                        *
0596 0  0817            XIOWR XIO     WRITE      WRITE CHARACTER
                        *
0597 0  0818            XIOSN XIO     SENSE      CHECK BUSY
                        *
0598 0  180B                  SRA     11
0599 0  4804                  BSC     E          IS TYPEWRITER BUSY
059A 0  70FC                  MDX     XIOSN      BUSY
                        *
                        *
                        *                CHECK FOR 1ST 1/2 WORD
                        *
059B 0  C017                  LD      WRDSW      GET 1/2 WORD SWITCH
059C 0  4804                  BSC     E
059D 0  7006                  MDX     LOG03      GO SETUP FOR NEXT WD
                        *
                        *
                        *                SET UP FOR 2ND 1/2 WORD
                        *
059E 0  C013                  LD      IOARA      GET WORD IN IO AREA
059F 0  1008                  SLA     8          POSITION 2ND 1/2 WD
05A0 0  D011                  STO     IOARA
05A1 00 740105B3              MDX  L  WRDSW,1    BUMP WORD SWITCH
05A3 0  70F2                  MDX     XIOWR      GO WRITE 2ND 1/2 WD
                        *
                        *                SET UP FOR NEXT WORD
                        *
05A4 0  7301            LOG03 MDX   3 1          NEXT WORD INDEX
05A5 00 740105B3              MDX  L  WRDSW,1    BUMP WORD SW
05A7 0  70E7                  MDX     LOG01      GO GET NEXT WORD
                        *
                        *
05A8 00 0C000610        LOG02 XIO  L  UNMK3      UNMASK ALL LVLS
05AA 00 0C000612              XIO  L  UNMK4
05AC 00 4C000548              BSC  L  LOGC7      EXIT                 SX
                        *
                        *                CONSTANTS
                        *
05AE    0000                  BSS  E  0
05AE 0  05B2            WRITE DC      IOARA      WRITE IOCC
05AF 0  0902                  DC      /0902
05B0 0  0000            SENSE DC      /0000      SENSE IOCC
05B1 0  0F03                  DC      /0F03
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05B2 0  0000        IOARA DC      0          OUTPUT AREA                    8BD12230
05B3 0  0000        WRDSW DC      0          HALF WORD SW                   8BD12240
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    8BD12250
                    *                                                      8BD12260
                    *                HEXADECIMAL CONVERSION                8BD12270
                    *                                                      8BD12280
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    8BD12290
05B4 0  0000        HEXCV DC      0                                   SE   8BD12300
05B5 00 6E0005D1          STX   L2 HEXC2+1    SAVE IX 2                      8BD12310
05B7 00 6F0005D3          STX   L3 HEXC3+1    SAVE IX 3                      8BD12320
05B9 0  6204              LDX    2 4          CONVERSION INDEX               8BD12330
05BA 0  C01B              LD       HEXWD      GET WORD TO CONVERT            8BD12340
05BB 0  1890              SRT      16         SET IN Q                       8BD12350
05BC 0  1010              SLA      16         CLEAR A                        8BD12360
05BD 0  1084        HEXC1 SLT      4          GET CHARACTER                  8BD12370
05BE 0  D001              STO      HEXC1+3                                   8BD12380
05BF 00 67000000          LDX   L3 0          SET CODE TABLE INDEX           8BD12390
                    *                                                      8BD12400
05C1 00 C70005DE          LD    L3 CODEH      GET CHARACTER                  8BD12410
05C3 00 D60005D6          STO   L2 HEX00-1    SAVE                           8BD12420
05C5 0  1010              SLA      16                                        8BD12430
                    *                                                      8BD12440
05C6 0  72FF              MDX    2 -1         CHECK IF DONE                  8BD12450
05C7 0  70F5              MDX      HEXC1                                     8BD12460
                    *                                                      8BD12470
05C8 0  C011              LD       HEX00+3    PACK CODED WORDS               8BD12480
05C9 0  1008              SLA      8                                         8BD12490
05CA 0  E80E              OR       HEX00+2                                   8BD12500
05CB 0  D010              STO      HEXCD                                     8BD12510
05CC 0  C00B              LD       HEX00+1                                   8BD12520
05CD 0  1008              SLA      8                                         8BD12530
05CE 0  E808              OR       HEX00                                     8BD12540
05CF 0  D00D              STO      HEXCD+1                                   8BD12550
05D0 00 66000000    HEXC2 LDX   L2 0          RESTORE IX 2                   8BD12560
05D2 00 67000000    HEXC3 LDX   L3 0          RESTORE IX 3                   8BD12570
05D4 00 4C800584          BSC   I  HEXCV      RETURN TO USER             SX  8BD12580
                    *                                                      8BD12590
                    *                CONSTANTS                             8BD12600
                    *                                                      8BD12610
05D6 0  0000        HEXWD DC      0          WORD TO CONVERT                8BD12620
05D7 0  0000        HEX00 DC      0          *                              8BD12630
05D8 0  0000              DC      0          * UNPACKED CODED               8BD12640
05D9 0  0000              DC      0          * WORD                         8BD12650
05DA 0  0000              DC      0          *                              8BD12660
                    *                                                      8BD12670
05DC    0000              BSS   E 0                                         8BD12680
                    *                                                      8BD12690
05DC 0  0000        HEXCD DC      0          * PACKED CODED WORD            8BD12700
05DD 0  0000              DC      0          *                              8BD12710
                    *                                                      8BD12720
                    *             CONVERSION TABLE                         8BD12730
                    *                                                      8BD12740
05DE 0  000A        CODEH DC      /000A    0                               8BD12750
05DF 0  0001              DC      /0001    1                               8BD12760
05E0 0  0002              DC      /0002    2                               8BD12770
05E1 0  0003              DC      /0003    3                               8BD12780
05E2 0  0004              DC      /0004    4                               8BD12790
05E3 0  0005              DC      /0005    5                               8BD12800
05E4 0  0006              DC      /0006    6                               8BD12810
05E5 0  0007              DC      /0007    7                               8BD12820
05E6 0  0008              DC      /0008    8                               8BD12830
05E7 0  0009              DC      /0009    9                               8BD12840
05E8 0  0031              DC      /0031    A                               8BD12850
05E9 0  0032              DC      /0032    B                               8BD12860
05EA 0  0033              DC      /0033    C                               8BD12870
05EB 0  0034              DC      /0034    D                               8BD12880
05EC 0  0035              DC      /0035    E                               8BD12890
05ED 0  0036              DC      /0036    F                               8BD12900
```



```
                    *                                                      8BD12910
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    8BD12920
                    *                                                      8BD12930
                    *                PRINT ON 1443 PRINTER                 8BD12940
                    *                                                      8BD12950
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    8BD12960
05EE 0  0000        PR43  DC      0                                   SE   8BD12970
05EF 0  C01A              LD       SNSPR      GET SENSE IOCC                 8BD12980
05F0 0  D01A              STO      SNSPR+1    SET                            8BD12990
05F1 0  C024              LD       PRWDC                                     8BD13000
05F2 00 D40004F8          STO   L  MSG        SET WD CT                      8BD13010
05F4 0  0817              XIO      MASK0      MASK ALL LEVELS                8BD13020
05F5 0  0818              XIO      MASK1                                     8BD13030
                    *                                                      8BD13040
05F6 0  0813              XIO      SNSPR      CK FOR PRINTER READY           8BD13050
05F7 0  4804              BSC      E                                         8BD13060
05F8 0  300D        WAITD DC       /300D      PRINTER IS NOT READY           8BD13070
05F9 0  081A              XIO      WRPR       WRITE                          8BD13080
                    *                                                      8BD13090
05FA 0  080F        PR431 XIO      SNSPR      WAIT FOR NOT COMPLTE           8BD13100
05FB 0  1002              SLA      2                                         8BD13110
05FC 0  4810              BSC      -          IS PRINTER COMPLETE            8BD13120
05FD 0  70FC              MDX      PR431      NO                             8BD13130
                    *                                                      8BD13140
05FE 0  C00C              LD       SNSPR+1    GET IOCC                       8BD13150
05FF 00 F4000684          EOR   L  ONE        SET BIT 15                     8BD13160
0601 0  D009              STO      SNSPR+1    SAVE                           8BD13170
                    *                                                      8BD13180
0602 0  0807        PR432 XIO      SNSPR      SENSE                          8BD13190
0603 0  1801              SRA      1                                         8BD13200
0604 0  4804              BSC      E          IS PRINTER BUSY                8BD13210
0605 0  70FC              MDX      PR432      YES                            8BD13220
                    *                                                      8BD13230
0606 0  0809              XIO      UNMK3      UNMASK ALL LEVELS              8BD13240
0607 0  080A              XIO      UNMK4                                     8BD13250
                    *                                                      8BD13260
0608 00 4C8005EE          BSC   I  PR43       EXIT                       SX  8BD13270
                    *                                                      8BD13280
                    *                CONSTANTS                             8BD13290
                    *                                                      8BD13300
060A    0000              BSS   E  0                                        8BD13310
060A 0  3700        SNSPR DC       /3700      SENSE IOCC                     8BD13320
060B 0  0000              DC       0                                         8BD13330
                    *                                                      8BD13340
060C 0  FFFF        MASK0 DC       /FFFF      MASK IOCCS                     8BD13350
060D 0  0480              DC       /0480                                     8BD13360
060E 0  FFFF        MASK1 DC       /FFFF                                     8BD13370
060F 0  0481              DC       /0481                                     8BD13380
                    *                                                      8BD13390
0610 0  0000        UNMK3 DC       0          UNMASK IOCCS                   8BD13400
0611 0  0480              DC       /0480                                     8BD13410
0612 0  0000        UNMK4 DC       0                                         8BD13420
0613 0  0481              DC       /0481                                     8BD13430
                    *                                                      8BD13440
0614 0  04F8        WRPR  DC       MSG        WRITE IOCC                     8BD13450
0615 0  3500              DC       /3500                                     8BD13460
0616 0  0017        PRWDC DC       23         WORD COUNT                     8BD13470
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    8BD13480
                    *                                                      8BD13490
                    *             DESELECT DRIVE ROUTINE                   8BD13500
                    *                                                      8BD13510
                    *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX    8BD13520
0617 0  0000        DSLT  DC       0                                   SE   8BD13530
0618 0  C009              LD       DSL        GET MOD                        8BD13540
0619 00 F5000188          EOR   L1 TAPE0      SET IOCC                       8BD13550
061B 0  D007              STO      DSL+1      SAVE                           8BD13560
061C 0  0805              XIO      DSL        SENSE DRIVE                    8BD13570
061D 0  1000              NOP                                               8BD13580
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061E 0  1000            NOP
061F 0  0802            XIO     DSL         SENSE DEVICE
0620 00 4C800617        BSC  I  DSLT        EXIT                        SX
                        *
                        *                   CONSTANTS
                        *
0622    0000            BSS  E  0
0622 0  0720            DSL     DC      /0720       SENSE IOCC
0623 0  0000            DC      0
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                        *
                        *                   TESTING ROUTINES 1 THROUGH 7
                        *
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
0624 0  6B07            CMRT    STX   3 CMRT3+1     SAVE IX 3
0625 0  1010                    SLA     16          ZERO A REG
0626 0  D05C                    STO     OECTR       CLEAR ODD-EVEN CTR
0627 00 6600FFF8                LDX   L2 -8         IX 2 = NO WDS
0629 00 4400028E        CMRTO   BSI   L  SP7F       GO SET I/O AREA         SRC
062B 00 67000000        CMRT3   LDX   L3 0          RESTORE IX 3
062D 0  C055                    LD      OECTR       GET ODD EVEN CTR
062E 00 8400O684                A     L ONE         ADD ONE
0630 0  D052                    STO     OECTR       SAVE
0631 0  4804                    BSC     E           IS CTR EVEN
0632 0  702F                    MDX     CMRT2       NO
0633 00 C7000679                LD    L3 TR1-1      GET BAD TRACK CONST
0635 00 F6000941        CMRT1   EOR   L2 IOAA+8     SET
0637 G0 D6000941                STO   L2 IOAA+8
0639 0  6B07                    STX     3 CMRTF+1   SAVE IX 3
063A 00 440002D4                BSI   L  WRT        GO WRITE                SRC
                        *
063C 00 440003C4                BSI   L  BSP        GO BACKSPACE            SRC
063E 00 440003C4                BSI   L  BSP        GO BACKSPACE            SRC
0640 00 67000000        CMRTF   LDX   L3 0          RESTORE IX 3
0642 00 4400032C                BSI   L  RD         GO READ                 SRC
0644 00 440003C4                BSI   L  BSP        GO BACKSPACE            SRC
                        *
                        *                   CHECK DATA
                        *
0646 00 C4000684        CMRT6   LD    L  ONE        GET 1
0648 0  D03C                    STO     WDCT        SET AS WD CT
0649 00 6F000686                STX   L3 MSG4T      SET TRK
064B 0  6B0E                    STX     3 CMRT8+1   SAVE IX 3
064C 0  C03A                    LD      LNE0        SET LINE 0
064D 0  D01F                    STO     CMRT9
064E 0  63F8                    LDX     3 -8        IX 3 = NO WDS
064F 00 C7000941        CMRTC   LD    L3 IOAA+8     GET A DATA WD
0651 00 F40002A3                EOR   L  P7F
0653 0  4820                    BSC     Z           IS WD CORRECT
0654 0  7011                    MDX     CMRTB       NO
0655 00 74010685        CMRTD   MDX   L  WDCT,1     INCR WD CT
0657 0  7301                    MDX     3 1         DECR IX 3
0658 0  70F6                    MDX     CMRTC       LOOP
0659 00 o7000000        CMRT8   LDX   L3 0          RESTORE IX 3
                        *
                        *                   CHECK FOR ROUTINE COMPLETE
                        *
065B 0  C027            CMRTE   LD      OECTR       GET ODD EVEN CTR
065C 0  4804                    BSC     E           IS IT EVEN
065D 0  70CB                    MDX     CMRTO       NO
065E 0  7201                    MDX     2 1         DECR IX 2
065F 0  70C9                    MDX     CMRTO       CONTINUE RTN
0660 00 4C0001EA        CMRT5   BSC   L  RETRN       RTN EXIT
                        *
                        *                   ODD EVEN CTR IS ODD
                        *
0662 00 C7000679        CMRT2   LD    L3 TR1-1      GET BAD TR CONSTANT
0664 0  1008                    SLA     8           MOVE TO FIRST CHAR
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8BD13590
8BD13600
8BD13610
8BD13620
8BD13630
8BD13640
8BD13650
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8BD13670
8BD13680
8BD13690
8BD13700
8BD13710
8BD13720
8BD13730
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8BD13780
8BD13790
8BD13800
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8BD14050
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8BD14070
8BD14080
8BD14090
8BD14100
8BD14110
8BD14120
8BD14130
8BD14140
8BD14150
8BD14160
8BD14170
8BD14180
8BD14190
8BD14200
8BD14210
8BD14220
8BD14230
8BD14240
8BD14250
8BD14260
```



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0665 0  70CF            MDX     CMRT1
                        *
                        *                   DATA NOT CORRECT
                        *
0666 00 C40002A3        CMRTB   LD    L  P7F        GET EXPECTED
0668 00 D40006E2                STO   L  PRPAT      SAVE
066A 00 4400043A                BSI   L  PRINT      GO PRINT                SRC
066C 0  E001                    DC      /E001       ERROR 1
066D 0  0001            CMRT9   DC      /0001       FORM 1
066E 0  7001                    MDX     CMRT7       CONTINUE
066F 0  70D0                    MDX     CMRTF       LOOP ON ERROR
0670 0  C017            CMRT7   LD      LNE1        SET NOT LINE 0
0671 0  D0FB                    STO     CMRT9
0672 00 0C0001C2                XIO   L  RDBSW      READ DATA SWS
0674 00 C40001CB                LD    L  SW0        GET SWS
0676 0  1007                    SLA     7
0677 0  4810                    BSC     -           IS PRINT ONLY 1 ON
0678 0  70DC                    MDX     CMRTD       NO
0679 0  70DF                    MDX     CMRT8       YES
                        *
                        *                   CONSTANTS
                        *
067A 0  0040            TR1     DC      /0040       CHARACTER-TRACK 1
067B 0  0020            TR2     DC      /0020                       2
067C 0  0010            TR3     DC      /0010                       3
067D 0  0008            TR4     DC      /0008                       4
067E 0  0004            TR5     DC      /0004                       5
067F 0  0002            TR6     DC      /0002                       6
0680 0  0001            TR7     DC      /0001                       7
0681 0  BC0F            DSWEX   DC      /BC0F       ERROR EXPECTED
0682 0  BF9F            DSWCR   DC      /BF9F       CORRECTED EXPECTED
0683 0  0000            OECTR   DC      0           ODD-EVEN CTR
0684 0  0001            ONE     DC      1           CONSTANT 1
0685 0  0000            WDCT    DC      0           WORD IN ERROR COUNT
0686 0  0000            MSG4T   DC      0           TRACK IN ERROR STORE
0687 0  0001            LNE0    DC      /0001
0688 0  8001            LNE1    DC      /8001
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                        *
                        *                   TESTING ROUTINE 8
                        *
                        *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
0689 0  6B08            RTN8    STX   3 RTN8B+1     SAVE IX 3
068A 0  1010                    SLA     16          CLEAR ODD EVEN CTR
068B 00 D4000683                STO   L  OECTR
068D 00 6600FFF8                LDX   L2 -8         IX 2 = NUMBER WORDS
068F 00 440002A5        RTN8A   BSI   L  SP8F       GO SET I/O AREA         SRC
0691 00 67000000        RTN8B   LDX   L3 0          RESTORE IX 3
0693 00 C4000683                LD    L  OECTR      GET ODD/EVEN CTR
0695 00 84000684                A     L  ONE        ADD 1
0697 00 D4000683                STO   L  OECTR      SAVE
0699 0  4804                    BSC     E           IS CTR EVEN
069A 0  702E                    MDX     RTN8M       NO
0698 0  C044                    LD      TR0         GET BAD TR CONSTANT
069C 00 F6000941        RTN8C   EOR   L2 IOAA+8     SET BAD CHARACTER
069E 00 D6000941                STO   L2 IOAA+8
                        *
06A0 00 440002D4                BSI   L  WRT        GO WRITE                SRC
                        *
06A2 00 440003C4                BSI   L  BSP        GO BACKSPACE            SRC
06A4 00 440003C4                BSI   L  BSP        GO BACKSPACE            SRC
                        *
06A6 00 4400032C        RTN8D   BSI   L  RD         GO READ                 SRC
06A8 00 440003C4                BSI   L  BSP        GO BACKSPACE            SRC
                        *
                        *                   CHECK DATA
                        *
06AA 00 C4000684        RTN8E   LD    L  ONE        GET 1
```

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8BD14270
8BD14280
8BD14290
8BD14300
8BD14310
8BD14320
8BD14330
8BD14340
8BD14350
8BD14360
8BD14370
8BJ14380
8BD14390
8BD14400
8BD14410
8BD14420
8BD14430
8BD14440
8BD14450
8BD14460
8BD14470
8BD14480
8BD14490
8BD14500
8BD14510
8BD14520
8BD14530
8BD14540
8BD14550
8BD14560
8BD14570
8BD14580
8BD14590
8BD14600
86D14610
8BD14620
8BD14630
8BD14640
8BD14650
8BD14660
8BD14670
8BD14680
8BD14690
8BD14700
8BD14710
8BD14720
8BD14730
8BD14740
8BD14750
8BD14760
8BD14770
8BD14780
8BD147.0
8BD14800
8BD14810
8BD14820
8BD14830
8BD14840
8BD14850
8BD14860
8BD14870
8BD14880
8BD14890
8BD14900
8BD14910
8BD14920
8BD14930
8BD14940
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06AC 00 D4000685          STO  L  WDCT        SET AS WD CT                8BD14950
06AE 0  1010              SLA     16          CLEAR A REG                 8BD14960
06AF 00 D4000686          STO  L  MSG4T       SAVE                        8BD14970
06B1 00 C4000687          LD   L  LNE0        SET LINE 0                  8BD14980
06B3 0  D01E              STO     RTN8Q                                   8BD14990
06B4 0  6B0B              STX  3  RTN8J+1     SAVE IX 3                   8BD15000
06B5 0  63F8              LDX  3  -8          IX 3 = NUMBER WORDS         8BD15010
06B6 00 C7000941  RTN8H   LD   L3 IOAA+8      GET A DATA WD               8BD15020
06B8 0  F028              EOR     P8F         IS WD CORRECT               8BD15030
06B9 0  4820              BSC     Z                                       8BD15040
06BA 0  7011              MDX     RTN8N       NO                          8BD15050
06BB 00 74010685  RTN8F   MDX  L  WDCT,1      INCR WD CT                  8BD15060
06BD 0  7301              MDX  3  1           DECR IX 3                   8BD15070
06BE 0  70F7              MDX     RTN8H       LOOP                        8BD15080
06BF 00 67000000  RTN8J   LDX  L3 0           RESTORE IX 3                8BD15090
                          *                                               8BD15100
                          *                   CHECK FOR ROUTINE COMPLETE  8BD15110
                          *                                               8BD15120
06C1 00 C4000683  RTN8K   LD   L  OECTR       GET ODD EVEN CTR            8BD15130
06C3 0  4804              BSC     E           IS IT EVEN                  8BD15140
06C4 0  70CA              MDX     RTN8A       NO                          8BD15150
06C5 0  7201              MDX  2  1           DECR IX 2                   8BD15160
06C6 0  70C8              MDX     RTN8A       CONTINUE RTN                8BD15170
06C7 00 4C0001EA  RTN8L   BSC  L  RETRN       ROUTINE COMPLETE            8BD15180
                          *                                               8BD15190
                          *                   ODD-EVEN CTR IS ODD         8BD15200
                          *                                               8BD15210
06C9 0  C016              LD      TR0         GET BAD TR CONSTANT         8BD15220
06CA 0  1008              SLA     8           MOVE TO FIRST CHAR          8BD15230
06CB 0  70D0              MDX     RTN8C                                   8BD15240
                          *                                               8BD15250
                          *                   DATA IS NOT CORRECT         8BD15260
                          *                                               8BD15270
06CC 00 C40006E1  RTN8N   LD   L  P8F         GET PATTERN                 8BD15280
06CE 0  D013              STO     PRPAT       SET FOR PRINT               8BD15290
06CF 00 4400043A          BSI  L  PRINT       PRINT BAD DATA              8BD15300
06D1 0  E001              DC      /E001       ERROR 1                     8BD15310
06D2 0  0001      RTN8Q   DC      /0001       FORM 1                      8BD15320
06D3 0  7001              MDX     RTN8P       CONTINUE                    8BD15330
06D4 0  70D1              MDX     RTN8D       LOOP ON ERROR               8BD15340
06D5 00 0C0001C2  RTN8P   XIO  L  RDBSW       READ DATA SWS               8BD15350
06D7 00 C4000688          LD   L  LNE1        SET NOT LINE 0              8BD15360
06D9 0  D0F8              STO     RTN8Q                                   8BD15370
06DA 00 C40001CB          LD   L  SW0         GET SWS                     8BD15380
06DC 0  1007              SLA     7                                       8BD15390
06DD 0  4810              BSC     -           PRINT ONLY FIRST            8BD15400
06DE 0  70DC              MDX     RTN8F       NO                          8BD15410
06DF 0  70DF              MDX     RTN8J       YES                         8BD15420
                          *                                               8BD15430
                          *                   CONSTANTS                   8BD15440
                          *                                               8BD15450
06E0 0  0080      TR0     DC      /0080       BAD TR CONSTANT             8BD15460
06E1 0  8F8F      P8F     DC      /8F8F       PATTERN                     8BD15470
06E2 0  0000      PRPAT   DC      0           PATTERN TO PRINT            8BD15480
                          *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  8BD15490
                          *                                               8BD15500
                          *                   TESTING ROUTINE 9           8BD15510
                          *                                               8BD15520
                          *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  8BD15530
06E3 0  6208      RTN9    LDX  2  8           IX 2 = NO TRACKS            8BD15540
06E4 0  6308      RTN90   LDX  3  8                                       8BD15550
06E5 0  C068      RTN9J   LD      P8F70       GET PATTERN                 8BD15560
06E6 00 D7000938          STO  L3 IOAA-1      SET IN I/O AREA             8BD15570
06E8 0  73FF              MDX  3  -1          DECR IX 3                   8BD15580
06E9 0  70F8              MDX     RTN9J                                   8BD15590
06EA 00 67000131          LDX  L3 305         IX 3 = 305 CHARACTER        8BD15600
06EC 0  1010              SLA     16          CLEAR A REG                 8BD15610
06ED 00 D7000940  RTN9K   STO  L3 IOAA+7      SET IN I/O AREA             8BD15620
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06EF 0  73FF              MDX  3  -1          DECR IX 3                   8BD15630
06F0 0  70FC              MDX     RTN9K       LOOP                        8BD15640
06F1 0  C05D              LD      CRCSP       GET 00D5                    8BD15650
06F2 00 D4000942          STO  L  IOAA+9      SET AS CRC CHARACTER        8BD15660
06F4 00 D4000944          STO  L  IOAA+11     SET AS LRC CHARACTER        8BD15670
06F6 0  6308              LDX  3  8                                       8BD15680
06F7 00 C7000938  RTN9A   LD   L3 IOA         GET A DATA WD               8BD15690
06F9 00 F6000745          EOR  L2 TRKA-1      SET DEAD TRACK              8BD15700
06FB 00 D7000938          STO  L3 IOA         STORE                       8BD15710
06FD 0  73FF              MDX  3  -1          DECR IX 3                   8BD15720
06FE 0  70F8              MDX     RTN9A       LOOP                        8BD15730
06FF 00 C4000942          LD   L  IOAA+9      GET CRC CHARACTER           8BD15740
0701 00 F600073D          EOR  L2 CRCA-1      SET DEAD TRACK              8BD15750
0703 00 D4000942          STO  L  IOAA+9      SET AS CRC CHARACTER        8BD15760
0705 00 D4000944          STO  L  IOAA+11     SET AS LRC CHARACTER        8BD15770
                          *                                               8BD15780
0707 00 440002D4          BSI  L  WRT         GO WRITE                SRC 8BD15790
                          *                                               8BD15800
0709 00 440003C4          BSI  L  BSP         GO BACKSPACE            SRC 8BD15810
070B 00 440003C4          BSI  L  BSP         GO BACKSPACE            SRC 8BD15820
                          *                                               8BD15830
070D 00 4400032C  RTN9B   BSI  L  RD          GO READ                 SRC 8BD15840
070F 00 440003C4          BSI  L  BSP         GO BACKSPACE            SRC 8BD15850
                          *                                               8BD15860
                          *                   CHECK DATA                  8BD15870
                          *                                               8BD15880
0711 0  63F8              LDX  3  -8          IX 3 = NUMBER WDS           8BD15890
0712 00 C4000684          LD   L  ONE         SET WD CT = 1               8BD15900
0714 00 D4000685          STO  L  WDCT                                    8BD15910
0716 00 C600074F          LD   L2 TRKMS-1     GET TRK IN ERROR            8BD15920
0718 00 D4000686          STO  L  MSG4T       SAVE                        8BD15930
071A 00 C4000687          LD   L  LNE0        SET LINE 0                  8BD15940
071C 0  D013              STO     RTN9Q                                   8BD15950
071D 00 C7000941  RTN9C   LD   L3 IOAA+8      GET A DATA WD               8BD15960
071F 0  F02E              EOR     P8F70                                   8BD15970
0720 0  4820              BSC     Z           IS IT CORRECT               8BD15980
0721 0  7008              MDX     RTN9F       NO                          8BD15990
0722 00 74010685  RTN9D   MDX  L  WDCT,1      INCR WD CT                  8BD16000
0724 0  7301              MDX  3  1           DECR IX 3                   8BD16010
0725 0  70F7              MDX     RTN9C       LOOP                        8BD16020
0726 0  72FF      RTN9E   MDX  2  -1          IS RTN COMPLETE             8BD16030
0727 0  70BC              MDX     RTN90       NO                          8BD16040
0728 00 4C0001EA          BSC  L  RETRN       YES                         8BD16050
                          *                                               8BD16060
                          *                   DATA IS INCORRECT           8BD16070
                          *                                               8BD16080
072A 0  C023      RTN9F   LD      P8F70       GET PATTERN                 8BD16090
072B 00 D40006E2          STO  L  PRPAT       SET FOR PRINT               8BD16100
072D 00 4400043A          BSI  L  PRINT       PRINT BAD DATA              8BD16110
072F 0  E001              DC      /E001       ERROR 1                     8BD16120
0730 0  0001      RTN9Q   DC      /0001       FORM 1                      8BD16130
0731 0  7001              MDX     RTN9H       CONTINUE                    8BD16140
0732 0  70DA              MDX     RTN9B       LOOP ON ERROR               8BD16150
0733 00 0C0001C2  RTN9H   XIO  L  RDBSW       READ DATA SWS               8BD16160
0735 00 C4000688          LD   L  LNE1        SET NOT LINE 0              8BD16170
0737 0  D0F8              STO     RTN9Q                                   8BD16180
0738 00 C40001CB          LD   L  SW0         GET SWS                     8BD16190
073A 0  1007              SLA     7                                       8BD16200
073B 0  4810              BSC     -           PRINT ONLY FIRST            8BD16210
073C 0  70E5              MDX     RTN9D       NO                          8BD16220
073D 0  70E8              MDX     RTN9E       YES                         8BD16230
                          *                                               8BD16240
                          *                   CONSTANTS                   8BD16250
                          *                                               8BD16260
073E 0  0001      CRCA    DC      /0001       CRC CNST-TRK 7              8BD16270
073F 0  0000              DC      /0000                    6              8BD16280
0740 0  0004              DC      /0004                    5              8BD16290
0741 0  0000              DC      /0000                    4              8BD16300
```

```
0742 0  0000           DC     /0000                     3   8BD16310
0743 0  0020           DC     /0020                     2   8BD16320
0744 0  0000           DC     /0000                     1   8BD16330
0745 0  0000           DC     /0000                     0   8BD16340
0746 0  0100     TRKA  DC     /0100    DEAD TR CNST-TR 7    8BD16350
0747 0  0200           DC     /0200                    6    8BD16360
0748 0  0400           DC     /0400                    5    8BD16370
0749 0  0800           DC     /0800                    4    8BD16380
074A 0  0010           DC     /0010                    3    8BD16390
074B 0  0020           DC     /0020                    2    8BD16400
074C 0  0040           DC     /0040                    1    8BD16410
074D 0  8000           DC     /8000                    0    8BD16420
074E 0  8F70     P8F70 DC     /8F70    DATA PATTERN         8BD16430
074F 0  0025     CRCSP DC     /0025    CRC/LRC CHARACTER    8BD16440
0750 0  0007     TRKMS DC     7        TRACK IN ERROR-TRK 7 8BD16450
0751 0  0006           DC     6                         6   8BD16460
0752 0  0005           DC     5                         5   8BD16470
0753 0  0004           DC     4                         4   8BD16480
0754 0  0003           DC     3                         3   8BD16490
0755 0  0002           DC     2                         2   8BD16500
0756 0  0001           DC     1                         1   8BD16510
0757 0  0000           DC     0                         0   8BD16520
                 *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 8BD16530
                 *                                            8BD16540
                 *                TESTING ROUTINE 10          8BD16550
                 *                                            8BD16560
                 *XXXXXXXX,^XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 8BD16570
0758 0  6208     RTN10 LDX   2 8      IX 2 = NO TRACKS        8BD16580
0759 0  6308     RT10L LDX   3 8                              8BD16590
075A 0  C0F3     RT10J LD      P8F70  GET PATTERN             8BD16600
075B 00 D70C0938       STO  L3 IOAA-1 SET IN I/O AREA         8BD16610
075D 0  73FF           MDX   3 -1     DECR IX 3               8BD16620
075E 0  70FB           MDX     RT10J  LOOP                    8BD16630
075F 00 67000131       LDX  L3 305    IX 3 = 610 CHARACTER S  8BD16640
0761 0  1010           SLA     16     CLEAR A REG             8BD16650
0762 00 D7000940 RT10K STO  L3 IOAA+7 SET IN I/O              8BD16660
0764 0  73FF           MDX   3 -1     DECR IX 3               8BD16670
0765 0  70FC           MDX     RT10K  LOOP                    8BD16680
0766 0  C0E8           LD      CRCSP  GET CRC/LRC             8BD16690
0767 00 D4000942       STO  L  IOAA+9 SET AS CRC              8BD16700
0769 00 D4000944       STO  L  IOAA+11 SET AS LRC             8BD16710
076B 0  6308           LDX   3 8                              8BD16720
076C 00 C7000938 RT10B LD   L3 IOA    GET A DATA WD           8BD16730
076E 00 F60007AA       EOR  L2 TRKD-1 SET DEAD TRACK          8BD16740
0770 00 D7000938       STO  L3 IOA    SET AS DATA             8BD16750
0772 0  73FF           MDX   3 -1     DECR IX 3               8BD16760
0773 0  70F8           MDX     RT10B  LOOP                    8BD16770
                 *                                            8BD16780
0774 00 440002D4       BSI  L  WRT    GO WRITE           SRC  8BD16790
                 *                                            8BD16800
0776 00 440003C4       BSI  L  BSP    GO BACKSPACE       SRC  8BD16810
0778 00 440003C4       BSI  L  BSP    GO BACKSPACE       SRC  8BD16820
                 *                                            8BD16830
077A 00 4400032C RT10G BSI  L  RD     GO READ            SRC  8BD16840
077C 00 440003C4       BSI  L  BSP    GO BACKSPACE       SRC  8BD16850
                 *                                            8BD16860
                 *                CHECK DATA                  8BD16870
                 *                                            8BD16880
077E 0  63F8           LDX   3 -8     IX 3 = NUMBER WDS       8BD16890
077F 00 C4000684       LD   L  ONE    GET 1                   8BD16900
0781 00 D4000685       STO  L  WDCT   SET AS WD CT            8BD16910
0783 00 C600074F       LD   L2 TRKMS-1 GET TRK IN ERROR       8BD16920
0785 00 D4000686       STO  L  MSG4T  SAVE                    8BD16930
0787 00 C4000687       LD   L  LNEO   SET LINE 0              8BD16940
0789 0  D013           STO     RT10Q                          8BD16950
078A 00 C7000941 RT10C LD   L3 IOAA+8 GET A DATA WD           8BD16960
078C 0  F0C1           EOR     P8F70                          8BD16970
078D 0  4820           BSC     Z      IS IT CORRECT           8BD16980
```



```
078E 0  7008           MDX     RT10F  NO                      8BD16990
078F 00 74010685 RT10D MDX  L  WDCT,1 INCR WD CT              8BD17000
0791 0  7301           MDX   3 1      DECR IX 3               8BD17010
0792 0  70F7           MDX     RT10C  LOOP                    8BD17020
0793 0  72FF     RT10E MDX   2 -1     IS ROUTINE COMPLETE     8BD17030
0794 0  70C4           MDX     RT10L  NO                      8BD17040
0795 00 4C0001EA       BSC  L  RETRN  EXIT                    8BD17050
                 *                                            8BD17060
                 *                DATA I? INCORRECT           8BD17070
                 *                                            8BD17080
0797 0  C0B6     RT10F LD      P8F70  GET PATTERN             8BD17090
0798 00 D40006E2       STO  L  PRPAT  SET FOR PRINT           8BD17100
079A 00 4400043A       BSI  L  PRINT  PRINT BAD DATA          8BD17110
079C 0  E001           DC      /E001  ERROR 1                 8BD17120
079D 0  0001     RT10Q DC      /0001  FORM 1                  8BD17130
079E 0  7001           MDX     RT10H  CONTINUE                8BD17140
079F 0  70DA           MDX     RT10G  LOOP ON ERROR           8BD17150
07A0 00 0C0001C2 RT10H XIO  L  RDBSW  READ DATA SWS           8BD17160
07A2 00 C4000688       LD   L  LNE1   SET NOT LINE 0          8BD17170
07A4 0  D0F8           STO     RT10Q                          8BD17180
07A5 00 C40001CB       LD   L  SWO    GET SWS                 8BD17190
07A7 0  1007           SLA     7                              8BD17200
07A8 0  4810           BSC     -      PRINT ONLY FIRST        8BD17210
07A9 0  70E5           MDX     RT10D  NO                      8BD17220
07AA 0  70E8           MDX     RT10E  YES                     8BD17230
                 *                                            8BD17240
                 *                CONSTANTS                   8BD17250
                 *                                            8BD17260
07AB 0  0101     TRKD  DC      /0101  BAD TRK CNST-TR 7       8BD17270
07AC 0  0202           DC      /0202                 6        8BD17280
07AD 0  0404           DC      /0404                 5        8BD17290
07AE 0  0808           DC      /0808                 4        8BD17300
07AF 0  1010           DC      /1010                 3        8BD17310
07B0 0  2020           DC      /2020                 2        8BD17320
07B1 0  4040           DC      /4040                 1        8BD17330
07B2 0  8080           DC      /8080                 0        8BD17340
07B3 0  808U     TRKB  DC      /8080  BAD TR CONSTANT         8BD17350
                 *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 8BD17360
                 *                                            8BD17370
                 *                TESTING ROUTINE 11          8BD17380
                 *                                            8BD17390
                 *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 8BD17400
07B4 00 440002BC RTN11 BSI  L  SP80   SET I/O AREA       SRC  8BD17410
07B6 0  6307     RT11L LDX   3 7                              8BD17420
07B7 00 C7000938 RT11A LD   L3 IOA    GET A PATT WD           8BD17430
07B9 00 E40007F6       AND  L  R11X0  SET LOST CHARACTER      8BD17440
07BB 00 D7000938       STO  L3 IOA    SET                     8BD17450
07BD 0  73FF           MDX   3 -1     DECR IX 3               8BD1746C
07BE 0  70F8           MDX     RT11A  LOOP                    8BD17470
                 *                                            8BD17480
07BF 00 440002D4       BSI  L  WRT    GO WRITE           SRC  8BD17490
                 *                                            8BD17500
07C1 00 440003C·       BSI  L  BSP    GO BACKSPACE       SRC  8BD17510
07C3 00 440003C4       BSI  L  BSP    GO BACKSPACE       SRC  8BD17520
                 *                                            8BD17530
07C5 00 4400032C RT11B BSI  L  RD     GO READ            SRC  8BD17540
07C7 00 440003C4       BSI  L  BSP    GO BACKSPACE       SRC  8BD17550
                 *                                            8BD17560
                 *                CHECK DATA                  8BD17570
                 *                                            8BD17580
07C9 0  63F8           LDX   3 -8     IX 3 = NUMBER WDS       8BD17590
07CA 00 C4000684       LD   L  ONE    GET 1                   8BD17600
07CC 00 D4000685       STO  L  WDCT   SET AS WD CT            8BD17610
07CE 00 C4000513       LD   L  TERM   GET FFFF                8BD17620
07D0 00 D4000686       STO  L  MSG4T  SET AS TRK IN ERROR     8BD17630
07D2 00 C4000687       LD   L  LNEO   SET LINE 0              8BD17640
07D4 0  D013           STO     RT11Q                          8BD17650
07D5 00 C7000941 RT11C LD   L3 IOAA+8 GET A DATA WD           8BD17660
```

```
07D7 00 F40002D3          EOR  L  P80
07D9 0  4820              BSC     Z             IS WD CORRECT
07DA 0  7006              MDX     RT11F         NO
07DB 00 74010685  RT11D   MDX  L  WDCT,1       INCR WD CT
07DD 0  7301              MDX     3 1           DECR IX 3
07DE 0  70F6              MDX     RT11C
07DF 00 4C0001EA  RT11E   BSC  L  RETRN         ROUTINE EXIT
                  *
                  *                   DATA IS INCORRECT
                  *
07E1 00 C40002D3  RT11F   LD   L  P80           GET PATTERN
07E3 00 D40006E2          STO  L  PRPAT         SET FOR PRINT
07E5 00 4400043A          BSI  L  PRINT         PRINT BAD DATA
07E7 0  E001              DC      /E001         ERROR 1
07E8 0  0001      RT11Q   DC      /0001         FORM 1
07E9 0  7001              MDX     RT11H         CONTINUE
07EA 0  70DA              MDX     RT11B         LOOP ON ERROR
07EB 00 0C0001C2  RT11H   XIO  L  RDBSW         READ DATA SWS
07ED 00 C4000688          LD   L  LNE1          SET NOT LINE 0
07EF 0  D0F8              STO     RT11Q
07F0 00 C40001CB          LD   L  SW0           GET SWS
07F2 0  1007              SLA     7
07F3 0  4810              BSC     -             PRINT ONLY FIRST
07F4 0  70E6              MDX     RT11D         NO
07F5 0  70E9              MDX     RT11E         YES
07F6 0  FF00      R11X0   DC      /FF00         SET LOST CHAR
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                  *
                  *                   TESTING ROUTINES 12
                  *                   THROUGH 18
                  *
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
07F7 0  73F5      CM12  MDX   3 -11             SET IX 3
07F8 0  6B08            STX   3 CM123+1         SAVE IX 3
07F9 0  1010            SLA     16              ZERO A REG
07FA 00 D4000683        STO L   OECTR           CLEAR ODD EVEN CTR
07FC 00 6600FFF8        LDX L2  -8              IX 2 = NO WDS
07FE 00 440002BC  CM120 BSI L   SP80            SET I/O AREA          SRC
0800 00 67000000  CM123 LDX L3  0               RESTORE IX 3
0802 00 C4000683        LD  L   OECTR           GET ODD EVEN CTR
0804 00 84000684        A   L   ONE             ADD 1
0806 00 D4000683        STO L   OECTR           SAVE
0808 0  4804            BSC     E               IS CTR EVEN
0809 0  7032            MDX     CM122           NO
080A 00 C7000679        LD  L3  TR1-1           GET BAD TRACK CONST
080C 00 F6000941  CM121 EOR L2  IOAA+8          SET
080E 00 D6000941        STO L2  IOAA+8          SET
0810 0  6B07            STX   3 CM12F+1         SAVE IX 3
0811 00 440002D4        BSI L   WRT             GO WRITE              SRC
                  *
0813 00 440003C4        BSI L   BSP             GO BACKSPACE          SRC
0815 00 440003C4        BSI L   BSP             GO BACKSPACE          SRC
0817 00 67000000  CM12F LDX L3  0               RESTORE IX 3
0819 00 4400032C        BSI L   RD              GO READ               SRC
081B 00 440003C4        BSI L   BSP             GO BACKSPACE          SRC
                  *
                  *                   CHECK DATA
                  *
081D 00 C4000684  CM126 LD   L  ONE             GET 1
081F 00 D4000685        STO  L  WDCT            SET AS WD CT
0821 00 6F000686        STX  L3 MSG4T           SET TRK IN ERROR
0823 00 C4000687        LD   L  LNE0            SET LINE 0
0825 0  D021            STO     CM12Q
0826 0  6B0C            STX   3 CM128+1         SAVE IX 3
0827 0  63F8            LDX   3 -8              IX 3 = NO WDS
0828 00 C7000941  CM12C LD   L3 IOAA+8          GET A DATA WD
082A 00 F40002D3        EOR  L  P80
082C 0  4820            BSC     Z               IS WD CORRECT
```



```
082D 0  7012              MDX     CM12B         NO
082E 00 74010685  CM12D   MDX  L  WDCT,1        INCR WD CT
0830 0  7301              MDX     3 1           DECR IX 3
0831 0  70F6              MDX     CM12C         LOOP
0832 00 67000000  CM128   LDX  L3 0             RESTORE IX 3
                  *
                  *                   CHECK FOR ROUTINE COMPLETE
                  *
0834 00 C4000683  CM12E   LD   L  OECTR         GET ODD EVEN CTR
0836 0  4804              BSC     E             IS IT EVEN
0837 0  70C6              MDX     CM120         NO
0838 0  7201              MDX   2 1             DECR IX 2
0839 0  70C4              MDX     CM120
083A 00 4C0001EA  CM125   BSC  L  RETRN         RTN EXIT
                  *
                  *                   ODD EVEN CTR IS ODD
                  *
083C 00 C7000679  CM122   LD   L3 TR1-1         GET BAD TR CONSTANT
083E 0  1008              SLA     8             MOVE TO FIRST CHAR
083F 0  70CC              MDX     CM121
                  *
                  *                   DATA IS NOT CORRECT
                  *
0840 00 C40002D3  CM12B   LD   L  P80           GET EXPECTED
0842 00 D40006E2          STO  L  PRPAT         SAVE
0844 00 4400043A          BSI  L  PRINT         GO PRINT              SRC
0846 0  E001              DC      /E001         ERROR 1
0847 0  0001      CM12Q   DC      /0001         FORM 1
0848 0  7001              MDX     CM127         CONTINUE
0849 0  70CD              MDX     CM12F         LOOP ON ERROR
084A 00 0C0001C2  CM127   XIO  L  RDBSW         READ DATA SWS
084C 00 C4000688          LD   L  LNE1          SET NOT LINE 0
084E 0  D0F8              STO     CM12Q
084F 00 C40001CB          LD   L  SW0           GET SWS
0851 0  1007              SLA     7
0852 0  4810              BSC     -             IS PRINT ONLY 1 ON
0853 0  70DA              MDX     CM12D         NO
0854 0  70DD              MDX     CM128         YES
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                  *
                  *                   TESTING ROUTINE 19
                  *
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
0855 0  1010      RTN19   SLA     16            CLEAR ODD EVEN CTR
0856 00 D4000683          STO  L  OECTR
0858 00 6600FFF8          LDX  L2 -8            IX 2 = NO WDS
085A 00 4400028E  RT19A   BSI  L  SP7F          GO SET I/O AREA       SRC
085C 00 C4000683          LD   L  OECTR         GET ODD/EVEN CTR
085E 00 84000684          A    L  ONE           ADD 1
0860 00 D4000683          STO  L  OECTR         SAVE
0862 0  4804              BSC     E             IS CTR EVEN
0863 0  7030              MDX     RT19M         NO
0864 00 C40006E0          LD   L  TR0           GET BAD TR CONSTANT
0866 00 F6000941  RT19C   EOR  L2 IOAA+8        SET BAD CHARACTER
0868 00 D6000941          STO  L2 IOAA+8
                  *
086A 00 440002D4          BSI  L  WRT           GO WRITE              SRC
                  *
086C 00 440003C4          BSI  L  BSP           GO BACKSPACE          SRC
086E 00 440003C4          BSI  L  BSP           GO BACKSPACE          SRC
                  *
0870 00 4400032C  RT19D   BSI  L  RD            GO READ               SRC
0872 00 440003C4          BSI  L  BSP           GO BACKSPACE          SRC
                  *
                  *                   CHECK DATA
                  *
0874 00 C4000684  RT19E   LD   L  ONE           GET 1
0876 00 D4000685          STO  L  WDCT          SET AS WD CT
```

2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
0878 0  1010            SLA      16         CLEAR A REG               8BD19030
0879 00 D4000686        STO   L  MSG4T      SET TRK IN ERROR          8BD19040
087B 00 C4000687        LD    L  LNE0       SET LINE 0                8BD19050
087D 0  D021            STO      RT19Q                                8BD19060
087E 0  6B0C            STX    3 RT19J+1    SAVE IX 3                 8BD19070
087F 0  63F8            LDX    3 -8         IX 3 = NUMBER WORDS       8BD19080
0880 00 C7000941  RT19H LD    L3 IOAA+8     GET A DATA WD             8BD19090
0882 00 F40002A3        EOR   L  P7F        IS WD CORRECT             8BD19100
0884 0  4820            BSC      Z                                    8BD19110
0885 0  7012            MDX      RT19N      NO                        8BD19120
0886 00 74010685  RT19F MDX   L  WDCT,1     INCR WD CT                8BD19130
0888 0  7301            MDX    3 1          DECR IX 3                 8BD19140
0889 0  70F6            MDX      RT19H      LOOP                      8BD19150
088A 00 67000000  RT19J LDX   L3 0          RESTORE IX 3              8BD19160
                  *                                                   8BD19170
                  *              CHECK FOR ROUTINE COMPLETE           8BD19180
                  *                                                   8BD19190
088C 00 C4000683  RT19K LD    L  DECTR      GET ODD EVEN CTR          8BD19200
088E 0  4804            BSC      E          IS IT EVEN                8BD19210
088F 0  70CA            MDX      RT19A      NO                        8BD19220
0890 0  7201            MDX    2 1          DECR IX 2                 8BD19230
0891 0  70C8            MDX      RT19A      CONTINUE RTN              8BD19240
0892 00 4C0001EA  RT19L BSC   L  RETRN      ROUTINE COMPLETE          8BD19250
                  *                                                   8BD19260
                  *              ODD-EVEN CTR IS ODD                  8BD19270
                  *                                                   8BD19280
0894 00 C40006E0  RT19M LD    L  TR0        GET BAD TR CONSTANT       8BD19290
0896 0  1008            SLA      8          MOVE TO FIRST CHAR        8BD19300
0897 0  70CE            MDX      RT19C                                8BD19310
                  *                                                   8BD19320
                  *              DATA IS NOT CORRECT                  8BD19330
                  *                                                   8BD19340
0898 00 C40002A3  RT19N LD    L  P7F        GET PATTERN               8BD19350
089A 00 D40006E2        STO   L  PRPAT      SET FOR PRINT             8BD19360
089C 00 4400043A        BSI   L  PRINT      PRINT BAD DATA        SRC 8BD19370
089E 0  E001            DC       /E001      ERROR 1                   8BD19380
089F 0  0001      RT19Q DC       /0001      FORM 1                    8BD19390
08A0 0  7001            MDX      RT19P      CONTINUE                  8BD19400
08A1 0  70CE            MDX      RT19D      LOOP ON ERROR             8BD19410
08A2 00 0C0001C2  RT19P XIO   L  RDBSW      READ DATA SWS             8BD19420
08A4 00 C4000688        LD    L  LNE1       SET NOT LINE 0            8BD19430
08A6 0  D0F8            STO      RT19Q                                8BD19440
08A7 00 C40001CB        LD    L  SW0        GET SWS                   8BD19450
08A9 0  1007            SLA      7                                    8BD19460
08AA 0  4810            BSC      -          PRINT ONLY FIRST          8BD19470
08AB 0  70DA            MDX      RT19F      NO                        8BD19480
08AC 0  70DD            MDX      RT19J      YES                       8BD19490
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX   8BD19500
                  *                                                   8BD19510
                  *              TESTING ROUTINE 20                   8BD19520
                  *                                                   8BD19530
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX   8BD19540
08AD 0  6207      RT20  LDX    2 7          IX 2 = NO TRACKS          8BD19550
08AE 00 440002BC  RT200 BSI   L  SP8C       SET I/O AREA          SRC 8BD19560
08B0 0  6308            LDX    3 8                                    8BD19570
08B1 00 C7000938  RT20A LD    L3 IOA        GET A DATA WD             8BD19580
08B3 00 F60008FF        EOR   L2 TRKC-1     SET BAD TRACK             8BD19590
08B5 00 D7000938        STO   L3 IOA        SET IN I/O AREA           8BD19600
08B7 0  73FF            MDX    3 -i         DECR IX 3                 8BD19610
08B8 0  70F8            MDX      RT20A      LOOP                      8BD19620
                  *                                                   8BD19630
08B9 00 440002D4        BSI   L  WRT        GO WRITE              SRC 8BD19640
                  *                                                   8BD19650
08BB 00 440003C4        BSI   L  BSP        GO BACKSPACE          SRC 8BD19660
08BD 00 440003C4        BSI   L  BSP        GO BACKSPACE          SRC 8BD19670
                  *                                                   8BD19680
08BF 00 4400032C  RT20B BSI   L  RD         GO READ               SRC 8BD19690
08C1 00 440003C4        BSI   L  BSP        GO BACKSPACE          SRC 8BD19700
```


2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
                  *                                                   8BD19710
                  *              CHECK DATA                           8BD19720
                  *                                                   8BD19730
08C3 0  63F8            LDX    3 -8         IX 3 = NUMBER WDS         8BD19740
08C4 00 C4000684        LD    L  ONE        SET WD CT = 1             8BD19750
08C6 00 D4000685        STO   L  WDCT                                 8BD19760
08C8 00 6E000686        STX   L2 MSG4T      SET TRK IN ERROR          8BD19770
08CA 00 C4000687        LD    L  LNE0       SET LINE 0                8BD19780
08CC 0  D015            STO      RT20Q                                8BD19790
08CD 00 C7000941  RT20C LD    L3 IOAA+8     GET A DATA WD             8BD19800
08CF 00 F40002D3        EOR   L  P80                                  8BD19810
08D1 0  4820            BSC      Z          IS IT CORRECT             8BD19820
08D2 0  7008            MDX      RT20F      NO                        8BD19830
08D3 00 74010685  RT20D MDX   L  WDCT,1     INCR WD CT                8BD19840
08D5 0  7301            MDX    3 1          DECR IX 3                 8BD19850
08D6 0  70F6            MDX      RT20C      LOOP                      8BD19860
08D7 0  72FF      RT20E MDX    2 -1         IS RTN COMPLETE           8BD19870
08D8 0  7005            MDX      RT200      NO                        8BD19880
08D9 00 4C0001EA        BSC   L  RETRN      YES                       8BD19890
                  *                                                   8BD19900
                  *              DATA IS INCORRECT                    8BD19910
                  *                                                   8BD19920
08DB 00 C40002D3  RT20F LD    L  P80        GET PATTERN               8BD19930
08DD 00 D40006E2        STO   L  PRPAT      SET FOR PRINT             8BD19940
08DF 00 440C043A        BSI   L  PRINT      PRINT BAD DATA        SRC 8BD19950
08E1 0  E001            DC       /E001      ERROR 1                   8BD19960
08E2 0  0001      RT20Q DC       /0001      FORM 1                    8BD19970
08E3 0  7001            MDX      RT20H      CONTINUE                  8BD19980
08E4 0  70DA            MDX      RT20B      LOOP ON ERROR             8BD19990
08E5 00 0C0001C2  RT20H XIO   L  RDBSW      READ DATA SWS             8BD20000
08E7 00 C4000688        LD    L  LNE1       SET NOT LINE 0            8BD20010
08E9 0  D0F8            STO      RT20Q                                8BD20020
08EA 00 C40001CB        LD    L  SW0        GET SWS                   8BD20030
08EC 0  1007            SLA      7                                    8BD20040
08ED 0  4810            BSC      -          PRINT ONLY FIRST          8BD20050
08EE 0  70E4            MDX      RT20D      NO                        8BD20060
08EF 0  70E7            MDX      RT20E      YES                       8BD20070
                  *                                                   8BD20080
                  *              CONSTANTS                            8BD20090
                  *                                                   8BD20100
08F0 0  4040      TRKC  DC       /4040      BAD TR CNST-TR 1          8BD20110
08F1 0  2020            DC       /2020                     2          8BD20120
08F2 0  1010            DC       /1010                     3          8BD20130
08F3 0  0808            DC       /0808                     4          8BD20140
08F4 0  0404            DC       /0404                     5          8BD20150
08F5 0  0202            DC       /0202                     6          8BD20160
08F6 0  0101            DC       /0101                     7          8BD20170
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX   8BD20180
                  *                                                   8BD20190
                  *              TESTING ROUTINE 21                   8BD20200
                  *                                                   8BD20210
                  *XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX   8BD20220
08F7 00 4400028E  RT21  BSI   L  SP7F       SET I/O AREA          SRC 8BD20230
08F9 0  6308            LDX    3 8                                    8BD20240
08FA 00 C7000938  RT21B LD    L3 IOA        GET A DATA WD             8BD20250
08FC 00 F40007B3        EOR   L  TRKB       SET BAD TRACK             8BD20260
08FE 00 D7000938        STO   L3 IOA        SET AS DATA               8BD20270
0900 0  73FF            MDX    3 -1         DECR IX 3                 8BD20280
0901 0  70F6            MDX      RT21B      LOOP                      8BD20290
                  *                                                   8BD20300
0902 00 440002D4        BSI   L  WRT        GO WRITE              SRC 8BD20310
                  *                                                   8BD20320
0904 00 440003C4        BSI   L  BSP        GO BACKSPACE          SRC 8BD20330
0906 00 440003C4        BSI   L  BSP        GO BACKSPACE          SRC 8BD20340
                  *                                                   8BD20350
0908 00 4400032C  RT21G BSI   L  RD         GO READ               SRC 8BD20360
090A 00 440003C4        BSI   L  BSP        GO BACKSPACE          SRC 8BD20370
                  *                                                   8BD20380
```

2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

```
                        *                   CHECK DATA                                   8BD20390
                        *                                                                8BD20400
090C 0  63F8                  LDX   3 -8          IX 3 = NUMBER WDS                      8BD20410
090D 00 C4000684              LD    L  ONE        GET 1                                  8BD20420
090F 00 D4000685              STO   L  WDCT       SET AS WD CT                           8BD20430
0911 0  1010                  SLA      16         CLEAR A REG                            8BD20440
0912 00 D4000686              STO   L  MSG4T      SET TRK IN ERROR                       8BD20450
0914 00 C4000687              LD    L  LNE0       SET LINE 0                             8BD20460
0916 0  D013                  STO      RT21Q                                             8BD20470
0917 00 C7000941        RT21C LD    L3 IOAA+8     GET A DATA WD                          8BD20480
0919 00 F40002A3              EOR   L  P7F                                               8BD20490
091B 0  4820                  BSC      Z          IS IT CORRECT                          8BD20500
091C 0  7006                  MDX      RT21F      NO                                     8BD20510
091D 00 74010685        RT21D MDX   L  WDCT,1     INCR WD CT                             8BD20520
091F 0  7301                  MDX   3 1           DECR IX 3                              8BD20530
0920 0  70F6                  MDX      RT21C      LOOP                                   8BD20540
0921 00 4C0001EA        RT21E BSC   L  RETRN      EXIT                                   8BD20550
                        *                                                                8BD20560
                        *                   DATA IS INCORRECT                            8BD20570
                        *
0923 00 C40002A3        RT21F LD    L  P7F        GET PATTERN                            8BD20580
0925 00 D40006E2              STO   L  PRPAT      SET FOR PRINT                          8BD20590
0927 00 4400043A              BSI   L  PRINT      PRINT BAD DATA              SRC        8BD20600
0929 0  E001                  DC       /E001      ERROR 1                                8BD20610
092A 0  0001            RT21Q DC       /0001      FORM 1                                 8BD20620
092B 0  7001                  MDX      RT21H      CONTINUE                               8BD20630
092C 0  70DB                  MDX      RT21G      LOOP ON ERROR                          8BD20640
092D 00 0C0001C2        RT21H XIO   L  RDBSW      READ DATA SWS                          8BD20650
092F 00 C4000688              LD    L  LNE1       SET NOT LINE 0                         8BD20660
0931 0  D0F8                  STO      RT21Q                                             8BD20670
0932 00 C40001C8              LD    L  SW0        GET SWS                                8BD20680
0934 0  1007                  SLA      7                                                 8BD20690
0935 0  4810                  BSC      -          PRINT ONLY FIRST                       8BD20700
0936 0  70E6                  MDX      RT21D      NO                                     8BD20710
0937 0  70E9                  MDX      RT21E      YES                                    8BD20720
0938 0  4267            IOA   DC       /4267      WORD COUNT                             8BD20730
0939 0  0000            IOAA  DC       0          I/O AREA                               8BD20740
093A    0266                  BSS      614                                               8BD20750
0BA0    012D                  END      START                                             8BD20760
                                                                              8BD2076 8BD20770
```


2400 CYCLIC REDUNDANCY CHECK FUNCTION TEST

CROSS REFERENCE LISTING

```
SYMBOL  VALUE   REFERENCES
BEGAN   0147    014A
BEGIN   0143    01AE,01B6,01D0,0217
BSP     03C4    030D,0345,037C,03B4,03CE,063C,063E,0644,06A2,06A4,
                06A8,0709,070B,070F,0776,0778,077C,07C1,07C3,07C7,
                0813,0815,081B,086C,086E,0872,08BB,08BD,08C1,0904,
                0906,090A
BSPIO   03F4    03D2,03D3,03D4
BSP01   03C5    03F0
BSP02   03CE    03CB,03DA
BSP03   03D0    03CD,03E4
BSP04   03DB    03D9
BSP05   03E5    03E3
BSP06   03E7    03C9
BSP07   03F1    03EF
CLN     0370    0368
CLN1    037A
CLN2    037D    0386
CLN3    0383    037B,0394,0395,0396
CLN5    0388    0391,0392,0398
CLN6    038C    038A
CLN7    038E    0388
CLN8    0393    0382
CMRT    0624    01D4,01D5,01D6,01D7,01D8,01D9,01DA
CMRTB   0666    0654
CMRTC   064F    0658
CMRTD   0655    0678
CMRTE   065B
CMRTF   0640    0639,066F
CMRTT   01D3    01A6,01EC,0453
CMRT0   0629    065D,065F
CMRT1   0635    0665
CMRT2   0662    0632
CMRT3   062B    0624
CMRT5   0660
CMRT6   0646
CMRT7   0670    066E
CMRT8   0659    064B,0679
CMRT9   066D    064D,0671
CMR12   07F7    01DF,01E0,01E1,01E2,01E3,01E4,01E5
CM12B   0840    082D
CM12C   0828    0831
CM12D   082E    0853
CM12E   0834
CM12F   0817    0810,0849
CM12Q   0847    0825,084E
CM120   07FE    0837,0839
CM121   080C    083F
CM122   083C    0809
CM123   0800    07F8
CM125   083A
CM126   081D
CM127   084A    0848
CM128   0832    0826,0854
CODEH   05DE    05C1
CORDS   03C1    0360
CRCA    073E    0701
CRCSP   074F    06F1,0766
CRC7F   02A4    029C
CRC8F   02BB    02B4
CRC80   02D2    02C6
DSL     0622    0618,061B,061C,061F
DSLT    0617    03B6,0620
DSW     023A    0231,02E3,02E8,0302,0340,0349,035E,0399,03D6,03DB,
                03E7,0410
DSWCR   0682
```

DIWEX	0681	
EDIT	01C6	0134,014F,C168,016C,0176,0181,0220,0269,0420
EDT	0132	012D
EDT1	0133	0137
EDT2	013D	0138
ELE	032A	
END	020D	0205
ERA	0324	0311,0312,0313
ERRR	04EE	04E6
FORM	0482	047D
FORMC	04A6	049E,04A2
FORM1	0491	0483
FORM2	049E	0484
FORM3	049F	0485
FORM4	04A3	0486
FOUR	0329	02FF
FRMC1	04A9	04AC
FRMC2	04B1	046F,047C,04C1
FRMC3	04CC	04C8
FRMC4	04CE	0444,04CB
FRMC5	04D5	04E8,04EA
FRMC6	04E4	04D4
FRMC7	04DE	043D,04ED
FRMC8	04E0	043B
FRMC9	04EB	04DB
FRST	048C	046A
FRWC	0487	0462
HEXCD	05DC	04B7,05CB,05CF
HEXCV	05B4	04B5,05D4
HEXC1	05BD	05BE,05C7
HEXC2	05D0	05B5
HEXC3	05D2	05B7
HEXWD	05D6	04B3,05BA
HEXOO	05D7	05C3,05C8,05CA,05CC,05CE
ILSW	0238	021C,0254
INTR	0219	0234,023F
INTR1	0227	0222
INTR2	023E	0145,024A,0251
INTR3	0232	0226
IOA	0938	02DA,0322,0335,03BC,06F7,06FB,076C,0770,07B7,07BB, 08B1,08B5,08FA,08FE
IOAA	0939	0291,0298,029C,029F,02A9,02B0,02B5,02B7,02C0,02C7, 02CC,02CE,0494,0635,0637,064F,069C,069E,0686,06E6, 06ED,06F2,06F4,06FF,0703,0705,071D,075B,0762,0767, 0769,078A,07D5,080C,080E,0828,0866,0868,0880,08CD, 0917
IOARA	05B2	0591,059E,05A0,05AE
K005	03A7	0393
K009	03A9	0366,0373
K010	03A8	0376
LNE0	0687	064C,0681,071A,0787,07D2,0823,087B,08CA,0914
LNE1	0688	0670,06D7,0735,07A2,07ED,084C,08A4,08E7,092F
LOGC	0514	04C9,054E
LOGCA	0557	
LOGCB	0541	0558
LOGC0	0546	0524
LOGC1	051F	0545
LOGC2	0525	053E
LOGC3	0528	0527
LOGC4	0531	0530
LOGC5	0533	052C
LOGC6	053F	0537
LOGC7	0548	051A,05AC
LOGC8	054A	0518
LOGC9	054C	051C
LOGX0	047F	046E
LOGX1	0480	0478
LOGX2	0481	0478

LOGO0	0584	0546
LOGO1	058F	05A7
LOGO2	05A8	0594
LOGO3	05A4	059D
LOXO0	0550	0516,0535,0539,0543
LOXO2	0551	0520,0525,052D,053B,053D
LOXO3	0552	0538,0540
LOXO4	0553	052A
MASK0	060C	0588,05F4
MASK1	060E	058A,05F5
MID	04F0	045A,04E4
MK0	01BE	0243
MK1	01C0	0245
MOD	01CD	0183,0422
MSG	04F8	044D,0518,058F,05F2,0614
MSG0	04F9	04A9,04B9,04BC,051D
MSG1	04F4	044B,0493,04A1,04A5
MSG2	04F5	0447,0496
MSG3	04F6	0449,0499
MSG4	04F7	044F,049C
MSG4T	0686	049A,0649,06AF,0718,0785,07D0,0821,0879,08C8,0912
MTST	015A	
OECTR	0683	0626,062D,0630,065B,068B,0693,0697,06C1,07FA,0802, 0806,0834,0856,085C,0860,088C
ONE	0684	01A0,022D,02FC,036B,0466,05FF,062E,0646,0695,06AA, 0712,077F,07CA,0804,081D,085E,0874,08C4,090D
PID	04EF	047F,04B1
PRINT	043A	01AA,01B2,01F1,02F2,0306,0316,0356,039D,03AB,03DF, 03EB,0414,0457,04DC,04E2,04EB,066A,06CF,072D,079A, 07E5,0844,089C,08DF,0927
PRPAT	06E2	0491,0668,06CE,072B,0798,07E3,0842,089A,08DD,0925
PRSP	0583	0517,0557
PRWDC	0616	0464,05F1
PR00	0559	0553
PR01	0564	0554
PR02	056D	0555
PR03	057A	0556
PR04	0476	0475
PR05	047D	0472
PR1	0460	045D,0470
PR43	05EE	04CC,0608
PR431	05FA	05FD
PR432	0602	0605
P7F	02A3	0290,0651,0666,0882,0898,0919,0923
P8F	06E1	02A7,06B8,06CC
P8F70	074E	06E5,071F,072A,075A,078C,0797
P80	02D3	028E,07D7,07E1,082A,0840,08CF,08DB
RAD	04F2	0455
RD	032C	0354,0642,06A6,070D,077A,07C5,0819,0870,088F,0908
RDBSW	01C2	0163,0195,020D,043F,04C2,04CE,04D5,0672,06D5,0733, 07A0,07EB,084A,08A2,08E5,092D
RDE	0352	0337,03B3
RDFNC	03BE	032F
RDIOC	03BC	0331,033E,0347,038C
RDSSW	01C4	0199
RDTWC	03BA	0333
RDTXO	03AA	0365
RD01	0339	035B,038B,03B8
RD02	0356	033D
RD03	035C	035A
RD04	035E	0344,034D
RD05	0399	0362,0374
RD06	03A2	
RD07	03AB	0351
RD08	03B0	03A1,03AF
RD09	03B4	036F,03A5
RD1DS	03BF	0342
RD2DS	03C0	0348

RETRN	01EA	01E9,0660,06C7,0728,0795,07DF,083A,0892,08D9,0921
RETR1	01F1	0192,01ED
RETR2	01F6	01F5
RETR3	0203	01FB
RID	04F1	015D,019E,01A2,01A4,01EA,01FF,0209,0210,0451
RSRT	01D2	0155
RSTRT	01D0	0151
RTN10	0758	01DD
RTN11	0784	01DE
RTN19	0855	01E6
RTN8	0689	01DB
RTN8A	068F	06C4,06C6
RTN8B	0691	0689
RTN8C	069C	06CB
RTN8D	06A6	06D4
RTN8E	06AA	
RTN8F	06BB	06DE
RTN8H	06B6	06BE
RTN8J	06BF	0684,06DF
RTN8K	06C1	
RTN8L	06C7	
RTN8M	06C9	069A
RTN8N	06CC	06BA
RTN8P	06D5	06D3
RTN8Q	06D2	06B3,06D9
RTN9	06E3	01DC
RTN9A	06F7	06FE
RTN9B	070D	0732
RTN9C	071D	0725
RTN9D	0722	073C
RTN9E	0726	073D
RTN9F	072A	0721
RTN9H	0733	0731
RTN9J	06E5	06E9
RTN9K	06ED	06F0
RTN9Q	0730	071C,0737
RTN9O	06E4	0727
RT10B	076C	0773
RT10C	078A	0792
RT10D	078F	07A9
RT10E	0793	07AA
RT10F	0797	078E
RT10G	077A	079F
RT10H	07A0	079E
RT10J	075A	075E
RT10K	0762	0765
RT10L	0759	0794
RT10Q	079D	0789,07A4
RT11A	07B7	07BE
RT11B	07C5	07EA
RT11C	07D5	07DE
RT11D	07DB	07F4
RT11E	07DF	07F5
RT11F	07E1	07DA
RT11H	07EB	07E9
RT11J	02C0	02C3
RT11K	02C7	02CA
RT11L	07B6	
RT11Q	07E8	07D4,07EF
RT19A	085A	088F,0891
RT19C	0866	0897
RT19D	0870	08A1
RT19E	0874	
RT19F	0886	08AB
RT19H	0880	0889
RT19J	088A	087E,08AC
RT19K	088C	
RT19L	0892	

RT19M	0894	0863
RT19N	0898	0885
RT19P	08A2	08A0
RT19Q	089F	087D,08A6
RT20	08AD	01E7
RT20A	08B1	08B8
RT20B	08BF	08E4
RT20C	08CD	08D6
RT20D	08D3	08EE
RT20E	08D7	08EF
RT20F	08DB	08D2
RT20H	08E5	08E3
RT20Q	08E2	08CC,08E9
RT20O	08AE	08D8
RT21	08F7	01E8
RT21B	08FA	0901
RT21C	0917	0920
RT21D	091D	0936
RT21E	0921	0937
RT21F	0923	091C
RT21G	0908	092C
RT21H	092D	0928
RT21Q	092A	0916,0931
RWD	03F6	0174,018A,031E,040E
RWDIO	041C	0401,0402,0403
RWDO1	03F7	0419
RWDO2	0405	0409,040D
RWDO3	040E	03FE,040C
RWDO4	0410	03F8
RWDO5	041A	0418
R11XO	07F6	07B9
SDSW	023C	0227,022A,022B,022C,022F,0230
SELDR	03C2	
SENSE	05B0	0584,0597
SNDSW	041E	0170,0186,02DC,0339,037E,03C5,03F7,0405,0434
SNDS1	0420	0430
SNDS2	0428	042C
SNDS3	0432	041F
SNS	0436	0424,0425,0428
SNSPR	060A	05EF,05F0,05F6,05FA,05FE,0601,0602
SNSV	0438	0304,0398,03DD,03E9,0412,0429,042D,042E,0431,049F
SP7F	028E	02A1,0629,085A,08F7
SP7F0	0291	0294
SP7F1	0298	0298
SP8F	02A5	0289,068F
SP8F0	02A9	02AC
SP8F1	02B0	02B3
SP80	02BC	02D0,07B4,07FE,08AE
START	012D	08A0
STWC	04AD	0468,046C,0479
SUPR	0163	01AF,0215
SUPR0	0191	018D
SUPR1	0195	0190,01EF,0201,020B
SUPR2	01A2	019C
SUPR3	0176	0167,016B,01B7
SUPR4	01A8	0173
SUPR5	01AF	
SUPR6	01B0	0189
SUPR7	01B7	
SUPR8	018C	0179,017B,0180
SVEXT	027C	0276
SVINT	0242	0224,023E,0250,0281
SVIN0	025C	0272,0278
SVIN1	025E	0266
SVIN2	0267	026E
SVIN3	0254	024D
SVIO	028C	0247,0262,0263,027C
SV0	0283	0270

SV1	0284	025C
SV2	0285	025A
SV3	0286	0277
SV4	0287	0259,025E,0267,026C,026F,027A
SV5	0288	025D,0260,0264
SV6	0289	025B,0261,0278
SV7	028A	0256,0273
SWO	01CB	0164,017C,0196,01C2,0212,0441,04C4,04D0,04D7,0674, 06DA,0738,07A5,07F0,084F,08A7,08EA,0932
SW1	01CC	019A,01C4
TAAQ	0236	021B,0232
TAILS	023B	021D
TAPEO	01B8	015B,016E,018C,01A9,01F7,01F9,0228,02D5,030F,032D, 03D0,03FF,0619
TAPE1	01B9	015C,0184,0191,01B1,0203
TASS	0233	021A
TERM	0513	013F,0521,0592,07CE
TERR	0240	021E
TPINT	023F	014D
TRKA	0746	06F9
TRKB	07B3	08FC
TRKC	08F0	08B3
TRKD	07AB	076E
TRKMS	0750	0716,0783
TRO	06E0	069B,06C9,0864,0894
TR1	067A	0633,0662,080A,083C
TR2	067B	
TR3	067C	
TR4	067D	
TR5	067E	
TR6	067F	
TR7	0680	
UNIT	04F3	045E,0480
UNMKO	018A	0161,027D
UNMK1	018C	0162,027F
UNMK3	0610	05A8,0606
UNMK4	0612	05AA,0607
WAITA	0404	300A
WAITB	04E9	300B
WAITC	0587	300C
WAITD	05F8	300D
WAITE	0241	300E
WAITF	038D	300F
WAIT1	0142	3001
WAIT2	0159	3002
WAIT3	0198	3003
WAIT4	02F2	3004
WAIT5	02FA	3005
WAIT6	0314	3006
WAIT7	033F	3007
WAIT8	0348	3008
WAIT9	03D5	3009
WDCT	0685	0497,0648,0655,06AC,06BB,0714,0722,0781,078F,07CC, 07DB,081F,082E,0876,0886,08C6,08D3,090F,091D
WRDSW	05B3	058D,059B,05A1,05A5
WRERP	0328	015F,02ED,02F9,02FB,02FE,030C,031C,034E,0363,0369, 036D,0370,0378,03A3,03B1,04A3
WRIOC	0322	02D8,02E1
WRITE	05AE	0596
WRPR	0614	05F9
WRT	02D4	02F0,063A,06A0,0707,0774,07BF,0811,086A,08B9,0902
WRTCC	0326	02D7
WRTSW	0327	02EA
WRTWC	0328	02D9
WRT01	02D5	0315,0320
WRT02	02DC	02F7
WRT03	02F0	031D
WRT04	02F2	02E0

WRT05	02F8	02F6,030A,035C,03E5,03F1,041A
WRT06	02FB	02EC
WRT07	030B	
WRT08	030D	0301
WRT09	0316	02EF
WRT10	031B	031A
WRT11	031E	02E7
XIOSN	0597	059A
XIOWR	0596	05A3

TABLE OF CONTENTS

1. PURPOSE

TO ASSIST THE CE TO PUNCH THE NECESSARY EDIT CARDS AND/OR PAPER TAPE FOR THE 1800 DIAGNOSTIC FUNCTION TESTS.

2. REQUIREMENTS

2.1 PROGRAM

A. 4K EDIT UTILITY (PID 08C2) IF ONLY A 4K SYSTEM
B. 8K EDIT UTILITY (PID 08C3) IF GREATER THAN 4K
C. DP I/O EDIT SKELETONS (PID 08C4) FOR EDITING OF MONITOR AND DP I/O PROGRAMS
D. P I/O AND NON-MONITOR EDIT SKELETONS (PID 08C5) FOR PROCESS I/O AND NON-MONITOR PROGRAMS REQUIRING EDIT

2.2 EQUIPMENT

A. 1442 OR 1054/55
B. 1816
C. 4K OR GREATER

3. USE PROCEDURE PROGRAM LOADING

3.1 EITHER EDIT UTILITY PROGRAM (4K PID 08C2 OR 8K PID 08C3) FOLLOWED BY EITHER OR BOTH EDIT SKELETONS (DP I/O PID 08C4 OR P I/O NON-MONITOR PID 08C5) ARE LOADED BY THE RELOCATABLE LOADER PID 08B1 FOR CARDS OR PID 08B0 FOR PAPER TAPE. TO SAVE LOADING ALL SKELETONS SEE SECTION 3.2. IF CARDS ARE TO BE PUNCHED, PLACE BLANK CARDS BEHIND THE DECK.

3.2 SKELETON IDENTIFICATION

EACH DECK OF SKELETONS CONTAINS SEVERAL SMALLER GROUPS. EACH SMALL GROUP HAS THE FOLLOWING IDENTIFICATION,

COLUMN	
73-74	PID OF THE SKELETON GROUP, C4 - DP I/O EDIT SKELETONS C5 - P I/O NON-MONITOR EDIT SKELETONS
75-76	PID FOR THE PROGRAM TO BE EDITED.
77	SKELETON SEQUENCE NUMBER OF THE PID IN COLUMN 75-76
78-80	CARD SEQUENCE WITHIN EACH SKELETON COL. 77.

NOTE - FOR EACH PID TO BE EDITED, THERE WILL BE A MINIMUM OF TWO SKELETONS AND A MAXIMUM OF TEN SKELETONS. ALL SKELETONS FOR ONE PID WILL BE REFERRED TO AS A SET OF SKELETONS.

SINCE ONLY ONE PROGRAM MAY BE EDITED EACH PASS ONLY ONE SET OF SKELETONS IS REQUIRED TO BE LOADED WITH EITHER EDIT UTILITY CONTROL PROGRAM (PID 08C2 OR 08C3). HOWEVER ALL SKELETONS MAY BE PLACED AFTER EITHER EDIT CONTROL AND THE PROGRAM WILL OPERATE PROPERLY.

IF LOADING FROM PAPER TAPE EACH SET OF SKELETONS IS SEPARATED BY AN IDENTIFICATION LEADER. THE TAPE MUST BE MANUALLY POSITIONED TO THE DELETE FIELD AHEAD OF THE PROPER SET OF SKELETONS BEFORE ENTERING THE PID TO BE EDITED.

EACH SET OF SKELETONS WILL BE PRECEEDED BY THE FOLLOWING IDENTIFICATION.

*R PID 08CX-Z SKELTONS FOR YY

Z = VERSION
X = 4 OR 5
YY = PID FOR THE PROGRAM TO BE EDITED.

3.3 PROGRAM OPERATION

SET IN THE DATA ENTRY SWITCHES TO SELECT THE DESIRED EDIT OUTPUT AS FOLLOWS,

CARDS ONLY - /0000
PAPER TAPE ONLY- /8000
CARDS AND TAPE - /4000

A MESSAGE WILL BE PRINTED ON THE 1816 AFTER CORRECT LOADING REQUESTING THE PID OF THE PROGRAM TO BE EDITED. THE PROGRAM WILL THEN READ CARDS LOOKING FOR A SKELETON WITH THE PID OF THE PROGRAM TO BE EDITED. WHEN THIS IS FOUND THE PROGRAM WILL ASK A SERIES OF QUESTIONS VIA THE 1816 AND THE CE MUST RESPOND TO EACH.

AFTER EACH RESPONSE THE END OF FIELD (EOF) KEY MUST BE DEPRESSED. WHEN MAKING MULTIPLE ENTRIES A COMMA MUST BE TYPED AFTER EACH GROUP AND EOF AFTER THE LAST ENTRY. IN CASE OF AN ERROR OR CORRECTIONS SEE SECTION 3.7.

3.4 PROGRAM TERMINATION

A MESSAGE WILL BE PRINTED TO INDICATE ALL NECESSARY DATA HAS BEEN RECEIVED AND THE EDIT INFORMATION WILL BE PUNCHED VIA THE METHOD SELECTED IN SECTION 3.3. THE PROGRAM THEN LISTS ALL THE EDIT INFORMATION SO A RECORD MAY BE MAINTAINED. A MESSAGE AND A PROGRAM WAIT TERMINATES THE PROGRAM.

3.5 RERUN OR RESTART PROCEDURE

FOR EITHER RERUN OR RESTART PLACE THE DESIRED SKELETON (TO SELECT A SKELETON SEE 3.2) IN THE READER AND PUSH START. A REQUEST FOR PID MESSAGE WILL INDICATE A SUCCESSFUL RETRY. IF THIS PROCEDURE FAILS, SEE SECTION 3.1 PROGRAM LOADING.

A. RERUN
AFTER THE READER IS READY PRESS START.

B. RESTART
AFTER THE READER IS READY PRESS STOP, RESET, AND START.

3.6 PROGRAM WAITS

PROGRAM WAITS ARE IDENTIFIED BY THE B AND I REGISTER AND ARE FOUND AT THE BEGINNING OF THE LISTING. THE FOLLOWING IS AN EXAMPLE.

```
**************************************************************************
B-REG    I-REG                    WAITS          COMMENTS
**************************************************************************
300F     01ED            DC       WAITF+1        IN THIS AREA IS A
                           *                      DESCRIPTION OF THE
                           *                      ABOVE WAIT.
                           *
                           *
```


3.7 ERROR PROCEDURE

ERRORS WILL FALL INTO TWO TYPES.

A. REPEAT FIELD

AN ERROR MESSAGE INDICATES A PROGRAM FOUND ERROR BECAUSE OF INCORRECT FORMAT OR THE ERASE FIELD KEY (ER FLD) HAS BEEN DEPRESSED. ALL THE DATA ENTERED SINCE THE LAST COMMA HAS BEEN ERASED. THE LINE WITH THE ERROR WILL CONTAIN THREE ASTERISKS.

B. REPEAT CHARACTER

IF THE CE WISHES TO CORRECT THE LAST CHARACTER TYPED HE WILL PRESS ERASE CHARACTER KEY (ER CHR). THE TYPEWRITER WILL BACKSPACE AND THE CORRECT CHARACTER WILL BE TYPED OVER THE ERROR CHARACTER. IF AN OVERPRINT IS NOT DESIRABLE, MANUALLY LINE FEED BEFORE TYPING THE CORRECT CHARACTER.

4. PRINTOUTS

4.1 STATUS MESSAGES BEGIN WITH AN A AND WILL TELL OF SOME CONDITION.

MID	PROG	MESSAGE
A001	CNTRL	EDIT CARD LIST
		ALL NECESSARY DATA HAS BEEN ENTERED AND THE INFORMATION WILL BE PUNCHED AND LISTED.
A002	CNTRL	END OF PRG
		THE PROGRAM IS FINISHED FOR THE PID SELECTED. IF ANOTHER PID IS TO BE SELECTED SEE SECTION 3.5.

4.2 COMMAND MESSAGES BEGIN WITH A C AND REQUESTS ACTION BY THE CE FOR THE CONTINUATION OF THE PROGRAM.

THE LIST OF CHARACTER AND MEANING THAT WILL BE FOUND IN COMMAND MESSAGES.

VVVV - A DEVICE, SUCH AS 1442, CONSOLE INTERRUPT, OR MONITOR OUTPUT. IT WOULD INCLUDE FIRST OR SECOND DEVICE.
W - MAG TAPE DRIVE 0 OR 1.
XX - PID OF PROGRAM BEING EDITED.
ZZ - CARD NUMBER

MID	PROGRAM	MESSAGE
C000	CNTRL	ENTER 2 DIGIT PID TO BE EDITED.
	ENTER THE PID OF THE PROGRAM THAT IS TO BE EDITED.	
C001	PID XX-CD ZZ	ENTER 2 DIGIT DECIMAL INTERPT LVL FOR VVVV.
C002	PID XX-CD 00	ENTER 2 DIGIT DECIMAL ILSW BIT FOR VVVV.
C003	PID XX-CD 00	ENTER 1 DIGIT DECIMAL CH FOR VVVV.
C004	PID XX-CD 00	ENTER NUMBER OF VVVV ON SYSTEM, 1 DIGIT.
C005	PID XX-CD 00	DOES THIS SYSTEM HAVE 2 VVVV-TYPE Y OR N.

C006 PID XX-CD 00 ARE ADRS REFERENCE CHANGES DESIRED-TYPE Y OR N.

IF THE ADDRESSES NORMALLY USED BY THE PROGRAM, ARE KNOWN TO BE BAD, ANSWER Y.

C007 PID XX-CD 00 ENTER 1 DIGIT DECIMAL FLD NUMBER TO BE CHANGED FOLLOWED BY 3 DIGIT DECIMAL ADRS DESIRED-1-8 ENTRIES IN FOLLOWING FORMAT
D DDD,.

C008 PID XX-CD 00 ENTER 4 DIGIT HEX TIMER BASE FOR INT TIMER A.

TIME BASE OF TIMER A IN MILLISEC.	CONSTANT ENTERED IN HEX
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

C009 PID XX-CD 00 ENTER AI MODEL-TYPE 1 OR 2.

C00A PID XX-CD 01 ENTER 5 DIGIT DECIMAL CYCLE COUNT.

THIS COUNT DETERMINES THE NUMBER OF TIMES EACH SPECIFIED MULTIPLEX ADDRESS IS READ AND CONVERTED. THE COUNT MAY BE ANY NUMBER FROM 00001 TO 32000.

C00B PID XX-CD ZZ SHOULD FIRST RDING BE PREC VOLT-TYPE Y, OR N.

IF IT IS DESIRED TO ENTER PRECISION VOLTAGES TYPE N. IF Y IS TYPED THE AI PROGRAM WILL USE THE FIRST ENTRY RECEIVED AS THE PRECISION VOLTAGE.

C00C PID XX-CD ZZ RELOAD TO CORRECT THIS ERROR OR PRESS START TO IGNORE.

THIS MESSAGE OCCURS ONLY ON A 4K SYSTEM. IF IGNORED THE ERROR WILL BE PUNCHED AND LISTED AT THE COMPLETION OF THE PROGRAM. THE ERRORS THEN MAY BE MANUALLY CORRECTED.

C00D PID XX-CD ZZ IS EXT SYNC DESIRED-TYPE Y OR N.

C00E PID XX-CD 00 IS IT DESIRED TO CHANGE THE DLY CONSTANT - TYPE Y OR N.

IF A DELAY OF OTHER THAN THE STANDARD IS DESIRED, TYPE Y.

C00F PID XX-CD 00 ENTER 2 DIGIT HEX DELAY CONSTANT.

C010 PID XX-CD 00 IS MEMORY SPEED FOR THIS SYS 2 MICRSEC-TYPE Y OR N.

C011 PID XX-CD 00 ENTER 2 DIGIT DECIMAL AREA CODE FOR VVVV.

C012 PID XX-CD 00 DOES THIS SYSTEM HAVE A VVVV-TYPE Y OR N.

C013 PID XX-CD 00 IS DRIVE W A 9 TRK DRIVE-TYPE Y OR N.

C014 PID 01-CD 02 ENTER DEVICE INFO IN THE FOLLOWING FORMAT.
1-40 DEVICES - SPACE BETWEEN ENTRIES,
IL ILSW CH AC MOD.

DD DD H DD HH,

D - DECIMAL CHARACTER.
H - HEXADECIMAL CHARACTER-ENTER 0-8 OR F FOR CHANNEL.

ONE LINE OF INFORMATION IS ENTERED FOR EACH DEVICE ON THE SYSTEM.

C015 PID 0B-CD 01 IS IT DESIRED TO CHANGE WD CTS-TYPE Y OR N.

IF WORD COUNTS OTHER THAN THOSE NORMALLY USED BY THE 2400 IS PROGRAM ARE DESIRED, TYPE Y.

C016 PID 0B-CD 01 ENTER REC TO CHANGE AND WD CT DESIRED IN FOLLOWING FORMAT
D DDDD,

1 TO 8 LINES OF ENTRIES MAY BE MADE. THE FIRST DIGIT IS THE RECORD NUMBER TO CHANGE (1-8) AND THE FOUR DIGIT ENTRY IS THE DESIRED DECIMAL WORD COUNT (0001-1000).

C017 PID 21-CD 00 IS COMPARATOR FEATURE INSTALLED-TYPE Y OR N.

C018 PID 21-CD 0A IS OVERLAP CHECK DESIRED-TYPE Y OR N.

C019 PID 21-CD 1B ENTER 3 DIGIT DECIMAL WD CT 1-100.

THIS VALUE (001-100) WILL SPECIFY THE NUMBER OF MULTIPLEX ADDRESSES TO BE USED FROM THE AIIAT TABLE. A COUNT OF ONE MUST BE ADDED TO THE WORD COUNT FOR EACH TIME CHAINING IS SPECIFIED.

C01A PID 21-CD 1C IS OVERLAP CARD INSTALLED-TYPE Y OR N.

C01B PID 21-CD 1D SHOULD LIMIT WDS BE HONORED-TYPE Y OR N.

C01C PID XX-CD 04 ENTER 2 DIGIT DECIMAL RESOLUTION.

TYPE EITHER, 08,11, OR 14.

C01D NOT USED

C01E NOT USED

C01F PID XX-CD 06 ENTER DECIMAL ADDRESSES.

THE INPUT MUST FOLLOW THIS FORMAT. FROM 1-100 LINES MAY BE ENTERED. IF AN ADDRESS HAS A LIMIT WORD, TYPE 'L' IN THE SPACE INDICATED. (SEE LINE 1) IF THERE IS NO LIMIT WORD, TYPE THE COMMA AFTER THE ADDRESS (SEE LINE 3) IF CHAINING IS DESIRED, TYPE 'C' ON THE NEXT LINE AFTER THE ADDRESS. (SEE LINE 2) A 1 IN THE HIGH ORDER POSITION OF THE MPX ADDRESS INDICATES A SOLID STATE POINT. PRESS THE EOF KEY AFTER THE LAST LINE.

```
MPX
ADDR
10XXX L,          ( SOLID STATE ADDR.  THAT
                    HAS LIMIT WORD)
C,                ( CHAIN TO NEXT ADDRESS)
10XXX,            ( SOLID STATE ADDR. WITH NO
                    LIMIT WORD)
C,                ( CHAIN TO NEXT ADDRESS )
10XXX (PRESS EOF  ( SOLID STATE ADDR. WITH NO
      KEY )         LIMIT WORD AND NO CHAINING)
```

C020 PID 21-CD 10 ARE LMT CK WDS DESIRED-TYPE Y OR N.

C021 PID 21-CD 10 ENTER LMT WD DATA FOR ADR.

THE INPUT MUST FOLLOW THIS FORMAT. THERE WILL BE ONE C021 MESSAGE FOR EACH MPX ADDRESS THAT IS TO BE LIMIT CHECKED.

```
RANGE PREC VOLT LIMIT WORD
XXX YXXX.XXXXX +XXX -XXX (PRESS EOF KEY)
                    NOTE
       'Y' IS THE SIGN OF THE PREC VOLT VALUE, IT
       MUST BE EITHER '+' OR '-'.
```

C022 PID XX-CD ZZ ENTER DECIMAL ADDRESS AND RANGE.

THE INPUT MUST FOLLOW THIS FORMAT. FROM 1-5 LINES MAY BE ENTERED. A 1 IN THE HIGH ORDER POSITION OF THE MPX ADDRESS INDICATES A SOLID STATE POINT. PRESS THE EOF KEY AFTER THE LAST LINE.

MPX ADDR	RANGE CONSTANT	RANGE	RANGE TABLE CONSTANT TO ENTER
XXXXX	XXX,	500 MV	500
XXXXX	XXX,	200 MV	200
XXXXX	XXX,	100 MV	100
XXXXX	XXX,	50 MV	050
XXXXX	XXX	20 MV	020
(PRESS EOF KEY)		10 MV	010
		5 VOLTS	005

C023 PID XX-CD ZZ ENTER DECIMAL ADDRESS, RANGE AND PREC VOLT.

THE INPUT MUST FOLLOW THIS FORMAT. FROM 1-5 LINES MAY BE ENTERED. SEE MESSAGE C022 FOR RANGE TABLE. A 1 IN THE HIGH ORDER POSITION OF THE MPX ADDRESS INDICATES A SOLID STATE POINT. PRESS THE EOF KEY AFTER THE LAST LINE.


```
ADDR RANGE PREC VOLT VALUE              NOTE
XXXXX XXX YXXX.XXXXX,           'Y' IS THE SIGN OF
XXXXX XXX YXXX.XXXXX,           THE PREC VOLT VALUE.
XXXXX XXX YXXX.XXXXX.           IT MUST BE EITHER
XXXXX XXX YXXX.XXXXX,           '+' OR '-'.
XXXXX XXX YXXX.XXXXX, (PRESS EOF KEY)
```

C024 PID 22-CD 06 ENTER DECIMAL ADDRESS AND WD CTS FOR THE AIIAT TBL.

EACH MPX ADDRESS IS FOLLOWED BY A WORD COUNT TO DETERMINE THE LENGTH OF THE SEQUENTIAL TABLE. A MAXIMUM OF FIVE SEQUENTIAL TABLES MAY BE CHAINED TOGETHER TO A TOTAL WORD COUNT OF 150.

THE INPUT MUST FOLLOW THIS FORMAT. FROM 1-5 LINES MAY BE ENTERED. A 1 IN THE HIGH ORDER POSITION OF THE MPX ADDRESS INDICATES A SOLID STATE POINT. PRESS THE EOF KEY AFTER THE LAST LINE.

```
ADDR  WD CT
XXXXX XXX,
XXXXX XXX,
XXXXX XXX,
XXXXX XXX,
XXXXX XXX ( PRESS EOF KEY)
```

C025 PID 23-CDS 2,4,5 ENTER DECIMAL ADR, RESOL AND RANGE.

THE INPUT MUST FOLLOW THIS FORMAT. FROM 1-5 LINES MAY BE ENTERED. SEE MESSAGE C022 FOR RANGE TABLE A 1 IN THE HIGH ORDER POSITION OF MPX ADDRESS INDICATES A SOLID STATE POINT. PRESS THE EOF KEY AFTER THE LAST LINE. A 1 IN THE HIGH ORDER POSITION OF THE MPX ADDR INDICATES A SOLID STATE POINT. PRESS THE EOF AFTER THE LAST LINE.

```
ADDR  RES RANGE
XXXXX XX XXX,
XXXXX XX XXX,
XXXXX XX XXX,
XXXXX XX XXX,
XXXXX XX XXX  (PRESS EOF KEY )
```

C026 PID 23-CDS 2-5 ENTER DECIMAL ADR, RESOL, RANGE, PREC VOLT.

THE INPUT MUST FOLLOW THIS FORMAT. FROM 1-5 LINES MAY BE ENTERED. SEE MESSAGE C022 FOR RANGE TABLE. A 1 IN THE HIGH ORDER POSITION OF THE MPX ADDRESS INDICATES A SOLID STATE POINT. PRESS THE EOF KEY AFTER THE LAST LINE.

```
ADDR RES RANGE PREC VOLT VALUE          NOTE
XXXXX XX XXX YXXX.XXXXX,        'Y' IS THE SIGN
XXXXX XX XXX YXXX.XXXXX,        OF THE PREC VOLT
XXXXX XX XXX YXXX.XXXXX,        VALUE. IT MUST
XXXXX XX XXX YXXX.XXXXX,        BE EITHER '+'
XXXXX XX XXX YXXX.XXXXX  (PRESS EOF KEY)    OR '-'
```

C027 PID 23-CD 06 IS RANDOM MODE DESIRED-TYPE Y OR N.

C028 PID 23-CD 08 ENTER 1 DIGIT WD COUNT FROM 1 TO 5.

A NUMBER FROM 1-5 IS ENTERED TO INDICATE THE NUMBER OF MULTIPLEX ADDRESSES IN THE AIMPX TABLE TO BE USED.

C029 PID 24-CD 00 ENTER 2 DIGIT DECIMAL NUMBER OF DIGITAL INPUT GROUPS ON THE SYSTEM.

(01-24)

C02A PID 25-CD 00 ENTER 3 DIGIT DECIMAL NUMBER OF HIGHEST DIGITAL INPUT ADRS AVAILABLE ON THIS SYSTEM.

(064-127)

C02B PID 25-CD 00 ARE PISW ENTRIES DESIRED-TYPE Y OR N.

C02C PID 25-CD 00 ENTER DESIRED IL ILSW FOR PISWS-1 TO 24 ENTRIES IN FOLLOWING FORMAT
DD DD,.

C02D PID B6-CD 00 ENTER 2 DIGIT HEX MODIFIER FOR 2ND 1442.

C02E PID B6-CD 00 IS MAG TAPE DR A 2402-TYPE Y OR N.

C02F PID B9-CD 00 ENTER 1 DIGIT DECIMAL MODEL OF DRIVE N-TYPE 1, 2 OR 3.

C030 PID BD-CD 00 NO DR HAS BEEN EDITED AS A 9 TRK DRIVE-THIS PROG THEREFORE IS ILLEGAL TO RUN ON THIS SYSTEM-DO YOU DESIRE TO CHANGE ENTRIES-TYPE Y OR N.

C031 PID BE-CD 00 IS A WORD COUNT OTHER THAN 321 DESIRED-TYPE Y OR N.

C032 PID BE-CD 00 ENTER 4 DIGIT DECIMAL WORD COUNT.

C033 PID BE-CD 00 THE WORD COUNT ENTERED WILL FORCE DSW ERRORS DURING THE PROGRAM RUN-IS THIS DESIRED-TYPE Y OR N.

C034 PID BE-CD 00 IS A PATTERN OTHER THAN FFFF DESIRED-TYPE Y OR N.

C035 PID BE-CD 00 ENTER 4 DIGIT HEX PATTERN DESIRED.

C036 PID 06-CD 00 IS THE ABOVE ID NUMBER FOR VVVV-TYPE Y OR N.

C037 PID 06-CD 00 ENTER 1 DIGIT TYPEWRITER ID NUMBER 1-8.

C038 PID 0A-CD 00 DOES 1443 HAVE 120 PRINT POSITIONS-TYPE Y OR N.

4.3 ERROR MESSAGES WILL BEGIN WITH AN E AND INDICATE A FAILURE OR AN INCORRECT ENTRY. FOR ERROR CORRECTION SEE SECTION 3.7.

MID PROG MESSAGE

E001 LINE CANCELLED.

ALL THE DATA ENTERED HAS BEEN ERASED FOR THE LAST ENTRY UNLESS MULTIPLE ENTRIES AND THEN IT WILL BE ERASED TO THE LAST COMMA. THE LINE WITH THE ERROR WILL CONTAIN THREE ASTERISKS.

E002 CNTRL ENTRY TOO LARGE.

THE DATA ENTERED WAS LARGER THAN THE LIMITS FOR A GIVEN CONDITION. THE QUESTION WILL BE REPEATED.

E003 CNTRL ILLEGAL ENTRY.

THE DATA ENTERED WAS NOT REQUESTED. SOMETHING OTHER THAN Y OR N ON TYPE Y OR N, OTHER THAN 0-9 ON DECIMAL ENTRY, OR OTHER THAN 0-9 A-F ON HEX ENTRY.

E004 CNTRL FORMAT ERROR.

THE DATA ENTERED WAS NOT IN THE PROPER FORMAT. THE QUESTION WILL BE REPEATED.

E005 CNTRL 1442 ERROR.

THE 1442 WAS NOT READY OR AN ERROR WAS DETECTED.

E006 PID XX-CD ZZ 2 OR MORE ENTRIES ARE IDENTICAL.

E007 PID XX-CD ZZ ENTRY TOO LARGE OR 0000.

E008 PID XX-CD 00 ADRS WAS BETWEEN 90 AND 110.

E009 PID XX-CD 00 NUMBER OF DEVICES WAS GREATER THAN 3.

E00A PID XX-CD ZZ ADRS IS TOO GREAT.

E00B PID XX-CD 00 NUMBER OF DEVICES WAS 0000.

E00C PID XX-CD 00 ILLEGAL TIMER CONSTANT.

E00D PID XX-CD 00 ILLEGAL MODEL.

E00E PID XX-CD ZZ CYCLE COUNT OF 0000.

E00F PID XX-CD ZZ AREA CODE WAS TOO LARGE.

E010 PID XX-CD ZZ IMPROPER NUMBER OF WDS.

TOO MANY LINES OF DATA OR TOO MANY OR TOO FEW CHARACTERS PER LINE WERE ENTERED.

E011 PID XX-CD ZZ TOO MANY WORDS ON ONE CARD.

THIS PRINTOUT WILL OCCUR ONLY IF A COMPARE INSTRUCTION IS FAILING TO SKIP.

E012 PID 08-CD 00 TOO LARGE A WD CT-MAX IS 1000.

E013 NOT USED

E014 NOT USED

E015 NOT USED

E016 PID 21-CD 00 HIGH VALUE LESS THAN LOW.

THE HIGH PRIORITY CHANNEL ENTERED IS GREATER THAN THE LOW.

E017 PID 21-CD 18 ILLEGAL WD CT.

WORD COUNT ENTERED WAS ZERO OR GREATER THAN 100

E018	PID 21-CD 06	MORE THAN 2 RLY PTS. MORE THAN 2 RELAY POINTS WERE ENTERED.
E019	PID 21-CD 06	MOD 2 AND MORE THAN 1 RLY PT.
E01A	PID 21-CD 06	RLY PT IN LAST ADRS-AIIAT TBL.
E01B	PID 21-CD 06	LESS THAN 95 SS PTS BETWEEN RLY PT.
E01C	PID 21-CD 06	WD CT IS GREATER THAN NUMBER OF AIIAT ENTRIES.
E01D	PID 21-CD 10	ENTRIES DO NOT MATCH. SCANNED THE AIIAT TABLE WITHOUT FINDING AN ADDRESS THAT WAS SPECIFIED IN THE AIMPX TABLE. EITHER THE ADDRESS IS MISSING OR THE ADDRESSES ARE NOT IN THE SAME SEQUENCE.
E01E	PID 21-CD 10	LMT CK REQ WRONG. 1. LIMIT WORDS WERE ENTERED BUT COMPARATOR WAS NOT INSTALLED. 2. LIMIT WORDS WERE ENTERED BUT OPERATOR TYPED N IN REPLY TO MESSAGE C020. IN BOTH CASES THE PROGRAM PUTS ZEROS IN THE LIMIT WORD TABLE AND CONTINUES.
E01F	PID 21-CD 10	ATTEMPTED TO LMT CK RLY ADR IN OVERLAP.
E020		NOT USED
E021	PID 22-CD 2-6	FOUND NO MATCH OF ADR AND AIIAT ENTRIES.
C027	PID 23-CD 06	IS RANDOM MODE DESIRED-TYPE Y OR N.
C028	PID 23-CD 08	ENTER 1 DIGIT WD COUNT FROM 1 TO 5. THE WORD COUNT (AIWC) WENT TO ZERO BEFORE ALL OF THE AIMPX ADDRESS WERE FOUND IN THE AIIAT TABLE.
E022		NOT USED
E023	PID 22-CD 06	WD CT GREATER THAN 150.
E024	PID 22-CD 06	WD CTS IN AIIAT TBL ARE ALL 0000.
E025	PID 23-CD 08	ENTRY WAS 0000 OR GREATER THAN 5.
E026	PID 23-CD 2-8	WD CT IS GREATER THAN NUMBER OF AIMPX ENTRIES.
E027	PID 24-CD 00	NUMBER OF GROUPS ENTERED WAS TOO GREAT. CANNOT BE MORE THAN 64 GROUPS.
E028	PID 25-CD 00	ADRS ENTERED WAS GREATER THAN 127.
E029		NOT USED
E02A	PID 25-CD 00	ADRS ENTERED WAS LESS THAN 64.
E02B	PID B6-CD 00	ILLEGAL MODIFIER.
E02C	PID B9-CD 00	ENTRY WAS GREATER THAN 3.

5. COMMENTS

THE SKELETONS FOR THE PID REQUESTED MUST BE LOADED BEHIND THE PROGRAM. (SEE SECTION 3.2 FOR SKELETON SELECTION) IF THE SELECTED SKELETON IS NOT FOUND THE PROGRAM WILL HANG UP IN THE LOADER AFTER SEARCHING ALL AVAILABLE SKELETONS. WHEN THE FIRST SKELETON OF THE SELECTED PID IS FOUND IT IS LOADED INTO MEMORY. IF THIS IS THE 4K EDIT CONTROL PROGRAM (PID 08C2) THE SKELETONS WILL BE BROUGHT INTO MEMORY ONE AT A TIME, EACH ASKING ITS QUESTIONS. THE 8K EDIT CONTROL PROGRAM (PID 08C3) WILL BRING IN ALL SKELETONS BELONGING TO THE SELECTED PID.

AFTER ALL THE NECESSARY DATA FOR THE SELECTED PID HAS BEEN RECEIVED THE CARD READER WILL PASS ANY PUNCHED CARDS AND WHEN BLANK CARDS ARE FOUND BEGIN PUNCHING THE EDIT CARDS. IF THE PAPER TAPE VERSION IS USED THE PUNCH WILL START AS SOON AS THE NECESSARY DATA HAS BEEN RECEIVED. AFTER PUNCHING HAS BEEN COMPLETED THE PROGRAM LISTS THE EDIT INFORMATION FOR A RECORD.

MOST ERRORS THAT ARE FOUND BY THE PROGRAM WILL BE CORRECTED AT THE TIME THE DATA IS REQUESTED. IN THE 4K EDIT CONTROL PROGRAM IF THE CORRECTION CAN NOT BE ACCOMPLISHED AT THE TIME OF ENTRY, A MESSAGE OCCURS INDICATING THE PROGRAM AND SKELETONS MUST BE RELOADED OR PRESS START TO IGNORE THE ERROR AND MAKE THE CORRECTION MANUALLY AFTER THE EDIT INFORMATION HAS BEEN PUNCHED AND PRINTED. IN THE 8K EDIT CONTROL PROGRAM IT REINITIALIZES ALL SKELETONS AND CONTINUES FROM THE POINT OF ERROR.

ONLY ONE PID MAY BE EDITED AT A TIME AND IF A SECOND EDITING IS REQUIRED SEE SECTION 3.5 FOR RERUN OR RESTART.

6. PROGRAMMERS GUIDE TO EDIT CONTROL USAGE

6.1 PURPOSE

IT IS THE INTENT OF THIS DOCUMENTATION TO SPECIFY HOW THE PROGRAMMER CAN TAKE ADVANTAGE OF COMMON ROUTINES WHEN WRITING SKELETONS TO RUN WIT EDIT CONTROL PROGRAM. EDIT CONTROL PROVIDES,

1. SHARING OF PREDEBUGGED COMMON ROUTINES.
2. INTERFACE BETWEEN SKELETON AND I/O DEVICES.
3. SEQUENCING OF SKELETON OPERATION WHEN SEVERAL SKELETONS ARE REQUIRED.
4. COMMON BLOCKS OF STORAGE FOR MULTIPLE USE.

6.2 RESERVED AREAS OF STORAGE

A. 'KEYIN'

THIS IS A BLOCK OF 600 WORDS USED TO STORE KEYBOARD ENTRIES AS THEY ARE RECEIVED. AT LOCATION 'KEYIN-1' IS A COUNT OF THE WORDS STORED IN 'KEYIN'. THIS BLOCK OF DATA AND THE WORD COUNT IS CLEARED BY CALL ON THE ROUTINE'KEY.' A TERMINATOR WORD OF /FFFF IS SET AS THE LAST WORD IN 'KEYIN' WHENEVER THE EOF KEY IS DEPRESSED FOLLOWING ANY KEYBOARD CODE. THIS AREA MAY BE USED AS TEMPORARY STORAGE BY SKELETONS BETWEEN CALLS ON THE ROUTINE 'KEY'

B. 'BINARY'

A BLOCK OF 160 WORDS USED TO STORE CONVERTED DATA. THIS DATA WILL BE EITHER DECIMAL OR HEXADECIMAL DEPENDING ON THE CONVERSION ROUTINE LAST USED BY THE SKELETON. A COUNT OF THE NUMBER OF WORDS CURRENTLY STORED IS CONTAINED IN LOCATION 'BINARY-1.'

C. 'ZERO'

THIS LOCATION CONTAINS A CONSTANT OF ZERO.

D. 'TERM'

THIS LOCATION CONTAINS A CONSTANT OF /FFFF.

E. 'STBF'

THIS STORAGE LOCATION CONTAINS THE DISPLACEMENT OF THE NEXT LOCATION AVAILABLE IN THE BLOCK OF CORE LABELED 'SEIB.' 'STBF' WILL BE PROPERLY UPDATED BY CONTROL IF EDIT CARDS ARE STORED IN CARD ORDER. IF IT IS DESIRED TO BUILD EDIT CARDS OUT OF SEQUENCE, THEN 'STBF' MUST BE MAINTAINED BY THE SKELETON USER.

F. 'SEIB'

A BLOCK OF 322 WORDS USED FOR SAVING EDIT CARDS. THIS BLOCK MAY NOT BE REFERENCED DIRECTLY BY THE SKELETON. HOWEVER, IT MAY BE REFERENCED THRU LABEL 'SRTRY+1' TO +323. THE NEXT AVAILABLE LOCATION MAY BE FOUND BY REFERENCE TO THE DISPLACEMENT CONSTANT CONTAINED IN LOCATION 'STBF.'

G. 'SRTRY'

THIS LOCATION SHOULD ALWAYS CONTAIN THE RETURN ADDRESS TO BE REFERENCED BY ROUTINE 'SER' IN CASE OF AN ERROR. THIS LOCATION MAY BE SET EITHER BY A DIRECT STORE OR BY A CALL ON ROUTINE 'SSUER.'

6.3 ROUTINES AVAILABLE IN EDIT CONTROL

THE FOLLOWING IS A DESCRIPTION OF THE ROUTINES AVAILABLE AND THE CALL NECESSARY TO USE THE ROUTINE.

A. 'CKYN' - CHECK KEYBORAD ENTRY FOR Y OR N.

```
BSI  I  CKYN
RETURN 1.
RETURN 2.
```

THE ROUTINE WILL CHECK THE KEYBOARD ENTRY STORED AT LOCATION 'KEYIN' FOR Y OR N. IF THE ENTRY IS Y, THE ROUTINE WILL RETURN TO RETURN 1. IF THE ENTRY IS N, THE ROUTINE WILL RETURN TO RETURN 2. THE ROUTINE WILL ACCEPT EITHER THE UPPER OR LOWER CASE ENTRY FOR THE Y AND N KEYS. IF THE ENTRY IS NEITHER Y OR N A CALL IS MADE ON ROUTINE 'SER' TO PRINT 'ILLEGAL ENTRY.'

B. 'ENDO' - END STATEMENT RETURN

```
END1  BSC  L  ENDO
      END     END1
```

IN ORDER TO PREVENT RELOCATION ERRORS DURING ASSEMBLY, EACH SKELETON MUST END WITH THE ABOVE TWO STATEMENTS. THE END STATEMENT WILL THEN GO TO LABEL 'END1' WHICH WILL BRANCH TO THE EDIT CONTROL PROGRAM AFTER LOADING OF EACH SKELETON.

C. 'HLT' - RELOAD WAIT

```
BSI  I  HLT
```

BRANCH TO A WAIT WITHIN THE EDIT CONTROL PROGRAM. THIS WAIT MUST BE USED WHEN AN ERROR REQUIRING RELOAD IS ENCOUNTERED.

D. 'KTYPS' - PRINT WITH NO CONVERSION

```
BSI  I  KTYPS
```

TILT CODE. THE MESSAGE ADDRESS MUST BE CONTAINED IN INDEX REGISTER 1. PRINTING IS TERMINATED WHEN /FFFF IS FOUND.

E. 'KEY' - PRINT EBCDIC AND READ KEYBOARD

```
BSI  I  KEY
DC      MESSAGE ADDRESS
DC      CONTROL WORD
```

ADDRESS PRINTING CONTINUES UNTIL /FFFF IS FOUND. IF MESSAGE ADDRESS POINTS TO A /FFFF, NO PRINTING WILL TAKE PLACE.

AFTER PRINTING, BIT 0 OF THE CONTROL WORD IS CHECKED FOR THE FOLLOWING.

BO - 0 - RETURN WITHOUT READING KEYBOARD
- 1 - READ THE KEYBOARD UNTIL EOF IS DEPRESSED.

BITS 6 AND 7 OF CONTROL WORD.

00 - STORE KEYBOARD ENTRIES IN 'KEYIN' AREA WITH NO CONVERSION.

01 - CONVERT KEYBOARD CHARACTERS RECEIVED (AS SPECIFIED BY BITS 8-11) TO DECIMAL AND STORE IN 'BINRY' AREA.

10 - CONVERT KEYBOARD CHARACTERS RECEIVED (AS SPECIFIED BY BITS 8-11) TO HEXADECIMAL AND STORE IN 'BINRY' AREA.

BITS 8-11 OF CONTROL WORD

WITH NO CONVERSION THIS IS THE MINIMUM NUMBER OF CHARACTERS TO ACCEPT.

WITH COVERSION, THIS IS THE NUMBER OF KEYBOARD CHARACTERS TO CONVERT TO ONE DECIMAL OR HEXADECIMAL WORD.

F. 'SSUER' - SET ERROR RETURN

```
BSI  I  SSUER
```

STORE THE ADDRESS OF THE CALL IN LOCATION 'SRTRY' FOR POSSIBLE LATER USE BY ROUTINE 'SER.'

G. 'SER' - PRINT ERROR MESSAGE

```
BSI  I  SER
DC      MESSAGE ADDRESS
```

PRINT THE MESSAGE SPECIFIED BY MESSAGE ADDRESS AND RETURN TO THE ADDRESS CONTAINED IN LOCATION 'SRTRY.' MESSAGE IS TERMINATED BY /FFFF.

H. 'SIL' - CHECK FOR VALID INTERRUPT LEVEL

```
BSI  I  SIL
```

CHECKS THE DECIMAL ENTRY STORED AT LOCATION 'BINRY' FOR A VALID INTERRUPT LEVEL. IF THE ENTRY IS VALID, THE ROUTINE RETURNS WITH THE ENTRY IN THE A REGISTER IN BITS 0 THROUGH 7. IF THE ENTRY IS GREATER THAN 23, THIS ROUTINE WILL CALL ON ROUTINE 'SER' TO PRINT 'ENTRY TOO LARGE'.

I. 'SILSW' - CHECK FOR VALID ILSW BIT

```
BSI  I  SILSW
```

CHECKS THE DECIMAL ENTRY STORED AT LOCATION 'BINRY' FOR A VALID ILSW BIT. IF THE ENTRY IS VALID, THE ROUTINE RETURNS WITH THE ENTRY IN THE A REGISTER IN BITS 8 THROUGH 11. IF THE ENTRY IS GREATER THAN 15, A CALL IS MADE ON ROUTINE 'SER' TO PRINT 'ENTRY TOO LARGE'.

J. 'SCH' - CHECK FOR VALID CHANNEL

```
BSI  I  SCH
```

CHECKS THE HEXADECIMAL ENTRY STORED AT LOCATION 'BINRY' FOR A VALID CHANNEL. IF THE ENTRY IS VALID, THE ROUTINE RETURNS WITH THE ENTRY IN THE A REGISTER IN BITS 12 THROUGH 15. IF THE ENTRY IS GREATER THAN 8 AND IS NOT F, A CALL IS MADE ON ROUTINE 'SER' TO PRINT 'ENTRY TOO LARGE'.

K. 'SKINO' - CLEAR KEYIN AREA

```
BSI  I  SKINO
```

CLEARS THE BLOCK OF CORE LABELED 'KEYIN' TO ALL ZEROS.

L. 'SKINI' - SET KEYIN AREA

```
BSI  I  SKINI
```

SETS THE BLOCK OF CORE LABELED 'KEYIN' TO /FFFF.

M. 'PDKYB' - CONVERT KEYBOARD TO DECIMAL

```
BSI  I  PDKYB
DC      CHARACTERS PER WORD
DC      ADDRESS OF DISPLACEMENT
```

STARTING AT LOCATION 'KEYIN' + THE CONTENTS OF DISPLACEMENT ADDRESS, THIS ROUTINE WILL CONVERT TO ONE DECIMAL WORD THE NUMBER OF KEYBOARD CHARACTERS SPECIFIED BY CHARACTERS PER WORD. CONVERSION WILL CONTINUE UNTIL A TERMINATOR OF /FFFF IS FOUND.

N. PHKYB' - CONVERT KEYBOARD TO HEXADECIMAL

```
BSI  I  PHKYB
DC      CHARACTERS PER WORD
DC      ADDRESS OF DISPLACEMENT
```

THIS ROUTINE IS IDENTICAL TO ROUTINE 'PDKYB' EXCEPT THAT THE CONVERSION IS TO HEXADECIMAL.

O. 'SECSU' - SET EDIT CARD

```
BSI  I  SECSU
DC      ADDRESS OF DATA
```

INDEX REGISTER 1 MUST CONTAIN PID.
INDEX REGISTER 2 MUST CONTAIN CARD NUMBER.
INDEX REGISTER 3 MUST CONTAIN NUMBER OF ENTRIES.

THIS ROUTINE WILL SET ONE COMPLETE EDIT CARD INTO LOCATION 'SEIB + STBF.' THE CONTENTS OF 'STBF' WILL BE UPDATED BY THE ROUTINE TO THE NEXT AVAILABLE LOCATION AFTER THE EDIT CARD JUST STORED. 'STBF' MAY BE SET BY THE SKELETON IF IT IS DESIRED TO SET EDIT CARDS OUT OF SEQUENCE.

P. 'S2' - SKELETON EXIT

```
BSC  L  S2
```

THIS IS THE FINAL EXIT POINT, TO CONTROL, FOR EACH SKELETON. THE CONTROL SECTION WILL CHECK THE NEXT SKELETON FOR A TERM SKELETON, AND IF FOUND IT WILL PUNCH AND LIST THE EDIT CARDS. IF NOT FOUND THE NEXT SKELETON WILL BE ENTERED.

6.4 SKELETON REQUIREMENTS

EACH SKELETON MUST BE PRECEEDED BY A SERIES OF EQUATE STATEMENTS. (SEE SECTION 6.6). THE SKELETONS MUST BE RELOCATABLE AND THE ORIGIN STATEMENT MUST BE TO *+3095. NO SKELETON MAY EXCEED 1000 WORDS AND TOTAL SKELETONS FOR ANY ONE PID MUST NOT EXCEED 5000 WORDS. THE FIRST THRFE WORDS OF EACH SKELETON ARE RESERVED FOR PID, CARD NUMBER AND NUMBER OF ENTRIES. THE FOURTH WORD MUST BE THE ENTRY POINT OF THE SKELETON . THESE FIRST FOUR WORDS MUST BE LABELED SKI1, SKI2, SKI3, AND SKI4. (SEE SECTION 6.7). EACH SKFLETON MUST END AS EXPLAINED UNDER 'ENDO'. SECTIONS 6.6, 6.7, AND 6.8 CONTAIN A SAMPLE PROGRAM WHICH CAN BE USED FOR REFERENCE. MESSAGES AS SHOWN IN THE SAMPLE PROGRAM ARE IN STANDARD FORMAT AND THIS FORM SHOULD BE FOLLOWED. STANDARD MESSAGFS PRFSENTLY IN THE DOCUMENTATION SHOULD BE USED WHENEVER POSSIBLE TO PREVENT DOCUMENTATION CHANGES.

6.5 COMMENTS

ANY LABELS CONTAINED IN THE EQUATE STATEMENTS NOT EXPLAINED ABOVE ARE SPECIALIZED ROUTINES USED EXCLUSIVELY BY THE AI EDIT SKELETONS AND NEED NOT CONCERN THE USER.

6.6 EQUATE STATEMENTS

```
                ORG     *+3095
KEY             EQU     300
CKYN            EQU     KEY+1
SSUER           EQU     CKYN+1
SIL             EQU     SSUER+1
SILSW           EQU     SIL+1
SCH             EQU     SILSW+1
SER             EQU     SCH+1
SECSU           EQU     SER+1
SKIN1           EQU     SECSU+1
SKIN0           EQU     SKIN1+1
PDKYB           EQU     SKIN0+1
PHKYB           EQU     PDKYB+1
ENDO            EQU     PHKYB+1
S2              EQU     ENDO+2
BINRY           EQU     S2+4
KEYIN           EQU     BINRY+161
ZERO            EQU     KEYIN+600
BGNR            EQU     ZERO+1
ERR             EQU     BGNR+1
WCC             EQU     ERR+1
MTRM            EQU     WCC+1
TRFX            EQU     MTRM+1
TERM            EQU     TRFX+1
LWC             EQU     TERM+1
LGROP           EQU     LWC+1
STBF            EQU     LGROP+1
SRTRY           EQU     STBF+1
KYTPS           EQU     SRTRY+323
HLT             EQU     KYTPS+1
CODE            EQU     HLT+1
```

6.7 PROGRAM SECTION

```
SKI1    DC      /000B       PID                                 SRC
SKI2    DC      /0000       CD NO                               SRC
SKI3    DC      /0002       NO OF ENTRIES                       SRC
SKI4    BSI  I  SSUER       SET ERROR RETURN                    SRC
        BSI  I  KEY         ENTER IL                            SRC
        DC      SM1
        DC      /8120
*
        BSI  I  SIL         CK IL                               SRC
        STO  L  SWB1        SAVE
*
        BSI  I  SSUER       SET ERROR RETURN                    SRC
        BSI  I  KEY         ENTER ILSW                          SRC
        DC      SM2
        DC      /8120
*
        BSI  I  SILSW       CK ILSW BIT                         SRC
        EOR  L  SWB1        BUILD DDEF
        STO  L  SWB1        SAVE
*
        BSI  I  SSUER       SET ERROR RETURN                    SRC
        BSI  I  KEY         ENTER CH                            SRC
        DC      SM3
        DC      /8210
*
        BSI  I  SCH         CK CHANNEL                          SRC
        EOR     SWB1        BUILD DDEF
        STO     SWB1        SAVE
*
        BSI  I  SSUER       SET ERROR RETURN                    SRC
        BSI  I  KEY         2 DRS ON SYS                        SRC
```



```
        DC      SM4
        DC      /8000
*
        BSI  I  CKYN        CK FOR Y OR N                       SRC
        MDX     SK1         ENTRY WAS Y
*
        LD      K0001       GET 1
        STO     SWB2        SET NOT AVAIL
        MDX     SK2
*
SK1     SLA     16          SET AVAIL
        STO     SWB2
*
SK2     LDX  I1 SKI1        SET IXING
        LDX  I2 SKI2
        LDX  I3 SKI3
*
        BSI  I  SECSU       SET CARD                            SRC
        DC      SWB1
*
        BSI  I  SSUER       SET ERROR RETURN                    SRC
        BSI  I  KEY         ARE WD CT CHGS DES                  SRC
        DC      SM5
        DC      /8000
*
        BSI  I  CKYN        CK FOR Y OR N                       SRC
        MDX     SK3         ENTRY WAS Y
        MDX     SK4         ENTRY WAS N
*
SK3     LDX  I1 SKI1        SET IXING
        LDX  I2 SKI5
        LDX  I3 SKI6
*
        BSI  I  SECSU       SET CARD                            SRC
        DC      SWB3
*
        BSC  L  S2          EXIT
*
SK4     BSI  I  SSUER       SET ERROR RETURN                    SRC
        BSI  I  KEY         ENTER REC WD CT,                    SRC
        DC      SM6
        DC      /8040
*
        LD   L  KEYIN-1     GET WD CT
        CMP     K0056       CK FOR MAX
        MDX     SKE01       ERROR-TOO MANY
        NOP     0
SK5     LDX  L1 KEYIN       SET IX
        LD    1 0           GET ENTRY
        STO  L  KEYIN       SET
        LD   L  TERM        GET FFFF
        STO  L  KEYIN+1     SET
        BSI  I  PDKYB       CONVERT                             SRC
        DC      1
        DC      ZERO
        LD   L  BINRY       GET REC NO
        BSC  L  SKE05,+-    ERROR
        CMP     K0008       CK FOR MAX
        MPX     SKE04       TOO GREAT
        NOP     0
        STO     SK6+1       SET
SK6     LDX  L3 0           IX 3 = ENTRY
        MDX   1 2           INCR IX 1
        MDX  L  KEYIN-1,-2  DECR WD CT
        MDX     SK7
        BSI  I  SER         TOO FEW ENTRIES                     SRC
        DC      SE001
```

```
*
SK7     LD    1 0           SET ENTRIES
        STO   L KEYIN
        LD    1 1
        STO   L KEYIN+1
        LD    1 2
        STO   L KEYIN+2
        LD    1 3
        STO   L KEYIN+3
        LD    L TERM
        STO   L KEYIN+4
*
        BSI   I PDKYB       CONVERT                    SRC
        DC      4
        DC      ZERO
        LD    L BINRY       CK NUMBER
        CMP     K1000
        MDX     SKE03       ERROR TOO GREAT
        NOP     0
        STO   L3 SWB2       SAVE ENTRY
        MDX   1 5           INCR IX 1
        MDX   L KEYIN-1,-5  DECR WD CT
        MDX     S5          GET NEXT
        MDX     SK3         COMPLETE
*
K0001   DC      1           CONSTANTS
K0056   DC      56
K1000   DC      1000
K0008   DC      8
*
SWB1    DC      0           DATA STORAGE
SWB2    DC      0
SWB3    DC      0
        DC      0
        DC      0
        DC      0
        DC      0
        DC      0
        DC      0
        DC      0
*
SK15    DC      /0001       CD ONE
SK16    DC      /0008       NO OF ENTRIES
*
SKE01   BSI   I SER         TOO MANY WD CTS            SRC
        DC      SE001
*
SKE03   BSI   I SER         WD CT TOO GREAT            SRC
        DC      SE003
*
SKE04   BSI   I SER         REC TOO GREAT              SRC
        DC      SE004
*
SKE05   BSI   I SER         FLD WAS ZERO               SRC
        DC      SE004
*
SE001   EBC     .E010  PID 0B-CD 00.
        EBC     .  IMPROPER NUMBER .
        EBC     .OF WDS.
        DC      /FFFF
*
SE003   EBC     .E012  PID 0B-CD 00.
        EBC     .  TOO LARGE A WD C.
        EBC     .T-MAX IS 1000.
        DC      /FFFF
*
SE004   EBC     .E007  PID 0B-CD 00.
        EBC     .  ENTRY TOO LARGE .
```



```
        EBC     .OR 0000.
        DC      /FFFF
*
SM1     EBC     .C001  PID 0B-CD 00.
        EBC     .  ENTER 2 DIGIT DE.
        EBC     .CIMAL INTR LVL FOR.
        EBC     . MAG TAPE.
        DC      /FFFF
*
SM2     EBC     .C002  PID 0B-CD 00.
        EBC     .  ENTER 2 DIGIT DE.
        EBC     .CIMAL ILSW BIT FOR.
        EBC     . MAG TAPE.
        DC      /FFFF
*
SM3     EBC     .C003  PID 0B-CD 00.
        EBC     .  ENTER 1 DIGIT DE.
        EBC     .CIMAL CH FOR MAG T.
        EBC     .APE.
        DC      /FFFF
*
SM4     EBC     .C005  PID 0B-CD 00.
        EBC     .  DOES THIS SYSTEM.
        EBC     . HAVE 2 TAPE DRS-T.
        EBC     .YPE Y OR N.
        DC      /FFFF
*
SM5     EBC     .C015  PID 0B-CD 01.
        EBC     .  IS IT DESIRED TO.
        EBC     . CHANGE WD CTS-TYP.
        EBC     .E Y OR N.
        DC      /FFFF
*
SM6     EBC     .C016  PID 0B-CD 01.
        EBC     .  ENTER REC TO CHA.
        EBC     .NGE AND WD CT DESI.
        EBC     .RED, 1-8 ENTRIES I.
        EBC     .N FOLLOWING FORMAT.
        EBC     .$D DDDD,.
        DC      /FFFF
END1    BSC   L ENDO
        END     END1
```

6.8 TERM SKELETON

```
                ORG     *+3095
KEY             EQU     300
CKYN            EQU     KEY+1
SSUER           EQU     CKYN+1
SIL             EQU     SSUER+1
SILSW           EQU     SIL+1
SCH             EQU     SILSW+1
SER             EQU     SCH+1
SECSU           EQU     SER+1
SKIN1           EQU     SECSU+1
SKIN0           EQU     SKIN1+1
PDKYB           EQU     SKIN0+1
PHKYB           EQU     PDKYB+1
ENDO            EQU     PHKYB+1
S2              EQU     ENDO+2
BINRY           EQU     S2+4
KEYIN           EQU     BINRY+161
ZERO            EQU     KEYIN+600
BGNR            EQU     ZERO+1
ERR             EQU     BGNR+1
WCC             EQU     ERR+1
MTRM            EQU     WCC+1
TRFX            EQU     MTRM+1
TERM            EQU     TRFX+1
LWC             EQU     TERM+1
LGROP           EQU     LWC+1
STBF            EQU     LGROP+1
SRTRY           EQU     STBF+1
KYTPS           EQU     SRTRY+323
HLT             EQU     KYTPS+1
CODE            EQU     HLT+1
SKI1            DC      /000B
SKI2            DC      /FFFF
SKI3            DC      0
SKI4            DC      0
END1            BSC  L  END0
                END     END1
```

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

```
02BC                        ABS
                            ORG     /3001                          8C200010
                     *                                             8C200020
                     *                                             8C200030
                     ********************************************* 8C200040
3001 0  0772                DC      WAIT1+1   1816 IS OUT OF FORMS. 8C200050
                     *                         MAKE READY AND PRESS 8C200060
                     *                         START.               8C200070
                     ********************************************* 8C200080
                     *                                             8C200090
3002 0  075C                DC      WAIT2+1   1816 IS HUNG IN BUSY. 8C200100
                     *                         RESTART IS REQUIRED. 8C200110
                     ********************************************* 8C200120
                     *                                             8C200130
                     ********************************************* 8C200140
3003 0  0983                DC      WAIT3+1   1442 IS NOT READY     8C200150
                     *                         BEFORE A READ.       8C200160
                     *                         MAKE READY AND PUSH  8C200170
                     *                         START.               8C200180
                     *                                             8C200190
                     ********************************************* 8C200200
3004 0  098A                DC      WAIT4+1   1442 READ ERROR.      8C200210
                     *                         RELOAD CARDS AND     8C200220
                     *                         PUSH START TO RETRY. 8C200230
                     ********************************************* 8C200240
                     *                                             8C200250
                     ********************************************* 8C200260
3005 0  0BE7                DC      WAIT5+1   RELOAD REQUIRED TO    8C200270
                     *                         CORRECT ERROR-PRESS  8C200280
                     *                         START TO IGNORE.     8C200290
                     ********************************************* 8C200300
                     *                                             8C200310
                     ********************************************* 8C200320
3006 0  09D7                DC      WAIT6+1   1442 IS NOT READY     8C200330
                     *                         BEFORE PUNCH.  MAKE  8C200340
                     *                         READY AND PRESS START. 8C200350
                     ********************************************* 8C200360
                     *                                             8C200370
                     ********************************************* 8C200380
3007 0  09DE                DC      WAIT7+1   1442 PUNCH ERROR.     8C200390
                     *                         PRESS START TO RETRY. 8C200400
                     ********************************************* 8C200410
                     *                                             8C200420
                     ********************************************* 8C200430
3008 0  05E0                DC      WAIT8+1   END OF PROGRAM.       8C200440
                     *                         LOAD SKELETONS AND   8C200450
                     *                         PRESS START TO RERUN. 8C200460
                     ********************************************* 8C200470
3009                        ORG     300                            8C200480
0C17                SKI1    EQU     3095                           8C200490
0C19                SKI2    EQU     SKI1+1                         8C200500
0C1A                SKI3    EQU     SKI2+1                         8C200510
012C 0  05E7        SKI4    EQU     SKI3+1                         8C200520
012D 0  077A        KEY     DC      KEYE                           8C200530
012E 0  079A        CKYN    DC      CKYNE                          8C200540
012F 0  07A1        SSUER   DC      SSUEE                          8C200550
0130 0  07AF        SIL     DC      SILE                           8C200560
0131 0  07BA        SILSW   DC      SILSE                          8C200570
0132 0  07CB        SCH     DC      SCHE                           8C200580
0133 0  07D5        SER     DC      SERE                           8C200590
0134 0  0803        SECSU   DC      SECSE                          8C200600
0135 0  080E        SKIN1   DC      KIN1                           8C200610
0136 0  0818        SKINO   DC      KINO                           8C200620
0137 0  0821        PDKYB   DC      DKYB                           8C200630
0138 00 4C800A94    PHKYB   DC      HKYB                           8C200640
013A 00 4C0005B9    END0    BSC  I  RDSK                          8C200650
013C 0  0000        S2      BSC  L  END1                          6C200660
                            DC      0                              8C200670
                                                                   8C200680
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```
013D 0  0000        BWC     DC      0       BINARY WORD COUNT      8C200690
013E    00A0        BINRY   BSS     160                            8C200700
                    ********************************************** 8C200710
01DE 0  0000        KIWC    DC                                     8C200720
01DF    0258        KEYIN   BSS     600                            8C200730
                    ********************************************** 8C200740
0437 0  0000        ZERO    DC      /0000                          8C200750
0438 0  0AB4        BGNR    DC      LBGNR                          8C200760
0439 0  0AC1        ERR     DC      LERR                           8C200770
043A 0  0AC5        WCC     DC      LWCC                           9C200780
043B 0  0ACD        MTRM    DC      LMTRM                          8C200790
043C 0  0AE5        TRFX    DC      LTRFX                          8C200800
043D 0  FFFF        TERM    DC      /FFFF                          8C200810
043E 0  0000        LWC     DC                     WC STORAGE      8C200820
043F 0  0000        LGROP   DC                     GROUP COUNTER   8C200830
0440 0  0000        STBF    DC      0              DISPLACEMENT    8C200840
0441 0  0000        SRTRY   DC      /0000                          8C200850
                    *                                              8C200860
                    *                                              8C200870
                    ********* EDIT IMAGE BUFFER **********         8C200880
0442 0  0000        SEIB    DC      /0000                          8C200890
0443    0141                BSS     321                            8C200900
0584 0  0768        KTYPS   DC      KTYP                           8C200910
0585 0  0BE5        HLT     DC      HLTE                           8C200920
0586 0  0A69        CODE    DC      KTILT                          8C200930
0588    0000                BSS  E  0                              8C200940
0588 00 4C000588    SRST    BSC  L  START          RESTART         8C200950
                    *                                              8C200960
                    *                  CONTROL SECTION             8C200970
                    *                                              8C200980
058A 0  1000        STARI   NOP     0                              8C200990
058B 00 C40005E2    START   LD   L   K3095         SET LDR CONSTANTS 8C201000
058D 00 D400006F            STO  L  /006F          *              8C201010
058F 00 D4000125            STO  L  /0125          *              8C201020
0591 0  1010                SLA     16             *              8C201030
0592 00 D4000127            STO  L  /0127          *              8C201040
0594 00 D4000440            STO  L  STBF                          8C201050
                    *                                             8C201060
0596 0  C8F1                LDD     SRST           SET RESTART    8C201070
0597 00 DC000000            STD  L  /0000          *              8C201080
0599 00 4480012E    S1      BSI  I  SSUER          SET ERROR RETURN SRC 8C201090
059B 00 4480012C            BSI  I  KEY            REQ PID        SRC 8C201100
059D 0  0BBB                DC      SM2                           8C201110
059E 0  8220                DC      /8220                         8C201120
                    *                                             8C201130
059F 00 C400013E            LD   L  BINRY          GET PID REQUESTED 8C201140
05A1 00 B40005E6            CMP  L  K00FF                        8C201150
05A3 0  703F                MDX     ERR04                        8C201160
05A4 0  1000                NOP     0                            8C201170
05A5 0  D03B                STO     XPID           SAVE          8C201180
                    *                                            8C201190
05A6 00 44000A94    S2E     BSI  L  RDSK           READ A SKELETON SRC 8C201200
                    *                                            8C201210
05A8 0  C80F                LDD     SRST           SET RESTART   8C201220
05A9 00 DC000000            STD  L  /0000          *             8C201230
                    *                                            8C201240
05AB 00 C4000C17            LD   L  SKI1           GET PID READ  8C201250
05AD 00 F40005E1            EOR  L  XPID           IS IT DESIRED 8C201260
05AF 00 4C2005B9            BSC  L  END1,Z         NO            8C201270
05B1 00 C4000C18            LD   L  SKI2           GET CD NO     8C201280
05B3 00 F400043D            EOR  L  TERM           IS IT TERM    8C201290
05B5 00 4C1805C3            BSC  L  STTRM,+-       YES           8C201300
05B7 00 4C000C1A            BSC  L  SKI4           GO TO SKELTON 8C201310
                    *                                            8C201320
05B9 00 C40005E2    END1    LD   L  K3095          RESET LOADER CNSTS 8C201330
05BB 00 D400006F            STO  L  /006F          *             8C201340
05BD 00 D4000125            STO  L  /0125          *             8C201350
                                                                  8C201360
```

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4K EDIT CONTROL

```
05BF 0  1010                 SLA     16          *                                8C201370
05C0 00 D4000127             STO  L  /0127       *                                8C201380
05C2 0  70E3                 MDX     S2E         READ NEXT SKELTON                8C201390
                      *                                                           8C201400
05C3 00 C4000440      STTRM  LD   L  STBF        COMPUTE ADRS                     8C201410
05C5 00 84000801             A    L  STBF1       *                                8C201420
05C7 0  D001                 STO     *+1         SAVE                             8C201430
05C8 00 65000000             LDX  L1 0                                            8C201440
05CA 00 C4000C17             LD   L  SKI1        GET PID                          8C201450
05CC 0  D100                 STO  1  0                                            8C201460
05CD 00 C400043D             LD   L  TEPM        GET TERMINATION                  8C201470
05CF 0  D101                 STO  1  1           SET                              8C201480
05D0 00 44000907             BSI  L  PECOR       PUNCH EDIT                  SRC  8C201490
05D2 0  1010                 SLA     16          CLEAR DISPL                      8C201500
05D3 00 D4000440             STO  L  STBF        *                                8C201510
                      *                                                           8C201520
05D5 00 65000142             LDX  L1 322         CLEAR EDIT BFR                   8C201530
05D7 00 D4000441      STTR   STO  L  SEIB-1      *                                8C201540
05D9 0  71FF                 MDX  1  -1                                           8C201550
05DA 0  70FC                 MDX     STTR                                         8C201560
05DB 00 4480012C             BSI  I  KEY         PROG END                    SRC  8C201570
05DD 0  0BD1                 DC      SM33                                         8C201580
05DE 0  0000                 DC      0                                            8C201590
                      *                                                           8C201600
05DF 0  3008          WAIT8  WAIT    8           PROGRAM END                      8C201610
05E0 0  70AA                 MDX     START       RESTART PROG                     8C201620
                      *                                                           8C201630
05E1 0  0000          XPID   DC      0           CONSTANTS                        8C201640
05E2 0  0C17          K3095  DC      3095                                         8C201650
05E3 00 44800132      ERR04  BSI  I  SER                                          8C201660
05E5 0  0BAD                 DC      SE002                                        8C201670
05E6 0  00FF          KOOFF  DC      /00FF                                        8C201680
                      *                                                           8C201690
                      *                                                           8C201700
                      *                                                           8C201710
                      *                          PRINTER I/O ROUTINE              8C201720
                      *                                                           8C201730
                      *                          CALL     BSI    KEY              8C201740
                      *                                   DC     MSGAD            8C201750
                      *                                   DC     ID               8C201760
                      *                                                           8C201770
                      *                          ID   BIT 0   KEYBOARD            8C201780
                      *                               X0XX     NO CONV            8C201790
                      *                               X1XX    DEC CONV            8C201800
                      *                               X2XX    HCX CONV            8C201810
                      *                                                           8C201820
05E7 0  0000          KEYE   DC      /0000                                        8C201830
05E8 0  6941                 STX  1  KEY96+1     SAVE STATUS                      8C201840
05E9 0  6A42                 STX  2  KEY97+1                                      8C201850
05EA 0  6843                 STX  3  KEY98+1                                      8C201860
05EB 00 DC000A22             STD  L  KAQ                                          8C201870
05ED 0  2843                 STS     KEY99                                        8C201880
                      *                                                           8C201890
05EE 00 C48005E7             LD   I  KEYE        FETCH MESS ADRS                  8C201900
05F0 00 D4000A1C             STO  L  KMSG                                         8C201910
05F2 00 740105E7             MDX  L  KEYE,1      POINT TO ID                      8C201920
                      *                                                           8C201930
05F4 00 65000A1D             LDX  L1 KOUT        SET CARRIER RETURN               8C201940
05F6 00 C4000A79             LD   L  KCR                                          8C201950
                      *                                                           8C201960
05F8 0  1808                 SRA     8           CLEAR EBDIC CODE                 8C201970
05F9 0  1008                 SLA     8                                            8C201980
05FA 0  D100                 STO  1  0           STORE IN OUTPUT AREA             8C201990
                      *                                                           8C20200C
05FB 00 C4800A1C      KEBC2  LD   I  KMSG        CHECK TERMINATOR                 8C202010
05FD 00 84000A2C             A    L  KONE                                         8C202020
05FF 00 4C180621             BSC  L  KCHK,+-     BR IF NO MORE MESS               8C202030
                                                                                  8C202040
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4K EDIT CONTROL

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                      ********************************************                8C202050
                      *                                                           8C202060
0601 0  6208                 LDX  2  8                                            8C202070
0602 00 67000A50      KEBC3  LDX  L3 KTGLT       CONVERT-CHARS TO RTT             8C202080
0604 0  7101                 MDX  1  1                                            8C202090
0605 00 C4800A1C      KEBC4  LD   I  KMSG        FETCH EBDIC CHARS                8C202100
0607 0  1A00                 SRA  2  0                                            8C202110
0608 0  1008                 SLA     8                                            8C202120
0609 0  1808                 SRA     8                                            8C202130
060A 0  F300                 EOR  3  0                                            8C202140
060B 0  D100                 STO  1  0                                            8C202150
060C 0  1008                 SLA     8                                            8C202160
060D 0  7301                 MDX  3  1                                            8C202170
060E 00 4C200605             BSC  L  KEBC4,Z     BR IF NOT THE CHAR               8C202180
                      *                                                           8C202190
0610 0  7200                 MDX  2  0           SKIP IF 2 CHARS CNVT             8C202200
0611 0  700D                 MDX     KEBC6                                        8C202210
                      *                                                           8C202220
0612 00 C4000A2C             LD   L  KONE        SET TERMINATOR                   8C202230
0614 0  8100                 A    1  0                                            8C202240
0615 0  D100                 STO  1  0                                            8C202250
0616 00 65000A1D             LDX  L1 KOUT        GO PRINT CHARS                   8C202260
0618 00 44000768             BSI  L  KTYP                                         8C202270
                      *                                                           8C202280
061A 00 65000A1C             LDX  L1 KOUT-1                                       8C202290
061C 00 74010A1C             MDX  L  KMSG,1      POINT TO NEXT WORD               8C202300
061E 0  70DC                 MDX     KEBC2                                        8C202310
                      *                                                           8C202320
061F 0  6200          KEBC6  LDX  2  0           CONVERT SECOND CHAR              8C202330
0620 0  70E1                 MDX     KEBC3                                        8C202340
                      ********************************************                8C202350
                      *                                                           8C202360
                      *                                                           8C202370
0621 00 65000A79      KCHK   LDX  L1 KCR                                          8C202380
0623 00 44000768             BSI  L  KTYP        DO CAR RET                  SRC  8C202390
0625 00 C48005E7             LD   I  KEYE                                         8C202400
0627 00 4C280636             BSC  L  KFRM,+Z     BR IF KBD ENTRY                  8C202410
                      ********************************************                8C202420
                      *                                                           8C202430
0629 00 65000000      KEY96  LDX  L1 /0000       RESTORE STATUS                   8C202440
062B 00 66000000      KEY97  LDX  L2 /0000                                        8C202450
062D 00 67000000      KEY98  LDX  L3 /0000                                        8C202460
062F 00 CC000A22             LDD  L  KAQ                                          8C202470
0631 0  2000          KEY99  LDS     0                                            8C202480
                      *                                                           8C202490
0632 00 740105E7             MDX  L  KEYE,1                                       8C202500
0634 00 4C8005E7             BSC  I  KEYE        RETURN EXIT                      8C202510
                      ********************************************                8C202520
                      ********************************************                8C202530
                      *                                                           8C202540
                      *                                                           8C202550
0636 0  1090          KFRM   SLT     16          FETCH FORM NUMBER                8C202560
0637 00 C48005E7             LD   I  KEYE                                         8C202570
0639 0  1004                 SLA     4                                            8C202580
063A 0  18CC                 RTE     12                                           8C202590
063B 00 D4000729             STO  L  KEYFM       SAVE FORM NO                     8C202600
063D 0  1804                 SRA     4                                            8C202610
063E 0  1084                 SLT     4                                            8C202620
063F 00 D400072A             STO  L  KEYNO       SAVE CHAR/WD COUNT               8C202630
                      *                                                           8C202640
                      *                                                           8C202650
0641 00 44800134      KEYOG  BSI  I  SKIN1       SET KEYIN TO FFFF           SRC  8C202660
                      *                                                           8C202670
0643 00 6F0001DE             STX  L3 KIWC        RESET WD CT                      8C202680
                      *                                                           8C202690
0645 00 670001DF             LDX  L3 KEYIN       RESET READ AREA                  8C202700
                      ********************************************                8C202710
0647 00 6F000A2A      KEYO   STX  L3 KRED                                         8C202720
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0649 00 44000745          BSI  L  KNBY        WAIT FOR NOT BUSY                8C202730
                          *                                                     8C202740
064B 00 0C000A28  KEY1    XIO  L  KPCD        SET KEYBOARD PROCEED             8C202750
                          *                                                     8C202760
064D 00 0C000A1A  KEY2    XIO  L  KSNS        SENSE STATUS                     8C202770
064F 0  1001              SLA      1                                            8C202780
0650 00 4C280656          BSC  L  KEY3,+Z      GO READ KEYBOARD                 8C202790
                          *                                                     8C202800
0652 0  1005              SLA      5                                            8C202810
0653 00 4C100648          BSC  L  KEY1,-       BR IF NOT PROCEED                8C202820
0655 0  70F7              MDX      KEY2                                         8C202830
                          *                                                     8C202840
0656 00 0C000A2A  KEY3    XIO  L  KRED        READ KEYBOARD                    8C202850
                          *                                                     8C202860
0658 0  610B      KFMS    LDX      1 11       CHECK FOR DEC OR SPC             8C202870
0659 0  C300      KFMS1   LD       3 KRED-KRED FETCH CHAR READ                  8C202880
065A 00 F5000A33          FOR   L1 KECOD-1                                      8C202890
065C 00 4C1806B3          BSC  L  KDEC,+-      BR IF DEC OR SPACE               8C202900
                          *                                                     8C202910
065E 0  71FF              MDX      1 -1                                         8C202920
065F 0  70F9              MDX      KFMS1                                        8C202930
                          *                                                     8C202940
0660 00 C4000729          LD   L  KEYFM        CHECK FOR FORM                   8C202950
0662 00 F4000A2C          EOR  L  KONE                                          8C202960
0664 00 4C18067D          BSC  L  KFM0,+-      BRANCH IF FORM 1                 8C202970
                          ********************************************          8C202980
0666 0  6106      KFM2    LDX      1 6        CHECK FOR HEX                    8C202990
0667 0  C300      KFM21   LD       3 KRED-KRED FETCH CHAR READ                  8C203000
0668 00 F5000A3E          EOR   L1 KECAD-1                                      8C203010
066A 00 4C1806B6          BSC  L  KHEX,+-      BR IF ALPHA                      8C203020
                          *                                                     8C203030
066C 0  71FF              MDX      1 -1                                         8C203040
066D 0  70F9              MDX      KFM21                                        8C203050
066E 0  C300              LD       3 KRED-KRED FETCH CHAR READ                  8C203060
066F 00 F4000A31          EOR  L   KECPD                                        8C203070
0671 00 4C20067D          BSC  L   KFM0,Z      BR IF NOT PERIOD                 8C203080
0673 0  C3FC              LD       3 -4        A PLUS OR MINUS                  8C203090
0674 0  6201              LDX      2 1                                          8C203100
0675 0  1240              SLCA     2 0                                          8C203110
0676 00 F4000B7F          EOR  L   K8000                                        8C203120
0678 00 4420072D          BSI  L   KERR,Z      BR IF NOT + OR -                 8C203130
067A 00 C4000A65          LD   L   KTPLT                                        8C203140
067C 0  7022              MDX      KPNE                                         8C203150
                          *                                                     8C203160
                          ********************************************          8C203170
067D 0  6108      KFM0    LDX      1 8        CHECK UC SP CHRS                 8C203180
067E 0  C300      KFM01   LD       3 0        GET CHR READ                     8C203190
067F 00 F5000A2C          EOR   L1 KN-1       CK AGAINST TBL                   8C203200
0681 00 4C1806A8          BSC  L   KMDX,+-     CHAR FOUND                       8C203210
0683 0  71FF              MDX      1 -1        DECR IX 1                        8C203220
0684 0  70F9              MDX      KFM01       LOOP                             8C203230
                          *                                                     8C203240
0685 0  6107              LDX      1 7        CK LC SP CHRS                    8C203250
0686 0  C300      KFM02   LD       3 0        GET CHR READ                     8C203260
0687 00 F5000A47          EOR   L1 KAL-1       CK AGAINST TBL                   8C203270
0689 00 4C1806B1          BSC  L   KMPX,+-     CHARACTER FOUND                  8C203280
068B 0  71FF              MDX      1 -1        DECR IX 1                        8C203290
068C 0  70F9              MDX      KFM02       LOOP                             8C203300
068D 0  C300              LD       3 0        GET CHR READ                     8C203310
068E 00 F4000A21          EOR  L   KL                                           8C203320
0690 00 442006CC          BSI  L   KSPC,Z                                       8C203330
                          *                                                     8C203340
0692 0  6201              LDX      2 1                                          8C203350
0693 0  C3FA              LD       3 -6                                         8C203360
0694 0  1002              SLA      2                                            8C203370
0695 0  1240              SLCA     2 0                                          8C203380
0696 00 F4000B7F          EOR  L   K8000                                        8C203390
0698 00 4420072D          BSI  L   KERR,Z      BR IF NOT 1 OR ZERO              8C203400
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                          *                                                     8C203410
069A 0  C3FA              LD       3 -6                                         8C203420
069B 0  1802              SRA      2                                            8C203430
069C 0  D3FA              STO      3 -6                                         8C203440
069D 00 C4000A55          LD   L   KLRT                                         8C203450
069F 00 EC000A2C  KPNE    OR   L   KONE                                         8C203460
06A1 00 65000A1D          LDX  L1  KOUT                                         8C203470
06A3 0  D100              STO      1 0                                          8C203480
06A4 00 44000768          BSI  L   KTYP                                         8C203490
06A6 00 4C000647          BSC  L   KEYO        BRANCH                           8C203500
                          *                                                     8C203510
06A8 0  C300      KMDX    LD       3 0        FETCH CHAR                       8C203520
06A9 00 F4000A32          EOR  L   KECPD+1                                      8C203530
06AB 00 4C2006B1          BSC  L   KMPX,7      BR IF NOT + SIGN                 8C203540
06AD 0  C300              LD       3 0        MAKE + = /8000                   8C203550
06AE 0  180C              SRA      12                                           8C203560
06AF 0  100C              SLA      12                                           8C203570
06B0 0  D300              STO      3 0                                          8C203580
06B1 0  7111      KMPX    MDX      1 KN-KECGD  ADJ IX 1                         8C203590
06B2 0  7001              MDX      KDEC1                                        8C203600
                          *                                                     8C203610
                          ********************************************          8C203620
06B3 0  7118      KDEC    MDX      1 KECOD-KECGD  CORCT XR1                     8C203630
                          *                                                     8C203640
06B4 0  4003      KDEC1   BSI      KSTO        GO STORE + PRT          SRC      8C203650
                          *                                                     8C203660
06B5 0  7091              MDX      KEYO        RETURN FOR NEXT                  8C203670
                          *                                                     8C203680
                          *                                                     8C203690
06B6 0  7123      KHEX    MDX      1 KECAD-KECGD  GO PRINT A - F                8C203700
06B7 0  70FC              MDX      KDEC1                                        8C203710
                          ********************************************          8C203720
                          *                                                     8C203730
                          *           STORE AND PRINT RTN                       8C203740
06B8 0  0000      KSTO    DC       /0000                                        8C203750
06B9 0  C300              LD       3 0                                          8C203760
06BA 0  EBFF              OR       3 -1                                         8C203770
06BB 0  1804              SRA      4                                            8C203780
06BC 00 4C9806B8          BSC  I   KSTO,+-     BR IF SECOND SPACE               8C203790
                          *                                                     8C203800
06BE 00 C5000A4F          LD   L1  KTGLT-1     FETCH TYPR CHAR                  8C203810
06C0 00 EC000A2C          OR   L   KONE                                         8C203820
06C2 00 65000A1D          LDX  L1  KOUT                                         8C203830
06C4 0  D100              STO      1 0                                          8C203840
06C5 00 44000768          BSI  L   KTYP        TYPE CHARACTER                   8C203850
                          *                                                     8C203860
                          *           UPDATE KEYBOARD BUF                       8C203870
06C7 00 740101DE          MDX  L   KIWC,1                                       8C203880
06C9 0  7301              MDX      3 1                                          8C203890
                          *                                                     8C203900
06CA 00 4C8006B8          BSC  I   KSTO        RETURN TO USER                   8C203910
                          ********************************************          8C203920
                          *           SPECIAL CHAR CHECK                        8C203930
06CC 0  0000      KSPC    DC       /0000                                        8C203940
                          *                                                     8C203950
06CD 0  C300              LD       3 0        FETCH KEY CHARACTER              8C203960
06CE 00 F4000A4F          EOR  L   KCMA                                         8C203970
06D0 00 4C2006E8          BSC  L   KSPC5,Z     BR IF NOT A  COMMA               8C203980
                          *                                                     8C203990
06D2 00 C40001DE          LD   L   KIWC                                         8C204000
06D4 00 94000789          S    L   K0002                                       8C204010
06D6 00 4428072D          BSI  L   KERR,+Z     BR IF COMMA TOO SOON             8C204020
                          *                                                     8C204030
06D8 0  C3FF              LD       3 -1        FETCH LAST ENTRY                 8C204040
06D9 0  1804              SRA      4                                            8C204050
06DA 00 4C1806DF          BSC  L   KSPC2,+-    BR IF SPACE LAST                 8C204060
06DC 00 740101DE          MDX  L   KIWC,+1                                      8C204070
                                                                                8C204080
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06DE 0  7301                MDX   3 +1
06DF 00 C4000A2C  KSPC2 LD    L  KOME
06E1 0  D3FF                STO   3 -1          SET FIELD PROTECT MK
                    *
06E2 00 65000700            LDX   L1 KCOMA
06E4 00 44000768            BSI   L  KTYP       GO PRINT + OR-
                    *
06E6 00 64000647            LDX   L  KEYO       RETURN FOR MORE CHR
                    ********************************************
06E8 0  C300        KSPC5 LD    3 0             FETCH KEY CHARACTER
06E9 00 F4000A46            EOR   L  KERSE
06EB 00 4C200703            BSC   L  KSPC9,Z    BR IF NOT ERASE CHAR
                    *
06ED 00 C40001DE            LD    L  KIWC
06EF 00 4C080647            BSC   L  KEYO,+     BR IF WORD COUNT ZERO
                    *
06F1 0  C3FF                LD    3 -1          CHECK PROTECT BIT
06F2 00 4C040647            BSC   L  KEYO,E     BR IF LAST WORD PROTD
06F4 0  1801                SRA     1
06F5 00 4C0406FB            BSC   L  KSPC6,E    DO BKSP OVER PERIOD
06F7 0  73FF                MDX   3 -1          DECREASE WORD COUNT
06F8 00 74FF01DE            MDX   L  KIWC,-1
06FA 0  1000                NOP
06FB 00 65000702  KSPC6 LDX   L1 KBKSP
06FD 0  406A                BSI     KTYP        DO A BACKSPACE          SRC
                    *
06FE 00 4C000647            BSC   L  KEYO       RETURN
                    ********************************************
0700 0  8000        KCOMA DC      /8000         COMMA RESPONSE
0701 0  8101                DC      /8101
0702 0  1101        KBKSP DC      /1101
                    *
0703 0  C300        KSPC9 LD    3 0             FETCH KEY CHAR
0704 00 F4000A45            EOR   L  KRENT
0706 00 4418072D            BSI   L  KERR,+-    BR IF ERASE FIELD
                    *
0708 0  C300                LD    3 KRED-KRED   FETCH CHAR PEAD
0709 00 F4000A47            EOR   L  KENDK
070B 00 4C200647            BSC   L  KEYO,Z     BR IF NOT EOF KEY
                    *
070D 00 C40001DE            LD    L  KIWC       FETCH WORD COUNT
070F 0  901A                S       KEYNO
0710 00 4428072D            BSI   L  KERR,+Z    TOO FEW ENTRIES
0712 00 658001DE            LDX   I1 KIWC       CLEAR FIELD PROT BIT
0714 00 C50001DE  KSPCA LD    L1 KIWC
0716 0  1804                SRA     4
0717 0  1004                SLA     4
0718 00 D5000 1DE           STO   L1 KIWC
071A 0  71FF                MDX     1 -1
071B 0  70F8                MDX     KSPCA
                    *
                    *
071C 0  C3FF                LD    3 -1          REMOVE SP BEFORE
                    *                           TERMINATE
071D 0  1804                SRA     4
071E 00 4C200725            BSC   L  KSPCE,Z    BR IF NO SPACE THERE
0720 0  73FF                MDX   3 -1          DECREMENT WORD COUNT
0721 00 74FF01DE            MDX   L  KIWC,-1
0723 0  7001                MDX     KSPCE
0724 0  4008                BSI     KERR
0725 0  C01E        KSPCE LD      KNEG          SET TERMINATION
0726 0  D300                STO   3 0
0727 00 44000AA0            BSI   L  LDOIT      LET LLOYD DO IT
0729 0  0000        KEYFM DC      /0000         FORM NUMBER
072A 0  0000        KEYNO DC      /0000         CHARS / WORD
072B 00 4C000629  EXIT  BSC   L  KEY96
                    ********************************************
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8C204090 8C204100 8C204110 8C204120 8C204130 8C204140 8C204150 8C204160 8C204170 8C204180 8C204190 8C204200 8C204210 8C204220 8C204230 8C204240 8C204250 8C204260 8C204270 8C204280 8C204290 8C204300 8C204310 8C204320 8C204330 8C204340 8C204350 8C204360 8C204370 8C204380 8C204390 8C204400 8C204410 8C204420 8C204430 8C204440 8C204450 8C204460 8C204470 8C204480 8C204490 8C204500 8C204510 8C204520 8C204530 8C204540 8C204550 8C204560 8C204570 8C204580 8C204590 8C204600 8C204610 8C204620 8C204630 8C204640 8C204650 8C204660 8C204670 8C204680 8C204690 8C204700 8C204710 8C204720 8C204730 8C204740 8C204750 8C204760


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                    *
                    *
072D 0  0000        KERR  DC      /0000
072E 00 65000A7A            LDX   L1 KFELD      PRINT FIELD CANCELLD
0730 0  4037                BSI     KTYP        TYPE                    SRC
                    *
0731 0  7301                MDX   3 1
0732 00 740101DF            MDX   L  KIWC,1
0734 0  61FF                LDX     1 -1
0735 0  C3FF        KERR1 LD    3 -1            ERASE TO FIELD MARK
0736 00 4C040647            BSC   L  KEYO,E     BR IF FIELD MARK
                    *
0738 0  C008                LD      KNEG
0739 0  D300                STO   3 0
073A 0  73FF                MDX   3 -1          DECREMENT WORD COUNT
073B 00 74FF01DE            MDX   L  KIWC,-1
073D 0  70F7                MDX     KERR1
                    *
073E 00 C40001DE            LD    L  KIWC
0740 00 4C100647            BSC   L  KEYO,-
0742 00 4C000641            BSC   L  KEYOG
0744 0  FFFF        KNEG  DC      -1            CONSTANT MINUS ONE
                    ********************************************
                    *
                    *                                           *
                                                TYPR NOT BUSY RTN
0745 0  0000        KNBY  DC      /0000
0746 0  6A18                STX   2 KNBY5+1
0747 00 6600000A            LDX   L2 10         SET TIME COUNTER
0749 00 6E000767            STX   L2 KTIME
074B 00 66007FFF  KNBY0 LDX   L2 /7FFF
074D 00 0C000A1A  KNBY1 XIO   L  KSNS           CHECK BUSY
074F 0  1004                SLA     4
0750 00 4C100761            BSC   L  KNBY5,-    BR IF NOT BUSY
0752 0  72FF                MDX     2 -1
0753 0  70F9                MDX     KNBY1       CHECK AGAIN
0754 00 74FF0767            MDX   L  KTIME,-1   DECREMENT TIMER
0756 0  70F4                MDX     KNBY0
                    *
0757 00 6600075D            LDX   L2 KNBY4      TYPR HUNG UP BUSY
0759 00 6E000003            STX   L2 3
075B 0  3002        WAIT2 WAIT    2             1816 HUNG UP BUSY
075C 0  70EA                MDX     KNBY+2
                    *
075D 00 6600012C  KNBY4 LDX   L2 300        RESTORE RESTART
075F 00 6E000003            STX   L2 3
                    *
0761 00 66000000  KNBY5 LDX   L2 /0000      EXIT
0763 00 0C000A24            XIO   L  KRDY   RESET
0765 00 4C800745            BSC   I  KNBY
0767 0  0000        KTIME DC      /0000         TIME COUNTER
                    ********************************************
                    *
                    *
                    *
                    *                                           *
                                                PRINTER OUTPUT RTN
                    *                           XR1 = ADRS OF MESS
                    *
0768 0  0000        KTYP  DC      /0000
0769 00 6D000A26  KTYP1 STX   L1 KPRT           SAVE PRINTING ADDR
                    *
076B 0  40D9                BSI     KNBY        WAIT OFR NOT BUSY
                    *
076C 00 0C000A24  KTYP5 XIO   L  KRDY           CHECK READY
076E 0  1005                SLA     5
076F 00 4C100773            BSC   L  KTYP6,-    BR IF READY
0771 0  3001        WAIT1 WAIT    1             PRINTER OUT OF FORMS
                    *
```

8C204770 8C204780 8C204790 8C204800 8C204810 8C204820 8C204830 8C204840 8C204850 8C204860 8C204870 8C204880 8C204890 8C204900 8C204910 8C204920 8C204930 8C204940 8C204950 8C204960 8C204970 8C204980 8C204990 8C205000 8C205010 8C205020 8C205030 8C205040 8C205050 8C205060 8C205070 8C205080 8C205090 8C205100 8C205110 8C205120 8C205130 8C205140 8C205150 8C205160 8C205170 8C205180 8C205190 8C205200 8C205210 8C205220 8C205230 8C205240 8C205250 8C205260 8C205270 8C205280 8C205290 8C205300 8C205310 8C205320 8C205330 8C205340 8C205350 8C205360 8C205370 8C205380 8C205390 8C205400 8C205410 8C205420 8C205430 8C205440

```
0772 0  70F9            MDX     KTYPS                                   8C205450
                        *                                               8C205460
0773 00 0C000A26  KTYP6 XIO  L  KPRT        OUTPUT ONE CHAR             8C205470
0775 0  C100            LD   1  0                                       8C205480
0776 00 4C840768        BSC  I  KTYP,E      EXIT IF MSG PRIM            8C205490
                        *                                               8C205500
0778 0  7101            MDX  1  1                                       8C205510
0779 0  70EF            MDX     KTYP1                                   8C205520
077A 0  0000      CKYNE DC      0                                   SE  8C205530
077B 00 C40001DF        LD   L  KEYIN       GET ENTRY                   8C205540
077D 0  F018            EOR     YES         IS IT Y LC                  8C205550
077E 00 4C180794        BSC  L  CKYNO,+-    YES                         8C205560
0780 00 C40001DF        LD   L  KEYIN       GET ENTRY                   8C205570
0782 0  F014            EOR     YES1        IS IT Y UC                  8C205580
0783 00 4C180794        BSC  L  CKYNO,+-    YES                         8C205590
0785 00 C40001DF        LD   L  KEYIN       GET ENTRY                   8C205600
0787 0  F010            EOR     NO          IS IT N LC                  8C205610
0788 00 4C180792        BSC  L  CKYN1,+-    YES                         8C205620
078A 00 C40001DF        LD   L  KEYIN       GET ENTRY                   8C205630
078C 0  F00C            EOR     NO1         IS IT N UC                  8C205640
078D 00 4C180792        BSC  L  CKYN1,+-    YES                         8C205650
                        *                                               8C205660
078F 00 44800132        BSI  I  SER         NOT Y OR N              SRC 8C205670
0791 0  0888            DC      PCKBE                                   8C205680
                        *                                               8C205690
0792 00 7401077A  CKYN1 MDX  L  CKYNE,1     INCR RETURN                 8C205700
0794 00 4C80077A  CKYNO BSC  I  CKYNE       EXIT                    SX  8C205710
                        *                                               8C205720
0796 0  2020      YES   DC     /2020        LOWER CASE Y                8C205730
0797 0  8060      YES1  DC     /8060        UPPER CASE Y                8C205740
0798 0  4100      NO    DC     /4100        LOWER CASE N                8C205750
0799 0  8120      NO1   DC     /8120        UPPER CASE N                8C205760
                        *                                               8C205770
                        *                                               8C205780
                        *  SET UP RETURN ON ERROR                       8C205790
079A 0  0000      SSUEE DC     /0000                                    8C205800
079B 0  C0FE            LD      SSUEE                                   8C205810
079C 0  901C            S       K0002                                   8C205820
079D 00 D4000441        STO  L  SRTRY                                   8C205830
079F 00 4C80079A        BSC  I  SSUEE                                   8C205840
079A              SSEUR EQU     SSUEE                                   8C205850
                        *                    CHECK IF INTERRUPT LEVEL   8C205860
                        *                    IS TO GREAT                8C205870
07A1 0  0000      SILE  DC                                              8C205880
07A2 00 C400013E        LD   L  BINRY                                   8C205890
07A4 0  1008            SLA     8                                       8C205900
07A5 0  8008            CMP     S1700                                   8C205910
07A6 0  7002            MDX     SILER       GREATER.ERROR               8C205920
07A7 0  7004            MDX     SIL1                                    8C205930
07A8 0  7003            MDX     SIL1                                    8C205940
                        *                                               8C205950
07A9 00 44800132  SILER BSI  I  SER                                     8C205960
07AB 0  0BAD            DC      SE002                                   8C205970
                        *                                               8C205980
07AC 00 4C8007A1  SIL1  BSC  I  SILE                                    8C205990
                        *                                               8C206000
07AE 0  1700      S1700 DC     /1700                                    8C206010
                        *                                               8C206020
                        *                    CHECK IF ILSW IS VALID     8C206030
                        *                                               8C206040
07AF 0  0000      SILSE DC     /0000                                    8C206050
07B0 00 C400013E        LD   L  BINRY                                   8C206060
07B2 0  1004            SLA     4                                       8C206070
07B3 0  8004            CMP     S00F0                                   8C206080
07B4 0  70F4            MDX     SILER       ERROR                       8C206090
07B5 0  1000            NOP     0                                       8C206100
                        *                                               8C206110
                        *                                               8C206120
```



```
07B6 00 4C8007AF  SIA   BSC  I  SILSE                                  8C206130
                        *                                               8C206140
07B8 0  00F0      S00F0 DC     /00F0                                    8C206150
07B9 0  0002      K0002 DC     2                                        8C206160
                        *                                               8C206170
                        *                    CHECK CHANNEL VALUE        8C206180
                        *                                               8C206190
07BA 0  0000      SCHE  DC     /0000                                    8C206200
07BB 00 C400013E        LD   L  BINRY                                   8C206210
07BD 0  B00C            CMP     S0008                                   8C206220
07BE 0  7002            MDX     SCHER                                   8C206230
07BF 0  7005            MDX     SCH1                                    8C206240
07C0 0  7004            MDX     SCH1                                    8C206250
                        *                                               8C206260
07C1 0  F007      SCHER EOR     S000F                                   8C206270
07C2 00 4C1807C5        BSC  L  SCH1,+-                                 8C206280
07C4 0  70E4            MDX     SILER       ERROR                       8C206290
                        *                                               8C206300
07C5 00 C400013E  SCH1  LD   L  BINRY                                   8C206310
07C7 00 4C8007BA        BSC  I  SCHE                                    8C206320
07C9 0  000F      S000F DC     /000F                                    8C206330
                        *                                               8C206340
07CA 0  0008      S0008 DC     /0008                                    8C206350
07CB 0  0000      SERE  DC     /0000                                    8C206360
07CC 00 C48007CB        LD   I  SERE        FETCH ERROR ADDRESS         8C206370
07CE 0  D002            STO     SER1                                    8C206380
                        *                                               8C206390
07CF 00 4480012C        BSI  I  KEY                                     8C206400
07D1 0  0000      SER1  DC     /0000        ADDRESS                     8C206410
07D2 0  0000            DC     /0000        ID                          8C206420
                        *                                               8C206430
07D3 00 4C800441        BSC  I  SRTRY                                   8C206440
                        *                                               8C206450
                        *                    SET UP ROUTINE             8C206460
                        *                        X2= CARD NUMBER        8C206470
                        *                                               8C206480
07D5 0  0000      SECSE DC     0                                   SE  8C206490
07D6 00 C48007D5        LD   I  SECSE       GET MSG ADRS                8C206500
07D8 0  D024            STO     SIWB        SAVE                        8C206510
07D9 0  6A24      SE1   STX  2  SECB        SET CD NO                   8C206520
07DA 0  6924            STX  1  CPID        SET PID                     8C206530
07DB 0  6824            STX  3  NOEN        SET NO OF ENTRIES           8C206540
07DC 0  C024            LD      STBF1       GET EDIT IMAGE ADRS         8C206550
07DD 00 84000440        A    L  STBF                                    8C206560
07DF 0  D003            STO     SE2+1       SET                         8C206570
07E0 00 658007FD        LDX  I1 SIWB        IX 1 = MSG ADRS             8C206580
07E2 00 67000000  SE2   LDX  L3 0           IX 3 = STARTING ADRS        8C206590
07E4 00 66800800        LDX  I2 NOEN        IX 2 = NO ENTRIES           8C206600
07E6 0  C018            LD      CPID        GET PID                     8C206610
07E7 0  D300            STO  3  0           SET                         8C206620
07E8 0  C015            LD      SECB        GET CD NO                   8C206630
07E9 0  D301            STO  3  1           SET                         8C206640
07EA 0  C015            LD      NOEN        GET NO ENTRIES              8C206650
07EB 0  D302            STO  3  2           SET                         8C206660
07EC 0  7303            MDX  3  3           INCR IX 3                   8C206670
07ED 0  C100      SE3   LD   1  0           GET AN ENTRY                8C206680
07EE 0  D300            STO  3  0           SET                         8C206690
07EF 0  7101            MDX  1  1           INCR MSG ADRS               8C206700
07F0 0  7301            MDX  3  1           INCR BFR ADRS               8C206710
07F1 0  72FF            MDX  2  -1          DECR NO ENTRIES             8C206720
07F2 0  70FA            MDX     SE3         LOOP                        8C206730
07F3 00 C4000440        LD   L  STBF                                    8C206740
07F5 0  800C            A       K0003       ADD 3                       8C206750
07F6 0  8009            A       NOEN        ADD NO ENTRIES              8C206760
07F7 00 D4000440        STO  L  STBF                                    8C206770
07F9 00 740107D5        MDX  L  SECSE,1     INCR RETURN                 8C206780
07FB 00 4C8007D5        BSC  I  SECSE       EXIT                    SX  8C206790
                        *                                               8C206800
```

```
07FD 0  0000
07FE 0  0000
07FF 0  0000
0800 0  0000
0801 0  0442
0802 0  0003

0803 0  0000
0804 00 67000258
0806 00 C400043D
0808 00 D70001DE
080A 0  73FF
080B 0  70FC
080C 00 4C800803


080E 0  0000
080F 00 67000258
0811 0  1010
0812 00 D70001DE
0814 0  73FF
0815 0  70FC
0816 00 4C80080E


0818 0  0000
0819 0  D862
081A 0  C0FD
081B 0  D005
081C 00 D4000885
081E 00 C40008CD
0820 0  7005


0821 0  0000
0822 0  D859
0823 0  C05F
0824 0  D060
0825 0  C05E
0826 0  D01F
0827 0  284F
0828 0  6949
0829 0  6A4A
082A 0  6B4B
082B 00 67800821
082D 00 C7000000
082F 0  D04E
0830 00 C7800001
0832 0  804C
0833 0  D04C


0834 0  1810
0835 00 D400013D


0837 00 6680013D
0839 00 7600013D
083B 0  6A0C
083C 0  6A16
083D 00 6580087E
083F 00 75800880
0841 00 6780087E
```

```
SIWB  DC      0          MSG ADRS
SECB  DC      0          CARD NO
CPID  DC      0          PID
NOEN  DC      0          NO ENTRIES
STRF1 DC      SEIB       CD BFR ADRS
K0003 DC      3          CONSTANT 3
*****************************************
KIN1  DC      0                          SE
      LDX  L3 600        SET IXING
      LD   L  TERM       GET FFFF
SKINA STO  L3 KIWC       SET KEYIN AREA
      MDX   3 -1         DECR IX 3
      MDX     SKINA      LOOP
      BSC  I  KIN1       EXIT                SX
*****************************************
*
KINO  DC      0                          SE
      LDX  L3 600        SET IXING
      SLA     16         CLEAR ACCUM
SKINB STO  L3 KIWC       CLEAR KEYIN AREA
      MDX   3 -1         DECR IX 3
      MDX     SKINB      LOOP
      BSC  I  KINO       EXIT                SX
*                   DEC KEYBOARD TO BINARY RT
*
DKYB  DC      0
      STD     PHKX1      SAVE A + Q
      LD      DKYB
      STO     HKYB
      STO  L  PHDSW      SET HEX-DEC SW = DEC
      LD   L  PDKX1      CONSTANT 10
      MDX     PHKYD      ENTER COMMON SECTION
*
*
*                   HEX KEYBOARD TO BINARY RT
*
HKYB  DC      0
      STD     PHKX1      SAVE A + Q
      LD      PHKX7      CONSTANT ZERO
      STO     PHDSW      SET HEX-DEC SW = HEX
      LD      PHKX8
PHKYD STO     PHKYC      SET CONV CK
      STS     PHKYS      SAVE STATUS
      STX   1 PHKY6+1    SAVE X1
      STX   2 PHKY7+1    SAVE X2
      STX   3 PHKY8+1    SAVE X3
      LDX  I3 HKYB
      LD   L3 0
      STO     PHKX2      SAVE CHAR/WORD
      LD   I3 1          GET ADDR OF DISP
      A       PHKX3      COMPUTE START ADDR
      STO     PHKX4
*
*                   INITIALIZE BINRY BUFFER
*
      SRA     16
      STO  L  BWC        RESET WORD COUNT
*
*                   CONVERT NUMBER TO HEX
*                   * AND STORE IN BINARY BUF
*
PHKY5 LDX  I2 BWC        SET X2 TO NEXT
      MDX  L2 BINRY-1    * AVAILABLE SPACE -1
      STX   2 PHKY1+1
      STX   2 PHKY3+1
      LDX  I1 PHKX2      SET X1 TO STARTING
      MDX  I1 PHKX4      * ADDR + NUM CHAR/WD
      LDX  I3 PHKX2      SET X3 TO CHAR/WD
```

```
8C206810
8C206820
8C206830
8C206840
8C206850
8C206860
8C206870
8C206880
8C206890
8C206900
8C206910
8C206920
8C206930
8C206940
8C206950
8C206960
8C206970
8C206980
8C206990
8C207000
8C207010
8C207020
8C207030
8C207040
8C207050
8C207060
8C207070
8C207080
8C207090
8C207100
8C207110
8C207120
8C207130
8C207140
8C207150
8C207160
8C207170
8C207180
8C207190
8C207200
8C207210
8C207220
8C207230
8C207240
8C207250
8C207260
8C207270
8C207280
8C207290
8C207300
8C207310
8C207320
8C207330
8C207340
8C207350
8C207360
8C207370
8C207380
8C207390
8C207400
8C207410
8C207420
8C207430
8C207440
8C207450
8C207460
8C207470
8C207480
```



```
0843 0  C100
0844 00 440008D6
0846 0  0010
0847 00 D7000000
0849 0  71FF
084A 0  73FF
084B 0  70F7
084C 00 74000885
084E 0  7037


084F 00 6780087E
0851 0  10A0
0852 00 C7000000
0854 0  1884
0855 0  73FF
0856 0  70FB
0857 0  63FC
0858 00 7780087E
085A 0  1884
085B 0  7300
085C 0  7001
085D 0  7002
085E 0  7301
085F 0  70FA
0860 0  18D0
0861 00 D6000001
0863 00 7401013D


0865 0  C018
0866 0  801A
0867 0  8018
0868 0  D017
0869 00 67800880
086B 0  C300
086C 0  F015
086D 0  4820
086E 0  70C8


086F 00 74020821
0871 00 65000000
0873 00 66000000
0875 00 67000000
0877 0  2000
0878 0  C803
0879 00 4C800821


087C    0000
087C    0002
087E 0  0000
087F 0  01DE
0880 0  0000
0881 0  0001
0882 0  FFFF
0883 0  0000
0884 0  0010
0885 0  0000


0886 0  10A0
```

```
PHKY2 LD      1 0          GET NUMBER
      BSI  L  PCKB         CONVERT TO BINARY
PHKYC DC      16           LIM CK = 16 OR 10
PHKY1 STO  L3 0            PLACE IN BINRY BUFF
      MDX     1 -1
      MDX     3 -1         SKIP WHEN DONE
      MDX     PHKY2
      MDX  L  PHDSW,0      CK HEX-DEC SW
      MDX     PDKY1        BRANCH TO DEC RT
*
*                   PACK BINARY
*
      LDX  I3 PHKX2        SET X3 TO CHAR/WD
      SLT     32
PHKY3 LD   L3 0
      SRT     4
      MDX   3 -1
      MDX     PHKY3
      LDX   3 -4           RIGHT JUSTIFY
      MDX  I3 PHKX2
PHKY4 SRT     4
      MDX   3 0
      MDX     PHKY9
      MDX     PHKY9+2
PHKY9 MDX   3 1
      MDX     PHKY4
      RTE     16
PHKYF STO  L2 1            PLACE IN BINRY BUFF
      MDX  L  BWC,1        BUMP WORD COUNT
*
*                   BUMP TO NEXT KEYIN FIELD
*
PHKYH LD      PHKX2        GET CHAR/WD
      A       PHKX5        ADD ONE FOR SPACE
      A       PHKX4
      STO     PHKX4
      LDX  I3 PHKX4
      LD   3  0
      EOR     PHKX6        CK FOR TERMINATOR
      BSC     Z            SKIP IF FOUND
      MDX     PHKY5        GET NEXT NUMBER
*
*                   EXIT FROM RT
*
      MDX  L  HKYB,2
PHKY6 LDX  L1 0            RESTORE REGS
PHKY7 LDX  L2 0
PHKY8 LDX  L3 0
PHKYS LDS     0
      LDD     PHKX1
      BSC  I  HKYB         EXIT FROM SUBRT
*
*
      BSS  E  0
PHKX1 BSS     2            SAVE A + Q
PHKX2 DC      0            CHAR PER WORD
PHKX3 DC      KEYIN-1
PHKX4 DC      0            STARTING ADDR
PHKX5 DC      1            CONSTANT 1
PHKX6 DC      /FFFF        CONSTANT FFFF
PHKX7 DC      0            CONSTANT 0
PHKX8 DC      16           CONSTANT 16
PHDSW DC      0            HEX-DEC SWITCH
*
*                   CONV NUM TO DEC AND STORE
*                   * IN BINARY BUF
*
PDKY1 SLT     32
```

```
8C207490
8C207500
8C207510
8C207520
8C207530
8C207540
8C207550
8C207560
8C207570
8C207580
8C207590
8C207600
8C207610
8C207620
8C207630
8C207640
8C207650
8C207660
8C207670
8C207680
8C207690
8C207700
8C207710
8C207720
8C207730
8C207740
8C207750
8C207760
8C207770
8C207780
8C207790
8C207800
8C207810
8C207820
8C207830
8C207840
8C207850
8C207860
8C207870
8C207880
8C207890
8C207900
8C207910
8C207920
8C207930
8C207940
8C207950
8C207960
8C207970
8C207980
8C207990
8C208000
8C208010
8C208020
8C208030
8C208040
8C208050
8C208060
8C208070
8C208080
8C208090
8C208100
8C208110
8C208120
8C208130
8C208140
8C208150
8C208160
```

```
0887 0  D840
                        STD     PDKWA       ZERO OUT WORK AREA          8C208170
                *                                                       8C208180
                *                       CK FOR 9 CH/WD                  8C208190
                *                                                       8C208200
                        LD      PHKX2       GET CH/WD                   8C208210
0888 0  C0F5            CMP  L  PCKX1       COMPARE TO 9                8C208220
0889 00 84000904        MDX     PDKYE       ERROR TOO GREAT             8C208230
088B 0  7039            MDX     *+1                                     8C208240
088C 0  7001            S       PHKX5       SUB ONE                     8C208250
088D 0  90F3            STO     PDKY2+1                                 8C208260
088E 0  D001    PDKY2   LDX  L3  0           LDX MODIFIED CH/WD          8C208270
088F 00 67000000        LDX  I2  PHKY1+1                                8C208280
0891 00 66800848        MDX  I2  PHKX2      SET UP 1ST POWER            8C208290
0893 00 7680087E        LDX   1  0                                      8C208300
0895 0  6100    PDKY3   LD    2  0           GET BIN NUMBER              8C208310
0896 0  C200            M     L1 PDKX2      MULT BY POWER               8C208320
0897 00 A50008CC        MDX   1  -4         CK FOR CH/WD GRT 4          8C208330
0899 0  71FC            MDX      PDKYH      CH/WD GRT 4                 8C208340
089A 0  7009    PDKYJ   MDX   1  4                                      8C208350
0898 0  7104            SLA      0                                      8C208360
089C 0  1000            AD       PDKWA                                  8C208370
089D 0  882A            STD      PDKWA                                  8C208380
089E 0  D829            MDX   1  1                                      8C208390
089F 0  7101            MDX   2  -1                                     8C208400
08A0 0  72FF            MDX   3  -1                                     8C208410
08A1 0  73FF            MDX      PDKY3                                  8C208420
08A2 0  70F3            MDX      PDKY6                                  8C208430
08A3 0  7003    PDKYH   RTE      16          CH/WD GRT 4                 8C208440
08A4 0  18D0            M        PDKX1+3     MULTIPY BY 10,000           8C208450
08A5 0  A02A            MDX      PDKYJ                                  8C208460
08A6 0  70F4            *                                               8C208470
                *                       CK FOR SIGNED NUMBER            8C208480
                *                                                       8C208490
08A7 0  C0D6    PDKY6   LD       PHKX2                                  8C208500
08A8 00 84000904        CMP  L   PCKX1       CONS 9                     8C208510
08AA 0  701A            MDX      PDKYE       ERROR TOO GREAT            8C208520
08AB 0  7001            MDX      *+1                                    8C208530
08AC 0  7009            MDX      PDKY7       CK SIGN                    8C208540
                *                       CK FOR CH/WD GREATER            8C208550
                *                       * THAN 5                        8C208560
08AD 0  C0D0            LD       PHKX2                                  8C208570
08AE 0  B026            CMP      PDKX3       CONS 5                     8C208580
08AF 0  700F            MDX      PDKY8                                  8C208590
08B0 0  7001            MDX      *+1                                    8C208600
08B1 0  700F            MDX      PDKYA       GO TO CK FOR /7FFF         8C208610
                *                                                       8C208620
                *                       SINGLE PRECISION NUMBER         8C208630
                *                                                       8C208640
08B2 00 66800848 PDKYF  LDX  I2  PHKY1+1                                8C208650
08B4 0  C014            LD       PDKWA+1     GET CONV NUMBER            8C208660
08B5 0  70AB            MDX      PHKYF                                  8C208670
                *                       CORRECT SIGN                    8C208680
08B6 0  C200    PDKY7   LD    2  0                                      8C208690
08B7 00 4C1808BF        BSC  L   PDKY8,+-    BRANCH IF POS NUMB         8C208700
08B9 0  10A0            SLT      32          CHANGE SIGN                8C208710
08BA 0  980D            SD       PDKWA                                  8C208720
08BB 0  DA00    PDKY9   STD   2  0                                      8C208730
08BC 00 7402013D        MDX   L  BWC,2                                  8C208740
08BE 0  70A6            MDX      PHKYH                                  8C208750
08BF 0  C808    PDKY8   LDD      PDKWA       DOUBLE PREC POS NUMB       8C208760
08C0 0  70FA            MDX      PDKY9                                  8C208770
                *                       CK LESS THAN OR EQ /7FFF        8C208780
08C1 0  C806    PDKYA   LDD      PDKWA                                  8C208790
08C2 0  9807            SD       PDKX4       CONS 000008000             8C208800
08C3 00 4C2808B2        BSC  L   PDKYF,+Z    BRANCH TO SINGLE PREC      8C208810
08C5 00 44800132 PDKYE  BSI  I   SER                                    8C208820
08C7 0  0888            DC       PCKBE                                  8C208830
08C8    0000            BSS  E   0                                      8C208840
08C8    0002    PDKWA   BSS      2           WORK AREA
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08CA 0  0000    PDKX4   DC       0          CONS /00008000              8C208850
08CB 0  8000            DC       /8000                                  8C208860
08CC 0  0001    PDKX2   DC       1          CONV TABLE                  8C208870
08CD 0  000A    PDKX1   DC       10                                     8C208880
08CE 0  0064            DC       100                                    8C208890
08CF 0  03E8            DC       1000                                   8C208900
08D0 0  2710            DC       10000                                  8C208910
08D1 0  000A            DC       10                                     8C208920
08D2 0  0064            DC       100                                    8C208930
08D3 0  03E8            DC       1000                                   8C208940
08D4 0  2710            DC       10000                                  8C208950
08D5 0  0005    PDKX3   DC       5          CONS 5                      8C208960
                *                                                       8C208970
                *                                                       8C208980
                *                                                       8C208990
                *                                                       8C209000
                *                       KEYBOARD TO BINARY RT           8C209010
                *                                                       8C209020
08D6 0  0000    PCKB    DC       0                                      8C209030
08D7 0  6827            STX   3  PCKBX+1     SAVE X3                    8C209040
08D8 0  D029            STO      PCKBA       SAVE NUMBER                8C209050
08D9 00 C48008D6        LD    I  PCKB        GET LIMIT CK               8C209060
08DB 0  D001            STO      PCKB1+1                                8C209070
08DC 00 67000000 PCKB1  LDX  L3  0           SET X3 TO LIM CK           8C209080
08DE 00 C7000A34        LD   L3  KECOD       LK UP CODE                 8C209090
08E0 0  F021            EOR      PCKBA                                  8C209100
08E1 00 4C1808F8        BSC  L   PCKB3,+-    BRANCH IF FOUND            8C209110
08E3 0  73FF            MDX   3  -1          SKIP IF ILLEGAL            8C209120
08E4 0  70F9            MDX      PCKB1+2                                8C209130
08E5 00 C400087E        LD   L   PHKX2       CK FOR 9 CHAR FIELD        8C209140
08E7 0  901C            S        PCKX1                                  8C209150
08E8 00 4C2008F5        BSC  L   PCKB4,Z     GO TO ERROR IF NOT 9       8C209160
08EA 0  C017            LD       PCKBA       CK FOR +                   8C209170
08EC 0  F019            EOR      PCKX2                                  8C209180
08EC 00 4C1808FC        BSC  L   PCKBX-2,+-                             8C209190
08EE 0  C013            LD       PCKBA       CK FOR -                   8C209200
08EF 0  F016            EOR      PCKX3                                  8C209210
08F0 00 4C2008F5        BSC  L   PCKB4,Z     GO TO ERROR, NO + -        8C209220
08F2 00 C4000894        LD   L   PCKX4                                  8C209230
08F4 0  7007            MDX      PCKBX-2                                8C209240
08F5 00 44800132 PCKB4  BSI  I   SER         IMPROPER KEY CODE          8C209250
08F7 0  0888            DC       PCKBE       * I.E NOT 0-9 OR 0-F       8C209260
08F8 0  73FF    PCKB3   MDX   3  -1                                     8C209270
08F9 0  1000            SLA      0                                      8C209280
08FA 0  6808            STX   3  PCKBB                                  8C209290
08FB 0  C007            LD       PCKBB       GET CONVERTED NUM          8C209300
08FC 00 740108D6        MDX   L  PCKB,1                                 8C209310
08FE 00 67000000 PCKBX  LDX  L3  0           RESTORE X3                 8C209320
0900 00 4C8008D6        BSC  I   PCKB                                   8C209330
                *                                                       8C209340
0902 0  0000    PCKBA   DC       0          ORIGINAL NUMBER            8C209350
0903 0  0000    PCKBB   DC       0          CONVERTED NUMBER           8C209360
0904 0  0009    PCKX1   DC       9                                      8C209370
0905 0  8000    PCKX2   DC       /8000      +                          8C209380
0906 0  4000    PCKX3   DC       /4000      -                          8C209390
                *                                                       8C209400
                *                                                       8C209410
                *                                                       8C209420
                *                       PUNCH EDIT CARD OUTPUT ROUTINE  8C209430
                *                                                       8C209440
0907 0  0000    PECOR   DC       0                                      8C209450
0908 00 DC00098C        STD  L   PECX1       SAVE REGISTERS             8C209460
090A 0  285C            STS      PECOS                                  8C209470
090B 0  1810            SRA      16                                     8C209480
090C 0  6955    PECYF   STX   1  PECY1+1                                8C209490
090D 0  6A56            STX   2  PECY2+1                                8C209500
090E 0  6857            STX   3  PECY3+1                                8C209510
                                                                        8C209520
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090F 00 4480012C        BSI  I  KEY       PRINT EDIT CARD LIST          8C209530
0911 0  089F            DC      PECXF     * MESSAGE                     8C209540
0912 0  0000            DC      0                                       8C209550
                     *                                                  8C209560
                     *                                                  8C209570
                     *                    READ A CARD AND VERIFY        8C209580
                     *                    * THAT IT IS BLANK            8C209590
                     *                                                  8C209600
0913 00 66000442        LDX  L2 SEIB      SET X2 = ED IMAG BUF          8C209610
0915 00 650001E0        LDX  L1 KEYIN+1   X1 = OPT REG                  8C209620
0917 00 0C0008OE  PECY7 XIO  L  RDSW      READ DATA SWS                 8C209630
0919 00 C4000810        LD   L  DTSW      GET SWS                       8C209640
091B 00 4C280921        BSC  L  PT,+Z     BRANCH IF P T                 8C209650
091D 0  1001            SLA     1                                       8C209660
091E 00 4C280921        BSC  L  PT,+Z     BRANCH IF BOTH                8C209670
0920 0  7007            MDX     NTPT      NOT PAPER TAPE                8C209680
0921 00 44000AED  PT    BSI  L  PPT       PUNCH LEADER          SRC     8C209690
0923 00 C4000810        LD   L  DTSW      GET SWS                       8C209700
0925 0  1001            SLA     1                                       8C209710
0926 00 4C10093C        BSC  L  PECYE,-   BRANCH IF NOT BOTH            8C209720
0928 0  086B      NTPT  XIO     PECX5     SENSE DSW                     8C209730
0929 00 4C04097E        BSC  L  PECY6,E   XFER IF NOT READY             8C209740
092B 0  0866            XIO     PECX4     READ A CARD                   8C209750
092C 0  0867      PECY4 XIO     PECX5     SENSE DSW                     8C209760
092D 0  1801            SRA     1         CK BUSY                       8C209770
092E 00 4C04092C        BSC  L  PECY4,E   XFER IF BUSY                  8C209780
0930 0  180C            SRA     12                                      8C209790
0931 00 4C040984        BSC  L  PECY8,E   XFER IF ERROR ON              8C209800
0933 0  0862            XIO     PECX6     RESET DSW                     8C209810
                     *                                                  8C209820
                     *                    CK FOR BLANK CARD             8C209830
                     *                                                  8C209840
0934 0  1810            SRA     16                                      8C209850
0935 0  6350            LDX  3  80                                      8C209860
0936 00 EF0001DF  PECY5 OR   L3 KEYIN                                   8C209870
0938 0  73FF            MDX  3  -1                                      8C209880
0939 0  70FC            MDX     PECY5                                   8C209890
093A 00 4C200928        BSC  L  NTPT,Z                                  8C209900
                     *                                                  8C209910
                     *                    BLANK OUT OUTPUT BUFF         8C209920
                     *                                                  8C209930
093C 0  1810      PECYE SRA     16                                      8C209940
093D 0  6380            LDX  3  -80                                     8C209950
093E 00 D7000230  PECYA STO  L3 KEYIN+81                                8C209960
0940 0  7301            MDX  3  1                                       8C209970
0941 0  70FC            MDX     PECYA                                   8C209980
                     *                                                  8C209990
0942 00 6700FFB0        LDX  L3 -80       SET X3 = COL CONTROL          8C210000
                     *                                                  8C210010
                     *                    SET E INTO OUTPUT AREA        8C210020
0944 00 C4000A43        LD   L  PBIX2                                   8C210030
0946 0  D100            STO  1  0                                       8C210040
0947 0  7301            MDX  3  1                                       8C210050
                     *                                                  8C210060
                     *                    SET PID INTO OUTPUT AREA      8C210070
                     *                                                  8C210080
0948 0  C200            LD   2  0                                       8C210090
0949 0  1008            SLA     8                                       8C210100
094A 0  4051            BSI     PBIHX     CONV TO HEX AND       SRC     8C210110
                     *                    * STORE IN OUTPUT             8C210120
                     *                                                  8C210130
                     *                    CK FOR END OF ED CD DIR       8C210140
                     *                                                  8C210150
0948 0  C201            LD   2  1                                       8C210160
094C 00 F400089E        EOR  L  PECXD                                   8C210170
094E 00 4C200968        BSC  L  PECYB,Z   BRANCH IF NOT END CD          8C210180
0950 00 C400089E        LD   L  PECXD     SET FFFF EDIT END             8C210190
0952 0  4049            BSI     PBIHX     CONV AND STORE        SRC     8C210200
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0953 0  4061            BSI     PED       PUNCH CARD            SRC     8C210210
0954 00 440009E0        BSI  L  PPECD     PRINT THE EDIT CARD           8C210220
0956 00 C4000810        LD   L  DTSW      GET SWS                       8C210230
0958 00 4C280961        BSC  L  PECY1,+Z  BRANCH IF NOT CARDS            8C210240
095A 0  0835            XIO     PECXC     STACKER SELECT                8C210250
095B 0  083C            XIO     PECX7     FEED A CARD                   8C210260
095C 0  0837      PECYC XIO     PECX5     SENSE DSW                     8C210270
095D 0  1801            SRA     1                                       8C210280
095E 00 4C04095C        BSC  L  PECYC,E                                 8C210290
0960 0  0835            XIO     PECX6     RESET DSW                     8C210300
                     *                                                  8C210310
0961 00 65000000  PECY1 LDX  L1 0         RESTORE REGS                  8C210320
0963 00 66000000  PECY2 LDX  L2 0                                       8C210330
0965 00 67000000  PECY3 LDX  L3 0                                       8C210340
0967 0  2000      PECDS LDS     0                                       8C210350
0968 0  C823            LDD     PECX1                                   8C210360
0969 00 4C800907        BSC  I  PECOR     EXIT FROM ROUTINE             8C210370
                     *                    SET CARD NUMB IN OUTPUT       8C210380
096B 0  C201      PECYB LD   2  1                                       8C210390
096C 0  E821            OR      PECX3     ADD IN ED                     8C210400
096D 0  402E            BSI     PBIHX     CONV AND STORE        SRC     8C210410
                     *                                                  8C210420
                     *                    SET NUMB ENTRIES PER CARD     8C210430
                     *                                                  8C210440
096E 0  C202            LD   2  2                                       8C210450
096F 0  1888            SRT     8                                       8C210460
0970 0  1810            SRA     16                                      8C210470
0971 0  1088            SLT     8                                       8C210480
0972 0  D01C            STO     PECXE     SAVE                          8C210490
0973 0  4028            BSI     PBIHX     CONV AND STORE        SRC     8C210500
                     *                    MOVE DATA TO OUTPUT BUFF      8C210510
0974 0  C203      PECYD LD   2  3                                       8C210520
0975 0  4026            BSI     PBIHX     CNV AND STORE         SRC     8C210530
0976 0  7201            MDX  2  1         BUMP IMAG BUF ADDR            8C210540
0977 00 74FF098F        MDX  L  PECXE,-1  DECREMENT ENTRIES/CD          8C210550
0979 0  70FA            MDX     PECYD                                   8C210560
097A 0  403A            BSI     PED       PUNCH A CARD          SRC     8C210570
097B 0  4064            BSI     PPECD     PRINT CARD            SRC     8C210580
097C 0  7203            MDX  2  3                                       8C210590
097D 0  70A5            MDX     PT+2      BRANCH                        8C210600
                     *                                                  8C210610
097E 00 4480012C  PECY6 BSI  I  KEY                                     8C210620
0980 0  0895            DC      PECX9                                   8C210630
0981 0  0000            DC      0                                       8C210640
0982 0  3003      WAIT3 WAIT    3         1442 NOT READY =RDI           8C210650
                     *                    *PUSH START TO RETRY          8C210660
0983 0  7093            MDX     PECY7     BRANCH                        8C210670
                     *                                                  8C210680
0984 00 4480012C  PECY8 BSI  I  KEY                                     8C210690
0986 0  0895            DC      PECX9                                   8C210700
0987 0  0000            DC      0         1442 READ ERROR               8C210710
0988 0  0860            XIO     PECX6     RESET DSW                     8C210720
0989 0  3004      WAIT4 WAIT    4         PUSH START TO REREAD          8C210730
098A 0  70BC            MDX     PECY7     BRANCH                        8C210740
                     *                                                  8C210750
098C    0000            BSS  E  0                                       8C210760
098C    0002      PECX1 BSS     2         SAVE A + Q                    8C210770
098E 0  ED00      PECX3 DC      /ED00                                   8C210780
098F 0  0000      PECXE DC      0         ENTRIES PER CARD              8C210790
0990 0  0000      PECXC DC      0         STACKER SELECT IOCC           8C210800
0991 0  1480            DC      /1480                                   8C210810
0992 0  01E0      PECX4 DC      KEYIN+1   READ A CARD IOCC              8C210820
0993 0  1600            DC      /1600                                   8C210830
0994 0  0000      PECX5 DC      0         SENSE 1442 DSW                8C210840
0995 0  1700            DC      /1700                                   8C210850
0996 0  0000      PECX6 DC      0         SENSE AND RESET DSW           8C210860
0997 0  1703            DC      /1703                                   8C210870
0998 0  0000      PECX7 DC      0         FEED A CARD IOCC              8C210880
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0999 0  1402                DC      /1402
099A 0  01E0          PECX8 DC      KEYIN+1     PUNCH A CARD IOCC          8C210890
099B 0  1500                DC      /1500                                  8C210900
                      *                                                    8C210910
                      *                                                    8C210920
                      *           BINARY TO HEX  CARD IMAGE RT             8C210930
                      *                                                    8C210940
099C 0  0000          PBIHX DC      0                                      8C210950
099D 0  18D0                RTE     16          PUT BIN WORD TO BE         8C210960
                      *                         * CONVERTED IN Q REG       8C210970
099E 0  6911                STX   1 PBIY1+1     SAVE X1                    8C210980
099F 0  6A12                STX   2 PBIY2+1     SAVE X2                    8C210990
09A0 0  6104                LDX   1 4           SET LOOP CONTROL           8C211000
09A1 0  1810          PBIY3 SRA     16          CONV CHAR TO HEX           8C211010
09A2 0  1084                SLT     4                                      8C211020
09A3 0  D001                STO     *+1                                    8C211030
09A4 00 66000000            LDX   L2 0                                     8C211040
09A6 00 C6000135            LD    L2 KECOD+1    GET HEX EQUIV              8C211050
09A8 00 D7000230            STO   L3 KEYIN+81                              8C211060
09AA 0  7301                MDX     3 1         BUMP TO NEXT OUTPUT        8C211070
09AB 0  1000                SLA     0           NOP                        8C211080
09AC 0  71FF                MDX     1 -1                                   8C211090
09AD 0  70F3                MDX     PBIY3                                  8C211100
09AE 0  7301                MDX     3 1         PUT BLANK IN OUTPUT        8C211110
09AF 00 65000000      PBIY1 LDX   L1 0          RESTORE X1                 8C211120
09B1 00 66000000      PBIY2 LDX   L2 0          RESTORE X2                 8C211130
09B3 00 4C80099C            BSC   I  PBIHX                                 8C211140
                      *                                                    8C211150
                      *                 PUNCH A CARD ROUTINE               8C211160
09B5 0  0000          PED   DC      0                                  SE  8C211170
09B6 00 C4000B10            LD    L DTSW        GET SWS                    8C211180
09B8 00 4C280B11            BSC   L HB05,+Z     BRANCH IF P T              8C211190
09BA 0  1001                SLA     1                                      8C211200
09BB 00 4C280B11            BSC   L HB05,+Z     BRANCH IF BOTH             8C211210
09BD 00 C400022F      PEDEN LD    L KEYIN+80                               8C211220
09BF 0  E81F                OR      PEDX1       * AT END OF OUTPUT         8C211230
09C0 00 D400022F            STO   L KEYIN+80                               8C211240
09C2 0  08D1          PEDY4 XIO     PECX5       SENSE DSW                  8C211250
09C3 00 4C0409D1            BSC   L PEDY1,E     XFER IF NOT RDY            8C211260
09C5 0  08CA                XIO     PECXC       STACKER SELECT             8C211270
09C6 0  08D3                XIO     PECX8       PUNCH CARD                 8C211280
09C7 0  08CC          PEDY2 XIO     PECX5       SENSE DSW                  8C211290
09C8 0  1801                SRA     1           CK BUSY                    8C211300
09C9 00 4C0409C7            BSC   L PEDY2,E     XFER IF BUSY               8C211310
09CB 0  180C                SRA     12                                     8C211320
09CC 00 4C0409D8            BSC   L PEDY3,E     XFER IF ERROR ON           8C211330
09CE 0  08C7                XIO     PECX6       RESET DSW                  8C211340
09CF 00 4C8009B5      PEDEX BSC   I PED         EXIT                   SX  8C211350
                      *                                                    8C211360
09D1 0  08C2          PEDY1 XIO     PECX5       SENSE DSW                  8C211370
09D2 00 4480012C            BSI   I KEY                                    8C211380
09D4 0  0895                DC      PECX9                                  8C211390
09D5 0  0000                DC      0                                      8C211400
09D6 0  3006          WAIT6 WAIT    6           1442 NOT RDY=PUNCH)        8C211410
09D7 0  70EA                MDX     PEDY4                                  8C211420
                      *                                                    8C211430
09D8 0  08BD          PEDY3 XIO     PECX6       RESET DSW                  8C211440
09D9 00 4480012C            BSI   I KEY                                    8C211450
09DB 0  0895                DC      PECX9                                  8C211460
09DC 0  0000                DC      0                                      8C211470
09DD 0  3007          WAIT7 WAIT    7           1442 ERROR AFTER           8C211480
                      *                         * PUNCHING                 8C211490
09DE 0  70E3                MDX     PEDY4                                  8C211500
                      *                                                    8C211510
09DF 0  0008          PEDX1 DC      /0008       END OF PUNCH BIT           8C211520
                      *                                                    8C211530
                      *                                                    8C211540
                      *                                                    8C211550
                                                                           8C211560
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                      *                                                    8C211570
                      *                 CONVERT CCD TO EBDIC + KEY         8C211580
                      *                                                    8C211590
09E0 0  0000          PPECD DC      /0000                                  8C211600
09E1 0  6928                STX   1 PPEY5+1     SAVE XRS + A + Q           8C211610
09E2 0  6A2C                STX   2 PPEY6+1                                8C211620
09E3 0  682D                STX   3 PPEY7+1                                8C211630
09E4 0  D833                STD     PPEX3                                  8C211640
                      *                                                    8C211650
                      *                                                    8C211660
09E5 00 650001DF            LDX   L1 KEYIN      INITIALIZE ROUTINE         8C211670
09E7 00 6D0001DE            STX   L1 KIWC                                  8C211680
09E9 0  6380                LDX     3 -80                                  8C211690
09EA 0  6202                LDX     2 2                                    8C211700
09EB 0  61EF          PPEY4 LDX     1 -17         RESTORE KECOD POINTR       8C211710
09EC 00 C7000230      PPEY2 LD    L3 KEYIN+81     FETCH KEYBD CHAR           8C211720
09EE 00 F5000A45            EOR   L1 KECOD+17                              8C211730
09F0 0  1804                SRA     4                                      8C211740
09F1 00 4C1809F5            BSC   L PPEY1,+-      BR IF COMPARE              8C211750
09F3 0  7101                MDX     1 1                                    8C211760
09F4 0  70F7                MDX     PPEY2         TRY NEXT CHAR              8C211770
                      *                                                    8C211780
                      *                                                    8C211790
09F5 00 C5000A79      PPEY1 LD    L1 KTILT+16     PACK 2 EBDIC CHARS         8C211800
09F7 0  1008                SLA     8                                      8C211810
09F8 0  18D8                RTE     24                                     8C211820
09F9 0  72FF                MDX     2 -1          SKIP IF DONE TWO CHARS     8C211830
09FA 0  7019                MDX     PPEY3         FETCH NEXT CHAR            8C211840
09FB 0  6202                LDX     2 2                                    8C211850
09FC 0  18D0                RTE     16                                     8C211860
09FD 00 D48001DE            STO   I KIWC          PLACE IN OUTPUT AREA       8C211870
09FF 00 740101DE            MDX   L KIWC,1       NEXT STORAGE AREA          8C211880
0A01 0  F015                EDR     PPEX2                                  8C211890
0A02 00 4C200A14            BSC   L PPEY3,Z      BR - NOT DBLE BLANK        8C211900
0A04 0  61FF          PPEY8 LDX     1 -1          SET TERM                   8C211910
0A05 00 6D8001DE            STX   I1 KIWC                                  8C211920
0A07 00 4480012C            BSI   I KEY           GO PRINT WHOLE EDIT        8C211930
0A09 0  01DF                DC      KEYIN         MSG AREA                   8C211940
0A0A 0  0000                DC      0                                      8C211950
0A0B 0  C80C                LDD     PPEX3         RESTORE XRS, A AND Q       8C211960
0A0C 00 65000000      PPEY5 LDX   L1 /0000                                 8C211970
0A0E 00 66000000      PPEY6 LDX   L2 /0000                                 8C211980
0A10 00 67000000      PPEY7 LDX   L3 /0000                                 8C211990
0A12 00 4C8009E0            BSC   I PPECD         EXIT TO USER               8C212000
                      *                                                    8C212010
0A14 0  7301          PPEY3 MDX     3 1           SKIP IF DONE               8C212020
0A15 0  7005                MDX     PPEY4                                  8C212030
0A16 0  70ED                MDX     PPEY8                                  8C212040
                      *                                                    8C212050
0A17 0  4040          PPEX2 DC      /4040         DOUBLE SPACE EBDIC         8C212060
0A18    0002          PPEX3 BSS   E 2             SAVED A AND Q              8C212070
                      *                                                    8C212080
                      *                                                    8C212090
                      *                                                    8C212100
                                    BSS   E                                 8C212110
0A1A    0000          KSNS  DC      /0000         KEYBOARD CODES             8C212120
0A1A 0  0000                DC      /0F02         SENSE-NO RESET             8C212130
0A1B 0  0F02                DC      /0000         MESS ADRS                  8C212140
0A1C 0  0000          KMSG  EQU     KMSG                                   8C212150
0A1C          KECOD EQU     KMSG                                           8C212160
0A1D 0  0000          KOUT  DC      /0000         ROT-TLT OUTPUT TABLE       8C212170
0A1E 0  0000                DC      /0000                                  8C212180
0A1F 0  0000                DC      /0000                                  8C212190
0A20 0  0004          K0004 DC      4             CONSTANT                   8C212200
                      *                                                    8C212210
0A21 0  4400          KL    DC      /4400         ACC                        8C212220
0A22 0  0000          KAQ   DC      0             Q REG                      8C212230
0A23 0  0000                DC      0                                      8C212240
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0A24 0  0000      KRDY  DC    /0000     SENSE - RESET CMND      8C212250
0A25 0  0F03            DC    /0F03                             8C212260
0A26 0  0A24      KPRT  DC    KRDY      PRINT COMMAND           8C212270
0A27 0  0902            DC    /0902                             8C212280
0A28 0  0000      KPCD  DC    /0000     KBD PROCEED COMMAND     8C212290
0A29 0  0C02            DC    /0C02                             8C212300
0A2A 0  01DF      KRED  DC    KEYIN     READ KBD COMMAND        8C212310
0A2B 0  0A02            DC    /0A02                             8C212320
0A2C 0  0001      KONE  DC    1         CONSTANT 1              8C212330
0A2D 0  8120      KN    DC    /8120     UPPER CASE N            8C212340
0A2E 0  8060      KY    DC    /8060                Y            8C212350
0A2F 0  4420            DC    /4420                *            8C212360
0A30 0  FFFF            DC    /FFFF                             8C212370
0A31 0  8420      KECPD DC    /8420                             8C212380
0A32 0  80A0            DC    /80A0                *            8C212390
0A33 0  4000            DC    /4000                -            8C212400
                  *                                             8C212410
0A34 0  0000      KECOD DC    /0000     SPACE                   8C212420
0A35 0  2000            DC    /2000     0                       8C212430
0A36 0  1000            DC    /1000     1                       8C212440
0A37 0  0800            DC    /0800     2                       8C212450
0A38 0  0400            DC    /0400     3                       8C212460
0A39 0  0200            DC    /0200     4                       8C212470
0A3A 0  0100            DC    /0100     5                       8C212480
0A3B 0  0080            DC    /0080     6                       8C212490
0A3C 0  0040            DC    /0040     7                       8C212500
0A3D 0  0020            DC    /0020     8                       8C212510
0A3E 0  0010            DC    /0010     9                       8C212520
                  *                                             8C212530
0A3F 0  9000      KECAD DC    /9000     A                       8C212540
0A40 0  8800            DC    /8800     B                       8C212550
0A41 0  8400      KC    DC    /8400     C                       8C212560
0A42 0  8200            DC    /8200     D                       8C212570
0A43 0  8100      PBIX2 DC    /8100     E                       8C212580
0A44 0  8080            DC    /8080     F                       8C212590
                  *                                             8C212600
0A45 0  0002      KRENT DC    /0002     ERASE FIELD             8C212610
0A46 0  0004      KERSE DC    /0004     ERASE CHAR              8C212620
0A47 0  0008      KENDK DC    /0008     END OF MESSAGE          8C212630
0A48 0  4100      KAL   DC    /4100     LOWER CASE N            8C212640
0A49 0  2020            DC    /2020                Y            8C212650
0A4A 0  4220            DC    /4220                *            8C212660
0A4B 0  FFFF            DC    /FFFF                             8C212670
0A4C 0  8220            DC    /8220                .            8C212680
0A4D 0  FFFF            DC    /FFFF                             8C212690
0A4E 0  FFFF            DC    /FFFF                             8C212700
0A4F 0  2420      KCMA  DC    /2420     ,                       8C212710
                  *****************************************     8C212720
                  *                                             8C212730
                  *                                             8C212740
                  *                     TYPEWRITER CODES        8C212750
                  *                       AND EBDIC CODES  *    8C212760
0A50 0  16C7      KTGLT DC    /16C7     G                       8C212770
0A51 0  26C8            DC    /26C8     H                       8C212780
0A52 0  22C9            DC    /22C9     I                       8C212790
0A53 0  7ED1            DC    /7ED1     J                       8C212800
0A54 0  5AD2            DC    /5AD2     K                       8C212810
                  *                                             8C212820
0A55 0  5ED3      KLRT  DC    /5ED3     L                       8C212830
0A56 0  72D4            DC    /72D4     M                       8C212840
                  *                                             8C212850
0A57 0  96E7            DC    /96E7     X                       8C212860
0A58 0  52D6            DC    /52D6     O                       8C212870
0A59 0  56D7            DC    /56D7     P                       8C212880
0A5A 0  66D8            DC    /66D8     Q                       8C212890
0A5B 0  62D9            DC    /62D9     R                       8C212900
0A5C 0  9AE2            DC    /9AE2     S                       8C212910
0A5D 0  9EE3            DC    /9EE3     T                       8C212920
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0A5E 0  B2E4            DC    /B2E4     U                       8C212930
0A5F 0  B6E5            DC    /B6E5     V                       8C212940
0A60 0  92E6            DC    /92E6     W                       8C212950
0A61 0  76D5            DC    /76D5     N                       8C212960
                  *                                             8C212970
0A62 0  A6E8            DC    /A6E8     Y                       8C212980
0A63 0  D65C            DC    /D65C     *                       8C212990
0A64 0  806B            DC    /806B     ,                       8C213000
0A65 0  004B      KTPLT DC    /004B     .                       8C213010
0A66 0  DA4E            DC    /DA4E     +                       8C213020
0A67 0  8460            DC    /8460     -                       8C213030
                  *                                             8C213040
0A68 0  2140      KTDLT DC    /2140     SPACE                   8C213050
0A69 0  C4F0      KTILT DC    /C4F0     0                       8C213060
0A6A 0  FCF1            DC    /FCF1     1                       8C213070
0A6B 0  D8F2            DC    /D8F2     2                       8C213080
0A6C 0  DCF3            DC    /DCF3     3                       8C213090
0A6D 0  F0F4            DC    /F0F4     4                       8C213100
0A6E 0  F4F5            DC    /F4F5     5                       8C213110
0A6F 0  D0F6            DC    /D0F6     6                       8C213120
0A70 0  D4F7            DC    /D4F7     7                       8C213130
0A71 0  E4F8            DC    /E4F8     8                       8C213140
0A72 0  E0F9            DC    /E0F9     9                       8C213150
                  *                                             8C213160
0A73 0  3EC1      KTALT DC    /3EC1     A                       8C213170
0A74 0  1AC2            DC    /1AC2     B                       8C213180
0A75 0  1EC3            DC    /1EC3     C                       8C213190
0A76 0  32C4            DC    /32C4     D                       8C213200
0A77 0  36C5            DC    /36C5     E                       8C213210
0A78 0  12C6            DC    /12C6     F                       8C213220
                  *                                             8C213230
0A79 0  815B      KCR   DC    /815B     CARRIER RETURN          8C213240
                  *                                             8C213250
                  *                     KEYBOARD ERROR MSG      8C21326r
0A7A 0  D600      KFELD DC    /D600     *                       8C213270
0A7B 0  D600            DC    /D600     *                       8C213280
0A7C 0  D600            DC    /D600     *                       8C213290
0A7D 0  8100            DC    /8100     CR                      8C213300
0A7E 0  3600            DC    /3600     E                       8C213310
0A7F 0  C400            DC    /C400     O                       8C213320
0A80 0  C400            DC    /C400     O                       8C213330
0A81 0  FC00            DC    /FC00     1                       8C213340
0A82 0  2100            DC    /2100                             8C213350
0A83 0  2100            DC    /2100     SP                      8C213360
0A84 0  5E00            DC    /5E00     L                       8C213370
0A85 0  2200            DC    /2200     I                       8C213380
0A86 0  7600            DC    /7600     N                       8C213390
0A87 0  3600            DC    /3600     E                       8C213400
0A88 0  2100            DC    /2100     SP                      8C213410
0A89 0  1E00            DC    /1E00     C                       8C213420
0A8A 0  3E00            DC    /3E00     A                       8C213430
0A8B 0  7600            DC    /7600     N                       8C213440
0A8C 0  1E00            DC    /1E00     C                       8C213450
0A8D 0  3600            DC    /3600     E                       8C213460
0A8E 0  5E00            DC    /5E00     L                       8C213470
0A8F 0  5E00            DC    /5E00     L                       8C213480
0A90 0  3600            DC    /3600     E                       8C213490
0A91 0  3200            DC    /3200     D                       8C213500
0A92 0  8120      K8120 DC    /8120                             8C213510
0A93 0  8101            DC    /8101     CR                      8C213520
                  *                                             8C213530
                  *                                             8C213540
                  *                     ROUTINE TO READ ONE     8C213550
                  *                     SKELTON SECTION         8C213560
0A94 0  0000      RDSK  DC        0                         SE  8C213570
0A95 0  C005            LD        RDSX0 GET LDR RETURN          8C213580
0A96 00 D4000124        STO   L   /0124 SET                     8C213590
0A98 0  6050            LDX   X   /0050 BRANCH TO LDR           8C213600
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0A99 C0 4C800A94   RDSK1 BSC  I  RDSK       EXIT                    SX   8C213610
0A9B 0  0A99       RDSX0 DC      RDSK1      RETURN                       8C213620
                   ***********************************************       8C213630
                   *                                                     8C213640
                   *                                                     8C213650
                   *                                                     8C213660
                   *              XFER VECTOR TBLS BY FORM NO.           8C213670
0A9C 0  0AB1       LRAIT DC      DONT        FORM 0                       8C213680
0A9D 0  0ADC             DC      LRTF1            1                       8C213690
0A9E 0  0AD4             DC      LRTF2            2                       8C213700
                   *                                                     8C213710
                   *                                                     8C213720
                   *                                                     8C213730
                   *                                                     8C213740
                   *                                                     8C213750
                   *                                                     8C213760
                   *                                                     8C213770
0A9F 0  0000       LWKA  DC                  WORK STORAGE AREA           8C213780
                   *                                                     8C213790
0AA0 0  0000       LDOIT DC                                         SE   8C213800
0AA1 0  6200             LDX   2 0                                       8C213810
0AA2 00 6E00043F         STX   L2 LGROP      RESET GROUP CNTR            8C213820
0AA4 00 65800AA0         LDX   I1 LDOIT                                  8C213830
0AA6 0  C101             LD     1 1          LD CHR / WORD CNT           8C213840
0AA7 0  D0F7             STO     LWKA        SAVE IT                     8C213850
0AA8 0  6901             STX     1 LWCLD+1                               8C213860
0AA9 00 65800000   LWCLD LDX   I1            LD FORM NUMBER              8C213870
0AAB 00 45800A9C         BSI   I1 LRAIT      BRANCH TO RTN               8C213880
0AAD 00 74020AA0   DONT1 MDX   L  LDOIT,2    INCR RETURN                 8C213890
0AAF 00 4C800AA0         BSC   I  LDOIT      EXIT                    SX   8C213900
                   *                                                     8C213910
0AB1 0  0000       DONT  DC      0                                       8C213920
0AB2 00 4C000AAD         BSC   L  DONT1                                  8C213930
                   *                                                     8C213940
                   *                                                     8C213950
                   *                                                     8C213960
0AB4 0  0000       LBGNR DC                                         SE   8C213970
0AB5 00 650001DE         LDX   L1 KIWC       LD INPUT TBL ADDR           8C213980
0AB7 0  C100             LD     1 0          LD INPUT WC                 8C213990
0AB8 00 D400043E         STO   L  LWC        SAVE WC                     8C214000
0ABA 00 6680043E         LDX   I2 LWC                                    8C214010
0ABC 0  7201             MDX    2 1                                      8C214020
0ABD 00 7402043E         MDX   L  LWC,2      ADD 2 TO WC                 8C214030
0ABF 00 4C800AB4         BSC   I  LBGNR      EXIT                    SX   8C214040
                   *                                                     8C214050
                   *                                                     8C214060
                   *                                                     8C214070
                   *                DATA WRONG ERROR                     8C214080
0AC1 0  0000       LERR  DC      0                                       8C214090
0AC2 00 44800132         BSI   I  SER        DATA WRONG              SRC  8C214100
0AC4 0  0888             DC      PCKBE                                   8C214110
                   *                                                     8C214120
                   *                                                     8C214130
                   *                                                     8C214140
0AC5 0  0000       LWCC  DC                  SE                          8C214150
0AC6 0  6801             STX    3 LD01+1                                 8C214160
0AC7 00 C5000000   LD01  LD    L1            LD SPACE                    8C214170
0AC9 00 44200ACD         BSI   L  LMTRM,Z    BR IF NOT SPACE             8C214180
0ACB 00 4C800AC5         BSC   I  LWCC       EXIT                    SX   8C214190
                   *                                                     8C214200
                   *                                                     8C214210
                   *                                                     8C214220
                   *                                                     8C214230
0ACD 0  0000       LMTRM DC                                         SE   8C214240
0ACE 0  F004             EOR     LTERM                                   8C214250
0ACF 00 44200AC1         BSI   L  LERR,Z     BR IF ERROR             SRC  8C214260
0AD1 00 4C800ACD         BSC   I  LMTRM                              SX   8C214270
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0AD3 0  FFFF       LTERM DC      /FFFF       ALL BITS                    8C214290
                   *                                                     8C214300
                   *                                                     8C214310
                   *                                                     8C214320
                   *                                                     8C214330
                   *                                                     8C214340
                   *                                                     8C214350
                   *                                                     8C214360
0AD4 0  0000       LRTF2 DC                                         SE   8C214370
0AD5 0  D002             STO     LCHBW       SET CHR / WD                8C214380
0AD6 00 44800137         BSI   I  PHKYB      GO CONVERT TO HEX       SRC  8C214390
0AD8 0  0000       LCHBW DC                  CHR / BINARY WORD           8C214400
0AD9 0  0437             DC      ZERO        DISPLACEMENT ADDR           8C214410
0ADA 00 4C800AD4         BSC   I  LRTF2      EXIT                    SX   8C214420
                   *                                                     8C214430
                   *                                                     8C214440
                   *                                                     8C214450
                   *                                                     8C214460
                   *                                                     8C214470
0ADC 0  0000       LRTF1 DC                                         SE   8C214480
0ADD 0  D003             STO     LCHBD       SET CHR / WD                8C214490
0ADE 0  4006             BSI     LTRFX       GO TO SETUP AND CK          8C214500
0ADF 00 44800136         BSI   I  PDKYB      GO CONVERT TO DEC       SRC  8C214510
0AE1 0  0000       LCHBD DC                  CHR / BINARY WORD           8C214520
0AE2 0  0437             DC      ZERO        DISPLACEMENT ADDR           8C214530
0AE3 00 4C800ADC         BSC   I  LRTF1      EXIT                    SX   8C214540
                   *                                                     8C214550
                   *                                                     8C214560
                   *                                                     8C214570
                   *                                                     8C214580
0AE5 0  0000       LTRFX DC                                         SE   8C214590
0AE6 0  40CD             BSI     LBGNR       GO SET UP FOR FORM          8C214600
0AE7 00 67800A9F         LDX   I3 LWKA       LD CHAR / WC CNT            8C214610
0AE9 0  7301             MDX    3 1                                      8C214620
0AEA 0  40DA             BSI     LWCC        GO TO CHECK FORM            8C214630
0AEB 00 4C800AE5         BSC   I  LTRFX      EXIT                    SX   8C214640
                   *                                                     8C214650
                   *                                                     8C214660
                   *                                                     8C214670
                   *                                                     8C214680
                   *                                                     8C214690
                   *              PUNCH LEADER                           8C214700
                   *                                                     8C214710
0AED 0  0000       PPT   DC      0                                   SE   8C214720
0AEE 0  6303       PPT1  LDX     3 3           SET IXING                   8C214730
0AEF 0  C009       PPT1A LD        WDCT        SET WD CT                   8C214740
0AF0 0  D018             STO     CHOUT                                   8C214750
0AF1 00 C7000AF9         LD    L3 LEADE-1      GET PATTERN                 8C214760
0AF3 0  D014             STO     XIOUT         SET                         8C214770
0AF4 0  4008             BSI     PUTAP         PUNCH TAPE            SRC   8C214780
0AF5 0  73FF             MDX     3 -1          DECR IX 3                   8C214790
0AF6 0  70F8             MDX     PPT1A         LOOP                        8C214800
0AF7 00 4C800AED         BSC   I  PPT          EXIT                    SX   8C214810
                   *                                                     8C214820
0AF9 0  0019       WDCT  DC      25            WD CT                       8C214830
0AFA 0  7F00       LEADE DC      /7F00         PATTERNS                    8C214840
0AFB 0  0000             DC      /0000                                     8C214850
0AFC 0  7F00             DC      /7F00                                     8C214860
                   *                                                     8C214870
                   *              PUNCH TAPE                             8C214880
                   *                                                     8C214890
0AFD 0  0000       PUTAP DC      0                                   SE   8C214900
0AFE 0  0808       BCK   XIO     SEN55         SENSE                       8C214910
0AFF 0  1808             SRA     8                                         8C214920
0B00 00 4C040AFE         BSC   L  BCK,E        BRANCH = NOT READY          8C214930
0B02 0  0809             XIO     PUNK          PUNCH A CHR                 8C214940
0B03 00 74FF0B09         MDX   L  CHOUT,-1     DECR WD CT                  8C214950
0B05 0  70F8             MDX     BCK           LOOP                        8C214960
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0B06 00 4C800AFD          BSC  I  PUTAP        EXIT                       SX    8C214970
                  *                                                             8C214980
0B08      0000            BSS  E  0                                             8C214990
0B08 0    0000    XIOUT   DC      0            OUTPUT AREA                      8C215000
0B09 0    0000    CHOUT   DC      0            WD CT                            8C215010
0B0A 0    0000    SEN55   DC      0            SENSE IOCC                       8C215020
0B0B 0    1F01            DC      /1F01                                         8C215030
0B0C 0    0806    PUNK    DC      XIOUT        PUNCH IOCC                       8C215040
0B0D 0    1900            DC      /1900                                         8C215050
0B0E 0    0810    RDSW    DC      DTSW         RD SWS IOCC                      8C215060
0B0F 0    0240            DC      /0240                                         8C215070
0B10 0    0000    DTSW    DC      0            SW STORAGE                       8C215080
                  *                                                             8C215090
                  *                 CONVERT AND PUNCH                           8C215100
                  *                                                             8C215110
0B11 0    6909    HB05    STX    1 EXT+1       SAVE IXING                       8C215110
0B12 0    6A0A            STX    2 EXT1+1                                       8C215120
0B13 0    6B11            STX    3 EXT2+1                                       8C215130
0B14 00 6500FFB0          LDX  L1 -80          SET IXING                        8C215140
0B16 00 C5000230          LD   L1 KEYIN+81     GET A WD                         8C215150
0B18 00 4C200B2C          BSC  L  HB05A,Z      BRANCH IF NOT 0                  8C215160
0B1A 00 65000000  EXT     LDX  L1 0            RESTORE IXING                    8C215170
0B1C 00 66000000  EXT1    LDX  L2 0                                             8C215180
0B1E 00 C4000141          LD   L  BINRY+3      GET CD NO                        8C215190
0B20 00 F400043D          EOR  L  TERM         CK FOR END CD                    8C215200
0B22 00 44180AED          BSI  L  PPT,+-       PUNCH TRAILER IF END             8C215210
0B24 00 67000000  EXT2    LDX  L3 0                                             8C215220
0B26 0    C0E9            LD      DTSW         GET SWS                          8C215230
0B27 0    1001            SLA     1                                             8C215240
0B28 00 4C1009CF          BSC  L  PEDEX,-      BRANCH IF NOT BOTH               8C215250
0B2A 00 4C00098D          BSC  L  PEDEN        PUNCH CARD                       8C215260
0B2C 0    1810    HB05A   SRA     16           CLEAR WD CT                      8C215270
0B2D 0    D022            STO     PCAM                                          8C215280
0B2E 0    7101    HB06    MDX    1 1           DECR IX 1                        8C215290
0B2F 0    7001            MDX     HB07         CONTINUE                         8C215300
0B30 0    7022            MDX     LB06         PUNCH CARD                       8C215310
0B31 0    6204    HB07    LDX    2 4           SET 4 CHRS                       8C215320
0B32 0    1004    HB10    SLA     4            MOVE CHR                         8C215330
0B33 0    D01E            STO     TEMP1        SAVE                             8C215340
0B34 00 C5000230          LD   L1 KEYIN+81     GET WD                           8C215350
0B36 00 4C180B53          BSC  L  LB06,+-      BRANCH IF 0                      8C215360
0B38 0    6300    HTJB    LDX    3 0           SET COUNTER                      8C215370
0B39 0    4828            BSC     +Z           IS IT NEG                        8C215380
0B3A 0    7309            MDX    3 9           YES                              8C215390
0B3B 0    1003            SLA     3            REMOVE ZONE                      8C215400
0B3C 00 4C180B45          BSC  L  HTBZ,+-      BRANCH IF 0                      8C215410
0B3E 0    7301            MDX    3 1           INCR CTR                         8C215420
0B3F 00 4C280B43  HTJB1   BSC  L  HTBX,+Z      BRANCH IF NEG                    8C215430
0B41 0    1001            SLA     1            MOVE BIT                         8C215440
0B42 0    70FB            MDX     HTOB1-1      BRANCH                           8C215450
0B43 0    6B00    HTBX    STX    3 TEMP        SAVE CT                          8C215460
0B44 0    C00C            LD      TEMP         GET CT                           8C215470
0B45 0    E80C    HTBZ    OR      TEMP1        ADD TO SAVED                     8C215480
0B46 0    7101            MDX    1 1           DECR IX 1                        8C215490
0B47 0    72FF            MDX    2 -1          DECR IX 2                        8C215500
0B48 0    70E9            MDX     HB10         LOOP                             8C215510
0B49 00 67800B50          LDX  I3 PCAM         SET IX 3                         8C215520
0B4B 00 D7000140          STO  L3 BINRY+2      SAVE                             8C215530
0B4D 00 74010B50          MDX  L  PCAM,1       INCR LOC                         8C215540
0B4F 0    700E            MDX     HB06         LOOP                             8C215550
                  *                                                             8C215560
0B50 0    0000    PCAM    DC      0            STORAGE                          8C215570
0B51 0    0000    TEMP    DC      0                                             8C215580
0B52 0    0000    TEMP1   DC      0                                             8C215590
                  *                                                             8C215600
                  *                 PUNCH EDIT                                  8C215610
                  *                                                             8C215620
0B53 0    C02C    LB06    LD      H8100        GET E                            8C215630
                                                                                8C215640
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0B54 00 D400013F          STO  L  BINRY+1      SAVE                             8C215650
0B56 00 C4000141          LD   L  BINRY+3      GET CD NO                        8C215660
0B58 00 F400043D          EOR  L  TERM         CK FOR TERM                      8C215670
0B5A 00 4C180B83          BSC  L  LB08,+-      BRANCH IF TERM                   8C215680
0B5C 00 C4000142          LD   L  BINRY+4      GET NO ENTRIES                   8C215690
0B5E 0    8022            A       FOUR         ADD 4                            8C215700
0B5F 0    D004            STO     LB0A+1       SAVE                             8C215710
0B60 0    1008            SLA     8            MOVE                             8C215720
0B61 00 D400013E          STO  L  BINRY        SAVE                             8C215730
0B63 00 66000000  LB0A    LDX  L2 0            SET IXING                        8C215740
0B65 00 6500013E  LB09    LDX  L1 BINRY                                         8C215750
0B67 0    C100            LD     1 0           GET WD                           8C215760
0B68 0    D09F            STO     XIOUT        SET                              8C215770
0B69 0    C014            LD      ONE          GET 1                            8C215780
0B6A 00 D4000809          STO  L  CHOUT        SET                              8C215790
0B6C 0    4090            BSI     PUTAP        PUNCH TAPE                 SRC   8C215800
0B6D 0    7101            MDX    1 1           INCR IX 1                        8C215810
0B6E 0    C100    LB07    LD     1 0           GFT WD                           8C215820
0B6F 0    D098            STO     XIOUT        SET                              8C215830
0B70 0    C00D            LD      ONE          SET WD CT                        8C215840
0B71 0    D097            STO     CHOUT                                         8C215850
0B72 0    408A            BSI     PUTAP        PUNCH TAPE                 SRC   8C215860
0B73 0    C100            LD     1 0           GET WD                           8C215870
0B74 0    1008            SLA     8            SET 2ND HALF                     8C215880
0B75 0    D092            STO     XIOUT        SET                              8C215890
0B76 0    C007            LD      ONE          GET 1                            8C215900
0B77 0    D091            STO     CHOUT        SET WD CT                        8C215910
0B78 00 44000AFD          BSI  L  PUTAP        PUNCH TAPE                 SRC   8C215920
0B7A 0    7101            MDX    1 1           INCR IX 1                        8C215930
0B7B 0    72FF            MDX    2 -1          DECR IX 2                        8C215940
0B7C 0    70F1            MDX     LB07         LOOP                             8C215950
0B7D 0    709C            MDX     EXT          EXIT                             8C215960
                  *                                                             8C215970
0B7E 0    0001    ONE     DC      1            CONSTANTS                        8C215980
0B7F 0    8000    K8000   DC      /8000                                         8C215990
0B80 0    8100    H8100   DC      /8100                                         8C216000
0B81 0    0004    FOUR    DC      4                                             8C216010
0B82 0    0300    TREE    DC      /0300                                         8C216020
                  *                                                             8C216030
0B83 0    C0FE    LB08    LD      TREE         GET 0300                         8C216030
0B84 00 D400013E          STO  L  BINRY        SET                              8C216040
0B86 0    6203            LDX    2 3           SET IX 2                         8C216050
0B87 0    70DD            MDX     LB09         BRANCH                           8C216060
0B88      0012    PCKBE   EBC     .E003 CNTRL-IL!EGAL.                          8C216070
0B91      0006            EBC     . ENTRY.                                      8C216080
0B94 0    FFFF    PCKX4   DC      /FFFF                                         8C216090
0B95      0012    PECX9   EBC     .E005 CNTRL-1442 ER.                          8C216100
0B9E 0    FFFF    PECXD   DC      /FFFF                                         8C216110
0B9F      0012    PECXF   EBC     .$$A001 CNTRL-EDIT .                          8C216120
0BA8      0007            EBC     .CD LIST.                                     8C216130
0BAC 0    FFFF            DC      /FFFF                                         8C216140
0BAD      0012    SE002   EBC     .E002 CNTRL-ENTRY T.                          8C216150
0BB6      0008            EBC     .OO LARGE.                                    8C216160
0BBA 0    FFFF            DC      /FFFF                                         8C216170
0BBB      0012    SM2     EBC     .C000 CNTRL-ENTER 2.                          8C216180
0BC4      0012            EBC     . DIGIT PID TO BS E.                          8C216190
0BCD      0005            EBC     .DITED.                                       8C216200
0BD0 0    FFFF            DC      /FFFF                                         8C216210
0BD1      000F    SM33    EBC     .A002 END OF PRG.                             8C216220
0BD9 0    FFFF            DC      /FFFF                                         8C216230
0BDA      0012    LEM01   EBC     .E004 CNTRL-FORMAT .                          8C216240
0BE3      0002            EBC     .ER.                                          8C216250
0BE4 0    FFFF            DC      /FFFF                                         8C216260
0BE5 0    0000    HLTE    DC      0                                             8C216270
0BE6 0    3005    WAIT5   WAIT    5            RELOAD REQUIRED            SRC   8C216280
0BE7 00 4C800BE5          BSC  I  HLTE                                          8C216290
0BEA      058A            END     START                                   SX    8C216300
                                                                     8C21630    8C216310
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BCK	0AFE	0800,0805
BGNR	0438	
BINRY	013E	059F,07A2,0780,0788,07C5,0839,081E,084B,0854,0856, 085C,0861,0865,0884
BWC	013D	0835,0837,0863,088C
CHOUT	0809	0AF0,0803,086A,0871,0877
CKYN	012D	
CKYNE	077A	012D,0792,0794
CKYNO	0794	077E,0783
CKYN1	0792	0788,078D
CODE	0586	
CPID	07FF	07DA,07E6
DKYB	0818	0136,081A
DONT	0AB1	0A9C
DONT1	0AAD	0AB2
DTSW	0810	0919,0923,0956,0986,080E,0826
END0	0138	
END1	05B9	013A,05AF
ERR	0439	
ERR04	05E3	05A3
EXIT	072B	
EXT	081A	0811,087D
EXT1	081C	0812
EXT2	0824	0813
FOUR	0881	085E
HB05	0811	0988,0988
HB05A	082C	0818
HB06	082E	084F
HB07	0831	082F
HB10	0832	0848
HKYB	0821	0137,081B,082B,086F,0879
HLT	0585	
HLTE	08E5	0585,08E7
HTBX	0843	083F
HTBZ	0845	083C
HTOB	0838	
HTOB1	083F	0842
HB100	0B80	0853
KAL	0A48	0687
KAQ	0A22	05EB,062F
KBKSP	0702	06F8
KC	0A41	
KCHK	0621	05FF
KCMA	0A4F	06CE
KCOMA	0700	06E2
KCR	0A79	05F6,0621
KDEC	0683	065C
KDEC1	0684	06B2,06B7
KEBC2	05F8	061E
KEBC3	0602	0620
KEBC4	0605	060E
KEBC6	061F	0611
KECAD	0A3F	0668,0686
KECGD	0A1C	06B1,06B3,0686
KECOD	0A34	065A,0683,08DE,09A6,09EE
KECPD	0A31	066F,06A9
KENDK	0A47	0709
KERR	072D	0678,0698,06D6,0706,0710,0724
KERR1	0735	073D
KERSE	0A46	06E9
KEY	012C	059B,05DB,07CF,090F,097E,0984,09D2,09D9,0A07
KEYE	05E7	012C,05EE,05F2,0625,0632,0634,0637
KEYFM	0729	0638,0660
KEYIN	01DF	0645,0778,0780,0785,078A,087F,0915,0936,093E,0992, 099A,09A8,098D,09C0,09E5,09EC,0A09,0A2A,0B16,0B34

KEYNO	072A	063F,070F
KEYOG	0641	0742
KEYO	0647	06A6,06B5,06E6,06EF,06F2,06FE,0708,0736,0740
KEY1	064B	0653
KEY2	064D	0655
KEY3	0656	0650
KEY96	0629	05E8,072B
KEY97	062B	05E9
KEY98	062D	05EA
KEY99	0631	05ED
KFELD	0A7A	072E
KFMO	067D	0664,0671
KFMO1	067E	0684
KFMO2	0686	068C
KFMS	0658	
KFMS1	0659	065F
KFM2	0666	
KFM21	0667	066D
KFRM	0636	0627
KHEX	0686	066A
KINO	080E	0135,0816
KIN1	0803	0134,080C
KIWC	01DE	0643,06C7,06D2,06DC,06ED,06F8,070D,0712,0714,0718, 0721,0732,0738,073E,0808,0812,09E7,09FD,09FF,0A05, 0AB5
KL	0A21	068E
KLRT	0A55	069D
KMDX	06A8	0681
KMPX	06B1	0689,06A8
KMSG	0A1C	05F0,05F8,0605,061C,0A1D
KN	0A2D	067F,06B1
KNBY	0745	0649,075C,0765,076B
KNBYO	074B	0756
KNBY1	074D	0753
KNBY4	075D	0757
KNBY5	0761	0746,0750
KNEG	0744	0725,0738
KONE	0A2C	05FD,0612,0662,069F,06C0,06DF
KOUT	0A1D	05F4,0616,061A,06A1,06C2
KPCD	0A28	064B
KPNE	069F	067C
KPRT	0A26	0769,0773
KRDY	0A24	0763,076C,0A26
KRED	0A2A	0647,0656,0659,0659,0667,0667,066E,066E,0708,0708
KRENT	0A45	0704
KSNS	0A1A	064D,074D
KSPC	06CC	0690
KSPCA	0714	0718
KSPCE	0725	071E,0723
KSPC2	060F	06DA
KSPC5	06E8	06D0
KSPC6	06FB	06F5
KSPC9	0703	06E8
KSTO	0688	0684,068C,06CA
KTALT	0A73	
KTGLT	0A50	0602,068E
KTILT	0A69	0586,09F5
KTIME	0767	0749,0754
KTOLT	0A68	
KTPLT	0A65	067A
KTYP	0768	0584,0618,0623,06A4,06C5,06E4,06FD,0730,0776
KTYPS	0584	
KTYP1	0769	0779
KTYP5	076C	0772
KTYP6	0773	076F
KY	0A2E	
K00FF	05E6	05A1
K0002	0789	06D4,079C

K0003	0802	07F5
K0004	0A20	
K3095	05E2	0588,05B9
K8000	0B7F	0676,0696
K8120	0A92	
LBGNR	0AB4	0438,0ABF,0AE6
LB0A	0B63	0B5F
LB06	0B53	0B30,0B36
LB07	0B6E	0B7C
LB08	0B83	085A
LB09	0B65	0B87
LCHBD	0AE1	0ADD
LCHBW	0AD8	0AD5
LDDIT	0AA0	0727,0AA4,0AAD,0AAF
LDD1	0AC7	0AC6
LEADE	0AFA	0AF1
LEMD1	08DA	
LERR	0AC1	0439,0ACF
LGROP	043F	0AA2
LMTRM	0ACD	043B,0AC9,0AD1
LRAIT	0A9C	0AAE
LRTF1	0ADC	0A9D,0AE3
LRTF2	0AD4	0A9E,0ADA
LTERM	0AD3	0ACE
LTRFX	0AE5	043C,0ADE,0AE8
LWC	043E	0AB8,0ABA,0ABD
LWCC	0AC5	043A,0ACB,0AEA
LWCLD	0AA9	0AA8
LWKA	0A9F	0AA7,0AE7
MTRM	043B	
NO	0798	0787
NOEN	0800	07DB,07E4,07EA,07F6
NO1	0799	078C
NTPT	0928	0920,093A
ONE	0B7E	0869,0B70,0B76
P8IHX	099C	094A,0952,096D,0973,0975,0983
P8IX2	0A43	0944
P8IY1	09AF	099E
P8IY2	09B1	099F
P8IY3	09A1	09AD
PCAM	0B50	082D,0849,084D
PCKB	08D6	0844,08D9,08FC,0900
PCKBA	0902	08D8,08E0,08EA,08EE
PCKBB	0903	08FA,08FB
PCKBE	0888	0791,08C7,08F7,0AC4
PCKBX	08FE	08D7,08EC,08F4
PCKB1	08DC	08DB,08E4
PCKB3	08F8	08E1
PCKB4	08F5	08E8,08F0
PCKX1	0904	0889,08A8,08E7
PCKX2	0905	08E8
PCKX3	0906	08EF
PCKX4	0894	08F2
PDKWA	08C8	0887,089D,089E,0884,088A,088F,08C1
PDKX1	08CD	081E,08A5
PDKX2	08CC	0897
PDKX3	08D5	08AE
PDKX4	08CA	08C2
PDKYA	08C1	08B1
PDKYB	0136	0ADF
PDKYE	08C5	088B,08AA
PDKYF	08B2	08C3
PDKYH	08A4	089A
PDKYJ	089B	08A6
PDKY1	0886	084E
PDKY2	088F	088E
PDKY3	0896	08A2
PDKY6	08A7	08A3

PDKY7	08B6	08AC
PDKY8	088F	08AF,08B7
PDKY9	088B	08C0
PECOR	0907	05D0,0969
PECOS	0967	090A
PECXC	0990	095A,09C5
PECXD	089E	094C,0950
PECXE	098F	0972,0977
PECXF	089F	0911
PECX1	098C	0908,0968
PECX3	098E	096C
PECX4	0992	0928
PECX5	0994	0928,092C,095C,09C2,09C7,09D1
PECX6	0996	0933,0960,098A,09CE,09D8
PECX7	0998	095B
PECX8	099A	09C6
PECX9	0B95	0980,0986,09D4,09DB
PECYA	093E	0941
PECYB	096B	094E
PECYC	095C	095E
PECYD	0974	0979
PECYE	093C	0926
PECYF	090C	
PECY1	0961	090C,0958
PECY2	0963	090D
PECY3	0965	090E
PECY4	092C	092E
PECY5	0936	0939
PECY6	097E	0929
PECY7	0917	0983,098A
PECY8	0984	0931
PED	09B5	0953,097A,09CF
PEDEN	098D	082A
PEDEX	09CF	0828
PEDX1	09DF	098F
PEDY1	09D1	09C3
PEDY2	09C7	09C9
PEDY3	09D8	09CC
PEDY4	09C2	09D7,09DE
PHDSW	0885	081C,0824,084C
PHKX1	087C	0819,0822,0878
PHKX2	087E	082F,083D,0841,084F,0858,0865,0888,0893,08A7,08AD, 08E5
PHKX3	087F	0832
PHKX4	0880	0833,083F,0867,0868,0869
PHKX5	0881	0866,088D
PHKX6	0882	086C
PHKX7	0883	0823
PHKX8	0884	0825
PHKYB	0137	0AD6
PHKYC	0846	0826
PHKYD	0826	0820
PHKYF	0861	0885
PHKYH	0865	088E
PHKYS	0877	0827
PHKY1	0847	083B,0891,08B2
PHKY2	0843	0848
PHKY3	0852	083C,0856
PHKY4	085A	085F
PHKY5	0837	086E
PHKY6	0871	0828
PHKY7	0873	0829
PHKY8	0875	082A
PHKY9	085E	085C,085D
PPECD	09E0	0954,097B,0A12
PPEX2	0A17	0A01
PPEX3	0A18	09E4,0A0B
PPEY1	09F5	09F1

PPEY2	09EC	09F4
PPEY3	0A14	09FA,0A02
PPEY4	09E8	0A15
PPEY5	0A0C	09E1
PPEY6	0A0E	09E2
PPEY7	0A10	09E3
PPEY8	0A04	0A16
PPT	0AED	0921,0AF7,0822
PPT1	0AEE	
PPT1A	0AEF	0AF6
PT	0921	0918,091E,097D
PUNK	0B0C	0802
PUTAP	0AFD	0AF4,CB06,086C,0872,0878
RDSK	0A94	0138,05A6,0A99
RDSK1	0A99	0A98
RDSW	0B0E	0917
RDSXO	0A9B	0A95
SCH	0131	
SCHE	07BA	0131,07C7
SCHER	07C1	07BE
SCH1	07C5	07BF,07C0,07C2
SEC8	07FE	07D9,07E8
SECSE	07D5	0133,07D6,07F9,07FB
SECSU	0133	
SEIB	0442	05D7,0801,0913
SFN55	0B0A	0AFE
SER	0132	05E3,078F,07A9,08C5,08F5,0AC2
SERE	07CB	0132,07CC
SER1	07D1	07CE
SE002	08AD	05E5,07AB
SE1	07D9	
SE2	07E2	07DF
SE3	07ED	07F2
SIA	07B6	
SIL	012F	
SILE	07A1	012F,07AC
SILER	07A9	07A6,07B4,07C4
SILSE	07AF	0130,07B6
SILSW	0130	
SIL1	07AC	07A7,07A8
SIWB	07FD	07D8,07E0
SKINA	0808	0808
SKINB	0812	0815
SKINO	0135	
SKIN1	0134	0641
SKI1	0C17	012C,05AB,05C4
SKI2	0C18	012C,05B1
SKI3	0C19	012C
SKI4	0C1A	05B7
SM2	0BBB	059D
SM33	0BD1	05DD
SRST	0588	0596,05A8
SRTRY	0441	079D,07D3
SSEUR	079A	
SSUEE	079A	012E,079B,079F,07A1
SSUER	012E	0599
STARI	058A	08E9
START	0588	0588,05E0
STBF	0440	0594,05C3,05D3,07DD,07F3,07F7
STBF1	0801	05C5,07DC
STTR	05D7	05DA
STTRM	05C3	05B5
S00F0	07B8	07B3
S000F	07C9	07C1
S0008	07CA	07BD
S1	0599	
S1700	07AE	07A5
S2	013A	

S2E	05A6	05C2
TEMP	0851	0843,0844
TEMP1	0852	0833,0845
TERM	043D	0583,05CD,0806,0820,0858
TREE	0882	0883
TRFX	043C	
WAIT1	0771	3001
WAIT2	0758	3002
WAIT3	0982	3003
WAIT4	0989	3004
WAIT5	0BF6	3005
WAIT6	0906	3006
WAIT7	09DD	3007
WAIT8	05DF	3008
WCC	043A	
WDCT	0AF9	0AEF
XIOUT	0808	0AF3,0B0C,0868,084F,0875
XPID	05E1	05A5,05AD
YES	0796	077D
YES1	0797	0782
ZERO	0437	0AD9,0AE2

8K EDIT CONTROL

```
02BC                    ABS                                         8C300001
                        ORG      /3001                              8C300002
                   *                                                8C300003
                   *                                                8C300007
                   ****************************************         8C300008
3001 0  079C            DC       WAIT1+1   1816 IS OUT OF FORMS.    8C300009
                   *                       MAKE READY AND PRESS     8C300010
                   *                       START.                   8C300011
                   ****************************************         8C300012
                   *                                                8C300013
3002 0  0786            DC       WAIT2+1   1816 IS HUNG IN BUSY.    8C300014
                   *                       RESTART IS REQUIRED.     8C300016
                   ****************************************         8C300017
                   *                                                8C300018
                   ****************************************         8C300019
3003 0  09AD            DC       WAIT3+1   1442 IS NOT READY        8C300020
                   *                       BEFORE A READ.           8C300021
                   *                       MAKE READY AND PUSH      8C300022
                   *                       START.                   8C300023
                   *                                                8C300024
                   ****************************************         8C300025
3004 0  09B4            DC       WAIT4+1   1442 READ ERROR.         8C300026
                   *                       RELOAD CARDS AND         8C300027
                   *                       PUSH START TO RETRY.     8C300028
                   ****************************************         8C300029
                   *                                                8C300030
                   ****************************************         8C300031
3005 0  0C11            DC       WAIT5+1   RELOAD REQUIRED TO       8C300032
                   *                       CORRECT ERROR-PRESS      8C300033
                   *                       START TO IGNORE.         8C300034
                   ****************************************         8C300035
                   *                                                8C300036
                   ****************************************         8C300037
3006 0  0A01            DC       WAIT6+1   1442 IS NOT READY        8C300038
                   *                       BEFORE PUNCH.  MAKE      8C300039
                   *                       READY AND PRESS START.   8C300040
                   ****************************************         8C300041
                   *                                                8C300042
                   ****************************************         8C300043
3007 0  0A08            DC       WAIT7+1   1442 PUNCH ERROR.        8C300044
                   *                       PRESS START TO RETRY.    8C300045
                   ****************************************         8C300046
                   *                                                8C300047
                   ****************************************         8C300048
3008 0  05E6            DC       WAIT8+1   END OF PROGRAM.          8C300049
                   *                       LOAD SKELETONS AND       8C300050
                   *                       PRESS START TO RERUN.    8C300051
                   ****************************************         8C300052
3009                    ORG      300                                8C300053
0C17               SKI1  EQU     3095                               8C300054
0C18               SKI2  EQU     SKI1+1                             8C300055
0C19               SKI3  EQU     SKI2+1                             8C300056
0C1A               SKI4  EQU     SKI3+1                             8C300060
012C 0  0611       KEY   DC      KEYE                               8C300070
012D 0  07A4       CKYN  DC      CKYNE                              8C300080
012E 0  07C4       SSUER DC      SSUEE                              8C30009C
012F 0  07CB       SIL   DC      SILE                               8C300100
0130 0  07D9       SILSW DC      SILSE                              8C300110
0131 0  07E4       SCH   DC      SCHE                               8C300120
0132 0  07F5       SER   DC      SERF                               8C300130
0133 0  07FF       SECSU DC      SECSE                              8C300140
0134 0  082D       SKINI DC      KINI                               8C300150
0135 0  0838       SKINO DC      KINO                               8C300160
0136 0  0842       PDKYB DC      DKYB                               8C300170
0137 0  084B       PHKYB DC      HKYB                               8C300180
0138 00 4C800ABE   ENDO  BSC  I  RDSK                               8C300190
013A 00 4C0005CD   S2    BSC  L  END1                               8C300200
013C 0  0000             DC      0                                  8C300210
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8K EDIT CONTROL

```
013D 0  0000       BWC   DC      0        BINARY WORD COUNT         8C300220
013E    00A0       BINRY BSS     160                                8C300230
                   ****************************************         8C300240
01DE 0  0000       KIWC  DC                                         8C300250
01DF    0258       KEYIN BSS     600                                8C300260
                   ****************************************         8C300270
0437 0  0000       ZERO  DC      /0000                              8C300280
0438 0  0ADE       BGNR  DC      LBGNR                              8C300290
0439 0  0AEB       ERR   DC      LERR                               8C300300
043A 0  0AEF       WCC   DC      LWCC                               8C300310
043B 0  0AF7       MTRM  DC      LMTRM                              8C300320
043C 0  0B0F       TRFX  DC      LTRFX                              8C300330
043D 0  FFFF       TERM  DC      /FFFF                              8C300340
043E 0  0000       LWC   DC               WC STORAGE                8C300350
043F 0  0000       LGROP DC               GROUP COUNTER             8C300360
0440 0  0000       STBF  DC      0        DISPLACEMENT              8C300370
0441 0  0000       SRTRY DC      /0000                              8C300380
                   *                                                8C300390
                   *                                                8C300400
                   *                                                8C300410
                   ********* EDIT IMAGE BUFFER **********           8C300420
0442 0  0000       SEIB  DC      /0000                              8C300430
0443    0141             BSS     321                                8C300440
0584 0  0792       KTYPS DC      KTYP                               8C300442
0585 0  0C0F       HLT   DC      HLTE                               8C300443
0586 0  0A93       CODE  DC      KTILT                              8C300444
0588    0000             BSS  E  0                                  8C300450
0588 00 4C000590   SRST  BSC  L  START       RESTART                8C300460
                   *                                                8C300470
                   *                  CONTROL SECTION               8C300480
                   *                                                8C300490
058A 00 C400006F   STARI LD   L  /006F       CHANGE LDR BASE ADR    8C300500
058C 00 84000602         A    L  K1048                              8C300510
058E 00 D400006F         STO  L  /006F                              8C300520
                   *                                                8C300530
0590 0  1010       START SLA     16          CLEAR ADDRESSES        8C300540
0591 00 D4000127         STO  L  /0127                              8C300550
0593 0  D029             STO     SVIX3+1     ---                    8C300560
0594 0  D039             STO     END1+1                             8C300570
0595 00 D4000440         STO  L  STBF                               8C300572
0597 0  C023             LD      BSAD1       RESET BSE ADRS         8C300580
0598 00 D4000125         STO  L  /0125                              8C300590
                   *                                                8C300600
059A 0  C8ED             LDD     SRST        SET RESTART            8C300610
059B 00 DC000000         STD  L  /0000                              8C300620
                   *                                                8C300630
059D 00 4480012E         BSI  I  SSUER       SET ERROR RETURN  SRC  8C300640
059F 00 4480012C         BSI  I  KEY         ENTER PID         SRC  8C300650
05A1 0  0BE5             DC      SM2                                8C300660
05A2 0  8220             DC      /8220                              8C300670
                   *                                                8C300680
05A3 00 C400013E         LD   L  BINRY       GET ENTRY              8C300690
05A5 00 84000610         CMP  L  K00FF                              8C300692
05A7 0  7065             MDX     ERR04                              8C300694
05A8 0  1000             NOP                                        8C300696
05A9 0  D056             STO     XPID        SAVE                   8C300700
                   *                                                8C300710
05AA 00 44000ABE   S2E   BSI  L  RDSK        RD A SKELTON      SRC  8C300720
                   *                                                8C300730
05AC 0  C8DB             LDD     SRST        RESET RESTART          8C300740
05AD 00 DC000000         STD  L  /0000                              8C300750
                   *                                                8C300760
05AF 00 C4000C17         LD   L  SKI1        GET PID READ           8C300770
05B1 0  F04E             EOR     XPID        IS IT PID DESIRED      8C300780
05B2 00 4C1805BC         BSC  L  SVIX3,+-    YES                    8C300790
                   *                                                8C300800
05B4 0  1010             SLA     16          CLEAR LDR RELOCAT      8C300810
05B5 00 D4000127         STO  L  /0127                              8C300820
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05B7 0  C003                LD         BSAD1                                   8C300830
05B8 00 D4000125            STO   L    /0125     RESET BSE ADRS                8C300840
05BA 0  705F                MDX        S2E       READ NEXT                     8C300850
05BB 0  0C17         BSAD1  DC         /0C17     BASE ADRS                     8C300860
                     *                                                         8C300870
05BC 00 67000000     SVIX3  LDX   L3   0         IX 3 = TBL LOC                8C300880
05BE 00 C4000127            LD    L    /0127     GET REL FACTOR                8C300890
05C0 0  8040                A          BSADR     COMPUTE ADRS                  8C300900
05C1 00 D7000603            STO   L3   RLTBL     SAVE                          8C300910
05C3 0  D003                STO        RLFT+1                                  8C300920
05C4 0  7301                MDX     3  1         INCR IX 3                     8C300930
05C5 0  68F7                STX     3  SVIX3+1   SAVE                          8C300940
05C6 00 C4000000     RLFT   LD    L    0         GET CD NO                     8C300950
05C8 00 F400043D            EOR   L    TERM      IS IT A TERM                  8C300960
05CA 00 4C180C1A            BSC   L    SK14,+-   START PROG                    8C300970
05CC 0  70DD                MDX        S2E       READ MORE                     8C300980
                     *                                                         8C300990
05CD 00 67000000     END1   LDX   L3   0         IX 3 = TBL ADRS               8C301000
05CF 00 C7000604            LD    L3   RLTBL+1   GET ADRS                      8C301010
05D1 0  D001                STO        RLFT1+1   SAVE                          8C301020
05D2 00 C4000000     RLFT1  LD    L    0         GET CD NO                     8C301030
05D4 00 F400043D            EOR   L    TERM      IS IT A TERM                  8C301040
05D6 00 4C1805E7            BSC   L    STTRM,+-  YES                           8C301050
05D8 00 C7000604            LD    L3   RLTBL+1   GET ADRS                      8C301060
05DA 00 840007E3            A     L    K0002     ADD 2                         8C301070
05DC 0  D003                STO        RLFT2+1   SAVE                          8C301080
05DD 00 740105CE            MDX   L    END1+1,1  SET FOR NEXT                  8C301090
05DF 00 4C000000     RLFT2  BSC   L    0         GO TO NEXT                    8C301100
05E1 00 4480012C     END    BSI   I    KEY       END OF PROGRAM          SRC   8C301110
05E3 0  0BFB                DC         SM33                                    8C301120
05E4 0  0000                DC         /0000                                   8C301130
05E5 0  3008         WAIT8  WAIT       8                                       8C301140
05E6 0  70A9                MDX        START                                   8C301150
05E7 00 C4000440     STTRM  LD    L    STBF      GET DISPLACEMENT              8C301160
05E9 00 8400082B            A     L    STBF1     COMPUTE ADRS                  8C301170
05EB 0  D001                STO        *+1       SAVE                          8C301180
05EC 00 65000000            LDX   L1   0         IX 1 = ADRS                   8C301190
05EE 00 C4000C17            LD    L    SK11      GET PID                       8C301200
05F0 0  D100                STO     1  0         SET                           8C301210
05F1 00 C400043D            LD    L    TERM                                    8C301220
05F3 0  D101                STO     1  1         SET                           8C301230
05F4 00 44000931            BSI   L    PECOR     PUNCH CARDS             SRC   8C301240
05F6 0  1010                SLA        16        ZERO ACCUM                    8C301250
05F7 00 D4000440            STO   L    STBF      CLEAR DISPL                   8C301260
05F9 00 65000142            LDX   L1   322                                     8C301270
05FB 00 D4000441     STTR   STO   L    SEIB-1    CLEAR CD BFR                  8C301280
05FD 0  71FF                MDX     1  -1        DECR IX 1                     8C301290
05FE 0  70FC                MDX        STTR      LOOP                          8C301300
05FF 0  70E1                MDX        END       GO TO END                     8C301310
0600 0  0000         XPID   DC         0         PID STORAGE                   8C301320
0601 0  0C18         BSADR  DC         3096      CONSTANTS                     8C301330
0602 0  0418         K1048  DC         1048                                    8C301340
0603 0  0000         RLTBL  DC         0         TBL OF REL FACTORS            8C301350
0604    0009                BSS        9                                       8C301360
060D 00 44800132     ERR04  BSI   I    SER                                     8C301362
060F 0  0BD7                DC         SE002                                   8C301364
0610 0  00FF         K00FF  DC         /00FF                                   8C301366
                     *                                                         8C301370
                     *                                                         8C301380
                     *                                                         8C301390
                     *                   PRINTER I/O ROUTINE                   8C301400
                     *                                                         8C301410
                     *                   CALL    BSI   KEY                     8C301420
                     *                           DC    MSGAD                   8C301430
                     *                           DC    ID                      8C301440
                     *                                                         8C301450
                     *                   ID   BIT 0    KEYBOARD                8C301460
                     *                        X0XX     NO CONV                 8C301480
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                     *                   X1XX   DEC CONV                       8C301482
                     *                   X2XX   HEX CONV                       8C301484
                     *                                                         8C301490
                     *                                                         8C301500
0611 0  0000         KEYE   DC         /0000                                   8C301510
0612 0  6941                STX     1  KEY96+1   SAVE STATUS                   8C301520
0613 0  6A42                STX     2  KEY97+1                                 8C301530
0614 0  6B43                STX     3  KEY98+1                                 8C301540
0615 00 DC000A4C            STD   L    KAQ                                     8C301550
0617 0  2843                STS        KEY99                                   8C301560
                     *                                                         8C301570
0618 00 C4800611            LD    I    KEYE      FETCH MESS ADRS               8C301580
061A 00 D4000A46            STO   L    KMSG                                    8C301590
061C 00 74010611            MDX   L    KEYE,1    POINT TO ID                   8C301600
                     *                                                         8C301610
061E 00 65000A47            LDX   L1   KOUT      SET CARRIER RETURN            8C301620
0620 00 C4000AA3            LD    L    KCR                                     8C301630
                     *                                                         8C301640
0622 0  1808                SRA        8         CLEAR EBDIC CODE              8C301650
0623 0  1008                SLA        8                                       8C301660
0624 0  D100                STO     1  0         STORE IN OUTPUT AREA          8C301670
                     *                                                         8C301680
0625 00 C4800A46     KEBC2  LD    I    KMSG      CHECK TERMINATOR              8C301690
0627 00 84000A56            A     L    KONE                                    8C301700
0629 00 4C18064B            BSC   L    KCHK,+-   BR IF NO MORE MESS            8C301710
*****************************************************************              8C301720
                     *                                                         8C301730
062B 0  6208                LDX     2  8                                       8C301740
062C 00 67000A7A     KEBC3  LDX   L3   KTGLT     CONVERT CHARS TO RTT          8C301750
062E 0  7101                MDX     1  1                                       8C301760
062F 00 C4800A46     KEBC4  LD    I    KMSG      FETCH EBDIC CHARS             8C301770
0631 0  1A00                SRA     2  0                                       8C301780
0632 0  1008                SLA        8                                       8C301790
0633 0  1808                SRA        8                                       8C301800
0634 0  F300                EOR     3  0                                       8C301810
0635 0  D100                STO     1  0                                       8C301820
0636 0  1008                SLA        8                                       8C301830
0637 0  7301                MDX     3  1                                       8C301840
0638 00 4C20062F            BSC   L    KEBC4,Z   BR IF NOT THE CHAR            8C301850
                     *                                                         8C301860
063A 0  7200                MDX     2  0         SKIP IF 2 CHARS CNVT          8C301870
063B 0  700D                MDX        KEBC6                                   8C301880
                     *                                                         8C301890
063C 00 C4000A56            LD    L    KONE      SET TERMINATOR                8C301900
063E 0  8100                A       1  0                                       8C301910
063F 0  D100                STO     1  0                                       8C301920
0640 00 65000A47            LDX   L1   KOUT      GO PRINT CHARS                8C301930
0642 00 44000792            BSI   L    KTYP                                    8C301940
                     *                                                         8C301950
0644 00 65000A46            LDX   L1   KOUT-1                                  8C301960
0646 00 74010A46            MDX   L    KMSG,1    POINT TO NEXT WORD            8C301970
0648 0  70DC                MDX        KEBC2                                   8C301980
                     *                                                         8C301990
0649 0  6200         KEBC6  LDX     2  0         CONVERT SECOND CHAR           8C302000
064A 0  70E1                MDX        KEBC3                                   8C302010
*****************************************************************              8C302020
                     *                                                         8C302030
                     *                                                         8C302040
064B 00 65000AA3     KCHK   LDX   L1   KCR                                     8C302050
064D 00 44000792            BSI   L    KTYP      DO CAR RET              SRC   8C302060
064F 00 C4800611            LD    I    KEYE                                    8C302070
0651 00 4C280660            BSC   L    KFRM,+Z   BR IF KBD ENTRY               8C302080
*****************************************************************              8C302090
                     *                                                         8C302100
0653 00 65000000     KEY96  LDX   L1   /0000     RESTORE STATUS                8C302110
0655 00 66000000     KEY97  LDX   L2   /0000                                   8C302120
0657 00 67000000     KEY98  LDX   L3   /0000                                   8C302130
0659 00 CC000A4C            LDD   L    KAQ                                     8C302140
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0658 0  2000       KEY99 LDS     0                                  8C302150
                         *                                         8C302160
065C 00 74010611         MDX   L KEYE,1                           8C302170
065E 00 4C800611         BSC   I KEYE          RETURN EXIT        8C302180
                         *****************************************8C302190
                         *****************************************8C302200
                         *                                         8C302210
                         *                                         8C302220
0660 0  1090       KFRM  SLT     16            FETCH FORM NUMBER  8C302230
0661 00 C4800611         LD    I KEYE                             8C302240
0663 0  1004             SLA     4                                8C302250
0664 0  18CC             RTE     12                               8C302260
0665 00 D4000753         STO   L KEYFM         SAVE FORM NO       8C302270
0667 0  1804             SRA     4                                8C302280
0668 0  1084             SLT     4                                8C302290
0669 00 D4000754         STO   L KEYNO         SAVE CHAR/WD COUNT 8C302300
                         *                                         8C302310
                         *                                         8C302320
066B 00 44800134   KEYOG BSI   I SKIN1         SET KEYIN TO FFFF  SRC 8C302330
                         *                                         8C302340
066D 00 6F0001DE         STX   L3 KIWC         RESET WD CT        8C302350
                         *                                         8C302360
066F 00 670001DF         LDX   L3 KEYIN        RESET READ AREA    8C302370
                         *****************************************8C302380
0671 00 6F000A54   KEYO  STX   L3 KRED                            8C302390
0673 00 4400076F         BSI   L KNBY          WAIT FOR NOT BUSY  8C302400
                         *                                         8C302410
0675 00 0C000A52   KEY1  XIO   L KPCD          SET KEYBOARD PROCEED 8C302420
                         *                                         8C302430
0677 00 0C000A44   KEY2  XIO   L KSNS          SENSE STATUS       8C302440
0679 0  1001             SLA     1                                8C302450
067A 00 4C280680         BSC   L KEY3,+Z       GO READ KEYBOARD   8C302460
                         *                                         8C302470
067C 0  1005             SLA     5                                8C302480
067D 00 4C100675         BSC   L KEY1,-        BR IF NOT PROCEED  8C302490
067F 0  70F7             MDX     KEY2                             8C302500
                         *                                         8C302510
0680 00 0C000A54   KEY3  XIO   L KRED          READ KEYBOARD      8C302520
                         *                                         8C302530
0682 0  610B       KFMS  LDX     1 11          CHECK FOR DEC OR SPC 8C302540
0683 0  C300       KFMS1 LD      3 KRED-KRED   FETCH CHAR READ     8C30255C
0684 00 F5000A5D         EOR   L1 KECOD-1                         8C302560
0686 00 4C1806DD         BSC   L KDEC,+-       BR IF DEC OR SPACE 8C302570
                         *                                         8C302580
0688 0  71FF             MDX     1 -1                             8C302590
0689 0  70F9             MDX     KFMS1                            8C302600
                         *                                         8C302610
068A 00 C4000753         LD    L KEYFM         CHECK FOR FORM     8C302620
068C 00 F4000A56         EOR   L KONE                             8C302630
068E 00 4C1806A7         BSC   L KFM0,+-       BRANCH IF FORM 1   8C302640
                         *****************************************8C302650
0690 0  6106       KFM2  LDX     1 6           CHECK FOR HEX      8C302660
0691 0  C300       KFM21 LD      3 KRED-KRED   FETCH CHAR READ    8C302670
0692 00 F5000A68         EOR   L1 KECAD-1                         8C302680
0694 00 4C1806E0         BSC   L KHEX,+-       BR IF ALPHA        8C302690
                         *                                         8C302700
0696 0  71FF             MDX     1 -1                             8C302710
0697 0  70F9             MDX     KFM21                            8C302720
0698 0  C300             LD      3 KRED-KRED   FETCH CHAR READ    8C302730
0699 00 F4000A5B         EOR   L KECPD                            8C302731
069B 00 4C2006A7         BSC   L KFM0,Z        BR IF NOT PERIOD   8C302732
069D 0  C3FC             LD      3 -4          A PLUS OR MINUS    8C302733
069E 0  6201             LDX     2 1                              8C302734
069F 0  1240             SLCA    2 0                              8C302735
06A0 00 F4000BA9         EOR   L KB000                            8C302736
06A2 00 44200757         BSI   L KERR,Z        BR IF NOT + OR -   8C302737
06A4 00 C4000A8F         LD    L KTPLT                            8C302738
06A6 0  7022             MDX     KPNE                             8C302739
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                         *                                         8C302740
                         *****************************************8C302750
06A7 0  6108       KFM0  LDX     1 8           CHECK UC SP CHRS   8C302760
06A8 0  C300       KFM01 LD      3 0           GET CHR READ       8C302770
06A9 00 F5000A56         EOR   L1 KN-1         CK AGAINST TBL     8C302780
06AB 00 4C1806D2         BSC   L KMDX,+-       CHAR FOUND         8C302790
06AD 0  71FF             MDX     1 -1          DECR IX 1          8C302800
06AE 0  70F9             MDX     KFM01         LOOP               8C302810
                         *                                         8C302820
06AF 0  6107             LDX     1 7           CK LC SP CHRS      8C302830
06B0 0  C300       KFM02 LD      3 0           GET CHR READ       8C302840
06B1 00 F5000A71         EOR   L1 KAL-1         CK AGAINST TBL     8C302850
06B3 00 4C1806DB         BSC   L KMPX,+-       CHARACTER FOUND    8C302860
06B5 0  71FF             MDX     1 -1          DECR IX 1          8C302870
06B6 0  70F9             MDX     KFM02         LOOP               8C302880
06B7 0  C300             LD      3 0           GET CHR READ       8C302890
06B8 00 F4000A4B         EOR   L KL                               8C302900
06BA 00 442006F6         BSI   L KSPC,Z                           8C302910
                         *                                         8C302920
06BC 0  6201             LDX     2 1                              8C302930
06BD 0  C3FA             LD      3 -6                             8C302940
06BE 0  1002             SLA     2                                8C302950
06BF 0  1240             SLCA    2 0                              8C302960
06C0 00 F4000BA9         EOR   L KB000                            8C302970
06C2 00 44200757         BSI   L KERR,Z        BR IF NOT 1 OR ZERO 8C302980
                         *                                         8C302990
06C4 0  C3FA             LD      3 -6                             8C303000
06C5 0  1802             SRA     2                                8C303010
06C6 0  D3FA             STO     3 -6                             8C303020
06C7 00 C4000A7F         LD    L KLRT                             8C303030
06C9 00 EC000A56   KPNE  OR    L KONE                             8C303040
06CB 00 65000A47         LDX   L1 KOUT                            8C303050
06CD 0  D100             STO     1 0                              8C303060
06CE 00 44000792         BSI   L KTYP                             8C303070
06D0 00 4C000671         BSC   L KEYO          BRANCH             8C303080
                         *                                         8C303090
06D2 0  C300       KMDX  LD      3 0           FETCH CHAR         8C303091
06D3 00 F4000A5C         EOR   L KECPD+1                          8C303092
06D5 00 4C2006DB         BSC   L KMPX,Z        BR IF NOT + SIGN   8C303093
06D7 0  C300             LD      3 0           MAKE + = /8000     8C303094
06D8 0  180C             SRA     12                               8C303095
06D9 0  100C             SLA     12                               8C303096
06DA 0  D300             STO     3 0                              8C303097
06DB 0  7111             MDX     1 KN-KECGD    ADJ IX 1           8C303100
06DC 0  7001             MDX     KDEC1                            8C303110
                         *                                         8C303120
                         *****************************************8C303130
                         *                                         8C303140
06DD 0  7118       KDEC  MDX     1 KECOD-KECGD     CORCT XR1      8C303150
                         *                                         8C303160
06DE 0  4003       KDEC1 BSI     KSTO          GO STORE + PRT     SRC 8C303170
                         *                                         8C303180
06DF 0  7091             MDX     KEYO              RETURN FOR NEXT 8C303190
                         *                                         8C303200
                         *                                         8C303210
06E0 0  7123       KHEX  MDX     1 KECAD-KECGD     GO PRINT A - F 8C303220
06E1 0  70FC             MDX     KDEC1                            8C303230
                         *****************************************8C303240
                         *                                         8C303250
                         *                 STORE AND PRINT RTN     8C303260
06E2 0  0000       KSTO  DC      /0000                            8C303270
06E3 0  C300             LD      3 0                              8C303280
06E4 0  EBFF             OR      3 -1                             8C303290
06E5 0  1804             SRA     4                                8C303300
06E6 00 4C9806E2         BSC   I KSTO,+-       BR IF SECOND SPACE 8C303310
                         *                                         8C303320
06E8 00 C5000A79         LD    L1 KTGLT-1      FETCH TYPR CHAR    8C303330
06EA 00 EC000A56         OR    L KONE                             8C303340
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8K EDIT CONTROL

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06EC 00 65000A47          LDX  L1 KOUT                                  8C303350
06EE 0  D100              STO   1 0                                     8C303360
06EF 00 44000792          BSI  L  KTYP       TYPE CHARACTER             8C303370
                     *                                                  8C303380
                     *                       UPDATE KEYBOARD BUF        8C303390
06F1 00 740101DE          MDX  L  KIWC,1                                8C303400
06F3 0  7301              MDX   3 1                                     8C303410
                     *                                                  8C303420
06F4 00 4C8006E2          BSC  I  KSTO       RETURN TO USER             8C303430
                     ********************************************       8C303440
                     *                       SPECIAL CHAR CHECK         8C303450
06F6 0  0000         KSPC DC       /0000                               8C303460
                     *                                                  8C303470
06F7 0  C300              LD    3 0          FETCH KEY CHARACTER        8C303480
06F8 00 F4000A79          EOR  L  KCMA                                  8C303492
06FA 00 4C200712          BSC  L  KSPC5,Z    BR IF NOT A  COMMA         8C303500
                     *                                                  8C303510
06FC 00 C40001DE          LD   L  KIWC                                  8C303520
06FE 00 940007E3          S    L  K0002                                 8C303530
0700 00 44280757          BSI  L  KERR,+Z    BR IF COMMA TOO SOON       8C303540
                     *                                                  8C303550
0702 0  C3FF              LD    3 -1         FETCH LAST ENTRY           8C303560
0703 0  1804              SRA     4                                     8C303570
0704 00 4C180709          BSC  L  KSPC2,+-   BR IF SPACE LAST           8C303580
0706 00 740101DE          MDX  L  KIWC,+1                               8C303590
0708 0  7301              MDX   3 +1                                    8C303600
0709 00 C4000A56     KSPC2 LD   L  KONE                                 8C303610
070B 0  D3FF              STO   3 -1         SET FIELD PROTECT MK       8C303620
                     *                                                  8C303630
070C 00 6500072A          LDX  L1 KCOMA                                 8C303640
070E 00 44000792          BSI  L  KTYP       GO PRINT + OR-             8C303650
                     *                                                  8C303660
0710 00 64000671          LDX  L  KEYO       RETURN FOR MORE CHR        8C303670
                     *                                                  8C303680
                     ********************************************       8C303690
0712 0  C300         KSPC5 LD    3 0          FETCH KEY CHARACTER        8C303700
0713 00 F4000A70          EOR  L  KERSE                                 8C303710
0715 00 4C20072D          BSC  L  KSPC9,Z    BR IF NOT ERASE CHAR       8C303720
                     *                                                  8C303730
0717 00 C40001DE          LD   L  KIWC                                  8C303740
0719 00 4C080671          BSC  L  KEYO,+     BR IF WORD COUNT ZERO      8C303750
                     *                                                  8C303760
071B 0  C3FF              LD    3 -1         CHECK PROTECT BIT          8C303770
071C 00 4C040671          BSC  L  KEYO,E     BR IF LAST WORD PROTD      8C303780
071E 0  1801              SRA     1                                     8C303790
071F 00 4C040725          BSC  L  KSPC6,E    DO BKSP OVER PERIOD        8C303800
0721 0  73FF              MDX   3 -1         DECREASE WORD COUNT        8C303810
0722 00 74FF01DE          MDX  L  KIWC,-1                               8C303820
0724 0  1000              NOP                                           8C303830
0725 00 6500072C     KSPC6 LDX  L1 KBKSP                                8C303840
0727 0  406A              BSI     KTYP       DO A BACKSPACE        SRC   8C303850
                     *                                                  8C303860
0728 00 4C000671          BSC  L  KEYO       RETURN                     8C303870
                     ********************************************       8C303880
072A 0  8000         KCOMA DC       /8000    COMMA RESPONSE             8C303890
072B 0  8101              DC       /8101                               8C303900
072C 0  1101         KBKSP DC       /1101                               8C303910
                     *                                                  8C303920
072D 0  C300         KSPC9 LD    3 0          FETCH KEY CHAR             8C303930
072E 00 F4000A6F          EOR  L  KRENT                                 8C303940
0730 00 44180757          BSI  L  KERR,+-    BR IF ERASE FIELD          8C303950
                     *                                                  8C303960
0732 0  C300              LD    3 KRED-KRED  FETCH CHAR READ            8C303970
0733 00 F4000A71          EOR  L  KENDK                                 8C303980
0735 00 4C200671          BSC  L  KEYO,Z     BR IF NOT EOF KEY          8C303990
                     *                                                  8C304000
0737 00 C40001DE          LD   L  KIWC       FETCH WORD COUNT           8C304010
0739 0  901A              S       KEYND                                 8C304020
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073A 00 44280757          BSI  L  KERR,+Z    TOO FEW ENTRIES            8C304030
073C 00 658001DE          LDX  I1 KIWC       CLEAR FIELD PROT BIT       8C304040
073E 00 C50001DE     KSPCA LD   L1 KIWC                                 8C304050
0740 0  1804              SRA     4                                     8C304060
0741 0  1004              SLA     4                                     8C304070
0742 00 D50001DE          STO  L1 KIWC                                  8C304080
0744 0  71FF              MDX   1 -1                                    8C304090
0745 0  70F8              MDX     KSPCA                                 8C304100
                     *                                                  8C304110
                     *                                                  8C304120
0746 0  C3FF              LD    3 -1         REMOVE SP BEFORE           8C304130
                     *                       TERMINATE                  8C304140
0747 0  1804              SRA     4                                     8C304150
0748 00 4C20074F          BSC  L  KSPCE,Z    BR IF NO SPACE THERE       8C304160
074A 0  73FF              MDX   3 -1         DECREMENT WORD COUNT       8C304170
074B 00 74FF01DE          MDX  L  KIWC,-1                               8C304180
074D 0  7001              MDX     KSPCE                                 8C304190
074E 0  4008              BSI     KERR                                  8C304200
074F 0  C01E         KSPCE LD     KNEG       SET TERMINATION            8C304210
0750 0  D300              STO   3 0                                     8C304220
0751 00 44000ACA          BSI  L  LOOIT      LET LLOYD DO IT            8C304230
0753 0  0000         KEYFM DC       /0000    FORM NUMBER                8C304240
0754 0  0000         KEYND DC       /0000    CHARS / WORD               8C304250
0755 00 4C000653     EXIT  BSC  L  KEY96                                8C304260
                     ********************************************       8C304270
                     *                                                  8C304280
                     *                                                  8C304290
0757 0  0000         KERR  DC       /0000                               8C304300
0758 00 65000AA4          LDX  L1 KFELD      PRINT FIELD CANCELLD       8C304310
075A 0  4037              BSI     KTYP       TYPE                   SRC 8C304320
                     *                                                  8C304330
075B 0  7301              MDX   3 1                                     8C304340
075C 00 740101DE          MDX  L  KIWC,1                                8C304350
075E 0  61FF              IDX   1 -1                                    8C304360
075F 0  C3FF         KERR1 LD    3 -1         ERASE TO FIELD MARK        8C304370
0760 00 4C040671          BSC  L  KEYO,E     BR IF FIELD MARK           8C304380
                     *                                                  8C304390
0762 0  C008              LD      KNEG                                  8C304400
0763 0  D300              STO   3 0                                     8C304410
0764 0  73FF              MDX   3 -1         DECREMENT WORD COUNT       8C304420
0765 00 74FF01DE          MDX  L  KIWC,-1                               8C304430
0767 0  70F7              MDX     KERR1                                 8C304440
                     *                                                  8C304450
0768 00 C40001DE          LD   L  KIWC                                  8C304460
076A 00 4C100671          BSC  L  KEYO,-                                8C304462
076C 00 4C000668          BSC  L  KEYOG                                 8C304464
076E 0  FFFF         KNEG  DC       -1         CONSTANT MINUS ONE         8C304470
                     ********************************************       8C304480
                     *                                                  8C304490
                     *                                                  8C304500
                     *                       TYPR NOT BUSY RTN          8C304510
076F 0  0000         KNBY  DC       /0000                               8C304520
0770 0  6A1B              STX   2 KNBY5+1                               8C304530
0771 00 6600000A          LDX  L2 10         SET TIME COUNTER           8C304540
0773 00 6E000791          STX  L2 KTIME                                 8C304550
0775 00 66007FFF     KNBY0 LDX  L2 /7FFF                                8C304560
0777 00 0C000A44     KNBY1 XIO  L  KSNS       CHECK BUSY                 8C304570
0779 0  1004              SLA     4                                     8C304580
077A 00 4C10078B          BSC  L  KNBY5,-    BR IF NOT BUSY             8C304590
077C 0  72FF              MDX   2 -1                                    8C304600
077D 0  70F9              MDX     KNBY1      CHECK AGAIN                8C304610
077E 00 74FF0791          MDX  L  KTIME,-1   DECREMENT TIMER             8C304620
0780 0  70F4              MDX     KNBY0                                 8C304630
                     *                                                  8C304640
0781 00 66000787          LDX  L2 KNBY4      TYPR HUNG UP BUSY          8C304650
0783 00 6E000003          STX  L2 3                                     8C304660
0785 0  3002         WAIT2 WAIT    2          1816 HUNG UP BUSY          8C304670
0786 0  70EA              MDX     KNBY+2                                8C304680
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                        *
0787 00 6600012C  KNBY4 LDX  L2 300       RESTORE RESTART                8C304690
0789 00 6E000003        STX  L2 3                                          8C304700
                        *                                                  8C304710
078B 00 66000000  KNBY5 LDX  L2 /0000     EXIT                           8C304720
078D 00 0C000A4E        XIO  L  KRDY      RESET                          8C304730
078F 00 4C80076F        BSC  I  KNBY                                     8C304740
0791 0  0000      KTIME DC      /0000     TIME COUNTER                   8C304750
                  ***************************************************    8C304760
                        *                                                8C304770
                        *                                                8C304780
                        *                                      *         8C304790
                        *                                      *         8C304800
                        *                   PRINTER OUTPUT RTN           8C304810
                        *                   XRI = ADRS OF MESS           8C304820
                        *                                                8C304830
0792 0  0000      KTYP  DC      /0000                                      8C304840
0793 00 6D0000A50 KTYP1 STX  L1 KPRT      SAVE PRINTING ADDR             8C304850
                        *                                                8C304860
0795 0  40D9            BSI     KNBY      WAIT OFR NOT BUSY              8C304870
                        *                                                8C304880
0796 00 0C000A4E  KTYP5 XIO  L  KRDY      CHECK READY                    8C304890
0798 0  1005            SLA     5                                        8C304900
0799 00 4C10079D        BSC  L  KTYP6,-   BR IF READY                    8C304910
0798 0  3001      WAIT1 WAIT    1         PRINTER OUT OF FORMS           8C304920
                        *                                                8C304930
079C 0  70F9            MDX     KTYP5                                    8C304940
                        *                                                8C304950
079D 00 0C000A50  KTYP6 XIO  L  KPRT      OUTPUT ONE CHAR                8C304960
079F 0  C100            LD    1 0                                        8C304970
07A0 00 4C840792        BSC  I  KTYP,E    EXIT IF MSG PRIM               8C304980
                        *                                                8C304990
07A2 0  7101            MDX   1 1                                        8C305000
07A3 0  70EF            MDX     KTYP1                                    8C305010
07A4 0  0000      CKYNE DC      0                                  SE    8C305020
07A5 00 C400001DF       LD   L  KEYIN     GET ENTRY                      8C305030
07A7 0  F018            EOR     YES       IS IT Y LC                     8C305040
07A8 00 4C1807BE        BSC  L  CKYND,+-  YES                            8C305050
07AA 00 C400001DF       LD   L  KEYIN     GET ENTRY                      8C305060
07AC 0  F014            EOR     YES1      IS IT Y UC                     8C305070
07AD 00 4C1807BE        BSC  L  CKYND,+-  YES                            8C305080
07AF 00 C400001DF       LD   L  KEYIN     GET ENTRY                      8C305090
07B1 0  F010            EOR     NO        IS IT N LC                     8C305100
07B2 00 4C1807BC        BSC  L  CKYN1,+-  YES                            8C305110
07B4 00 C400001DF       LD   L  KEYIN     GET ENTRY                      8C305120
07B6 0  F00C            EOR     NO1       IS IT N UC                     8C305130
07B7 00 4C18078C        BSC  L  CKYN1,+-  YES                            8C305140
                        *                                                8C305150
07B9 00 44800132        BSI  I  SER       NOT Y OR N             SRC     8C305160
07BB 0  0BB2            DC      PCKBE                                    8C305170
                        *                                                8C305180
07BC 00 740107A4  CKYN1 MDX  L  CKYNE,1   INCR RETURN                    8C305190
07BE 00 4C8007A4  CKYND BSC  I  CKYNE     EXIT                   SX      8C305200
                        *                                                8C305210
07C0 0  2020      YES   DC      /2020     LOWER CASE Y                   8C305220
07C1 0  8060      YES1  DC      /8060     UPPER CASE Y                   8C305230
07C2 0  4100      NO    DC      /4100     LOWER CASE N                   8C305240
07C3 0  8120      NO1   DC      /8120     UPPER CASE N                   8C305250
                        *                                                8C305260
                        *                                                8C305270
                  *  SET UP RETURN ON ERROR                              8C305280
07C4 0  0000      SSUEE DC      /0000                                    8C305290
07C5 0  C0FE            LD      SSUEE                                    8C305300
07C6 0  901C            S       K0002                                    8C305310
07C7 00 D4000441        STD  L  SRTRY                                    8C305320
07C9 00 4C8007C4        BSC  I  SSUEE                                    8C305330
07C4            SSEUR EQU       SSUEE                                    8C305340
                  *                   CHECK IF INTERRUPT LEVEL           8C305350
                  *                   IS TO GREAT                        8C305360
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07CB 0  0000      SILE  DC                                               8C305370
07CC 00 C400013E        LD   L  BINRY                                    8C305380
07CE 0  1008            SLA     8                                        8C305390
07CF 0  B008            CMP     S1700                                    8C305400
07D0 0  7002            MDX     SILER     GREATER ERROR                  8C305410
07D1 0  7004            MDX     SIL1                                     8C305420
07D2 0  7003            MDX     SIL1                                     8C305430
                        *                                                8C305440
07D3 00 44800132  SILER BSI  I  SER                                      8C305450
07D5 0  0BD7            DC      SE002                                    8C305460
                        *                                                8C305470
07D6 00 4C8007CB  SIL1  BSC  I  SILE                                     8C305480
                        *                                                8C305490
07D8 0  1700      S1700 DC      /1700                                    8C305500
                        *                                                8C305510
                        *             CHECK IF ILSW IS VALID             8C305520
                        *                                                8C305530
07D9 0  0000      SILSE DC      /0000                                    8C305540
07DA 00 C400013E        LD   L  BINRY                                    8C305550
07DC 0  1004            SLA     4                                        8C305560
07DD 0  B004            CMP     S00F0                                    8C305570
07DE 0  70F4            MDX     SILER     ERROR                          8C305580
07DF 0  1000            NOP     0                                        8C305590
                        *                                                8C305600
                        *                                                8C305610
07E0 00 4C8007D9  SIA   BSC  I  SILSE                                    8C305620
                        *                                                8C305630
07E2 0  00F0      S00F0 DC      /00F0                                    8C305640
07E3 0  0002      K0002 DC      2                                        8C305650
                        *                                                8C305660
                        *             CHECK CHANNEL VALUE                8C305670
                        *                                                8C305680
07E4 0  0000      SCHE  DC      /0000                                    8C305690
07E5 00 C400013E        LD   L  BINRY                                    8C305700
07E7 0  B00C            CMP     S0008                                    8C305710
07E8 0  7002            MDX     SCHER                                    8C305720
07E9 0  7005            MDX     SCH1                                     8C305730
07EA 0  7004            MDX     SCH1                                     8C305740
                        *                                                8C305750
07EB 0  F007      SCHER EOR     S000F                                    8C305760
07EC 00 4C1807EF        BSC  L  SCH1,+-                                  8C305770
07EE 0  70E4            MDX     SILER     ERROR                          8C305780
                        *                                                8C305790
07EF 00 C400013E  SCH1  LD   L  BINRY                                    8C305800
07F1 00 4C8007E4        BSC  I  SCHE                                     8C305810
07F3 0  000F      S000F DC      /000F                                    8C305820
                        *                                                8C305830
07F4 0  0008      S0008 DC      /0008                                    8C305840
07F5 0  0000      SERE  DC      /0000                                    8C305850
07F6 00 C48007F5        LD   I  SERE      FETCH ERROR ADDRESS            8C305860
07F8 0  D002            STD     SER1                                     8C305870
                        *                                                8C305880
07F9 00 4480012C        BSI  I  KEY                                      8C305890
07FB 0  0000      SER1  DC      /0000     ADDRESS                        8C305900
07FC 0  0000            DC      /0000     ID                             8C305910
                        *                                                8C305920
07FD 00 4C800441        BSC  I  SRTRY                                    8C305930
                        *                                                8C305940
                        *               SET UP ROUTINE                   8C305950
                        *                     X2= CARD NUMBER            8C305960
                        *                                                8C305970
07FF 0  0000      SECSE DC      0                                  SE    8C305980
0800 00 C48007FF        LD   I  SECSE     GET MSG ADRS                   8C305990
0802 0  D024            STD     SIWB      SAVE                           8C306000
0803 0  6A24      SE1   STX  2  SECB      SET CD NO                      8C306010
0804 0  6924            STX  1  CPID      SET PID                        8C306020
0805 0  6B24            STX  3  NOEN      SET NO OF ENTRIES              8C306030
0806 0  C024            LD      STBF1     GET EDIT IMAGE ADRS            8C306040
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0807 00 84000440          A    L  STBF                                  8C306050
0809 0  D003              STO     SE2+1     SET                         8C306060
080A 00 65800827          LDX  I1 SIWB      IX 1 = MSG ADRS             8C306070
080C 00 67000000   SE2    LDX  L3 0         IX 3 = STARTING ADRS        8C306080
080E 00 6680082A          LDX  I2 NOEN      IX 2 = NO ENTRIES           8C306090
0810 0  C018              LD      CPID      GET PID                     8C306100
0811 0  D300              STO   3 0         SET                         8C306110
0812 0  C015              LD      SECB      GET CD NO                   8C306120
0813 0  D301              STO   3 1         SET                         8C306130
0814 0  C015              LD      NOEN      GET NO ENTRIES              8C306140
0815 0  D302              STO   3 2         SET                         8C306150
0816 0  7303              MDX   3 3         INCR IX 3                   8C306160
0817 0  C100       SE3    LD    1 0         GET AN ENTRY                8C306170
0818 0  D300              STO   3 0         SET                         8C306180
0819 0  7101              MDX   1 1         INCR MSG ADRS               8C306190
081A 0  7301              MDX   3 1         INCR BFR ADRS               8C306200
081B 0  72FF              MDX   2 -1        DECR NO ENTRIES             8C306210
081C 0  70FA              MDX     SE3       LOOP                        8C306220
081D 00 C4000440          LD   L  STBF                                  8C306230
081F 0  800C              A       K0003     ADD 3                       8C306240
0820 0  8009              A       NOEN      ADD NO ENTRIES              8C306250
0821 00 D4000440          STO  L  STBF                                  8C306260
0823 00 740107FF          MDX  L  SECSE,1   INCR RETURN                 8C306270
0825 00 4C8007FF          BSC  I  SECSE     EXIT                   SX   8C306280
                   *                                                    8C306290
0827 0  0000       SIWB   DC      0         MSG ADRS                    8C306300
0828 0  0000       SECB   DC      0         CARD NO                     8C306310
0829 0  0000       CPID   DC      0         PID                         8C306320
082A 0  0000       NOEN   DC      0         NO ENTRIES                  8C306330
082B 0  0442       STBF1  DC      SEIB      CD BFR ADRS                 8C306340
082C 0  0003       K0003  DC      3         CONSTANT 3                  8C306350
                   *****************************************            8C306360
082D 0  0000       KIN1   DC      0                                SE   8C306370
082E 00 67000258          LDX  L3 600       SET IXING                   8C306380
0830 00 C400043D          LD   L  TERM      GET FFFF                    8C306390
0832 00 D70001DE   SKINA  STO  L3 KIWC      SET KEYIN AREA              8C306400
0834 0  73FF              MDX   3 -1        DECR IX 3                   8C306410
0835 0  70FC              MDX     SKINA     LOOP                        8C306420
0836 00 4C80082D          BSC  I  KIN1      EXIT                   SX   8C306430
                   *****************************************            8C306440
                   *                                                    8C306450
0838 0  0000       KINO   DC      0                                SE   8C306460
0839 00 67000258          LDX  L3 600       SET IXING                   8C306470
083B 0  1010              SLA     16        CLEAR ACCUM                 8C306480
083C 00 D70001DE   SKINB  STO  L3 KIWC      CLEAR KEYIN AREA            8C306490
083E 0  73FF              MDX   3 -1        DECR IX 3                   8C306500
083F 0  70FC              MDX     SKINB     LOOP                        8C306510
0840 00 4C800838          BSC  I  KINO      EXIT                   SX   8C306520
                   *                  DEC KEYBOARD TO BINARY RT         8C306530
                   *                                                    8C306540
0842 0  0000       DKYB   DC      0                                     8C306550
0843 0  D862              STO     PHKX1     SAVE A + Q                  8C306560
0844 0  C0FD              LD      DKYB                                  8C306570
0845 0  D005              STO     HKYB                                  8C306580
0846 00 D40008AF          STO  L  PHDSW     SET HEX-DEC SW = DEC        8C306590
0848 00 C40008F7          LD   L  PDKX1     CONSTANT 10                 8C306600
084A 0  7005              MDX     PHKYD     ENTER COMMON SECTION        8C306610
                   *                                                    8C306620
                   *                                                    8C306630
                   *                . HEX KEYBOARD TO BINARY RT         8C306640
                   *                                                    8C306650
084B 0  0000       HKYB   DC      0                                     8C306660
084C 0  D859              STD     PHKX1     SAVE A + Q                  8C306670
084D 0  C05F              LD      PHKX7     CONSTANT ZERO               8C306680
084E 0  D060              STO     PHDSW     SET HEX-DEC SW = HEX        8C306690
084F 0  C05E              LD      PHKX8                                 8C306700
0850 0  D01F       PHKYD  STO     PHKYC     SET CONV CK                 8C306710
0851 0  284F              STS     PHKYS     SAVE STATUS                 8C306720
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0852 0  6949              STX   1 PHKY6+1   SAVE X1                     8C306730
0853 0  6A4A              STX   2 PHKY7+1   SAVE X2                     8C306740
0854 0  6B4B              STX   3 PHKY8+1   SAVE X3                     8C306750
0855 00 6780084B          LDX  I3 HKYB                                  8C306760
0857 00 C7000000          LD   L3 0                                     8C306770
0859 0  D04E              STO     PHKX2     SAVE CHAR/WORD              8C306780
085A 00 C7800001          LD   I3 1         GET ADDR OF DISP            8C306790
085C 0  804C              A       PHKX3     COMPUTE START ADDR          8C306800
085D 0  D04C              STO     PHKX4                                 8C306810
                   *                                                    8C306820
                   *                  INITIALIZE BINRY BUFFER           8C306830
                   *                                                    8C306840
085E 0  1810              SRA     16                                    8C306850
085F 00 D400013D          STO  L  BWC       RESET WORD COUNT            8C306860
                   *                                                    8C306870
                   *                  CONVERT NUMBER TO HEX             8C306880
                   *                  * AND STORE IN BINARY BUF         8C306890
                   *                                                    8C306900
0861 00 6680013D   PHKY5  LDX  I2 BWC       SET X2 TO NEXT              8C306910
0863 00 7600013D          MDX  L2 BINRY-1   * AVAILABLE SPACE -1        8C306920
0865 0  6A0C              STX   2 PHKY1+1                               8C306930
0866 0  6A16              STX   2 PHKY3+1                               8C306940
0867 00 658008A8          LDX  I1 PHKX2     SET X1 TO STARTING          8C306950
0869 00 758008AA          MDX  I1 PHKX4     * ADDR + NUM CHAR/WD        8C306960
086B 00 678008A8          LDX  I3 PHKX2     SET X3 TO CHAR/WD           8C306970
086D 0  C100       PHKY2  LD    1 0         GET NUMBER                  8C306980
086E 00 44000900          BSI  L  PCKB      CONVERT TO BINARY           8C306990
0870 0  0010       PHKYC  DC      16        LIM CK = 16 OR 10           8C307000
0871 00 D7000000   PHKY1  STO  L3 0         PLACE IN BINRY BUFF         8C307010
0873 0  71FF              MDX   1 -1                                    8C307020
0874 0  73FF              MDX   3 -1        SKIP WHEN DONE              8C307030
0875 0  70F7              MDX     PHKY2                                 8C307040
0876 00 740008AF          MDX  L  PHDSW,0   CK HEX-DEC SW               8C307050
0878 0  7037              MDX     PDKY1     BRANCH TO DEC RT            8C307060
                   *                                                    8C307070
                   *                  PACK BINARY                       8C307080
                   *                                                    8C307090
0879 00 678008A8          LDX  I3 PHKX2     SET X3 TO CHAR/WD           8C307100
087B 0  10A0              SLT     32                                    8C307110
087C 00 C7000000   PHKY3  LD   L3 0                                     8C307120
087E 0  1884              SRT     4                                     8C307130
087F 0  73FF              MDX   3 -1                                    8C307140
0880 0  70FB              MDX     PHKY3                                 8C307150
0881 0  63FC              LDX   3 -4        RIGHT JUSTIFY               8C307160
0882 00 778008A8          MDX  I3 PHKX2                                 8C307170
0884 0  1884       PHKY4  SRT     4                                     8C307180
0885 0  7300              MDX   3 0                                     8C307190
0886 0  7001              MDX     PHKY9                                 8C307200
0887 0  7002              MDX     PHKY9+2                               8C307210
0888 0  7301       PHKY9  MDX   3 1                                     8C307220
0889 0  70FA              MDX     PHKY4                                 8C307230
088A 0  18D0              RTE     16                                    8C307240
088B 00 D6000001   PHKYF  STO  L2 1         PLACE IN BINRY BUFF         8C307250
088D 00 74010130          MDX  L  BWC,1     BUMP WORD COUNT             8C307260
                   *                                                    8C307270
                   *                  BUMP TO NEXT KEYIN FIELD          8C307280
                   *                                                    8C307290
088F 0  C018       PHKYH  LD      PHKX2     GET CHAR/WD                 8C307300
0890 0  801A              A       PHKX5     ADD ONE FOR SPACE           8C307310
0891 0  8018              A       PHKX4                                 8C307320
0892 0  D017              STO     PHKX4                                 8C307330
0893 00 678008AA          LDX  I3 PHKX4                                 8C307340
0895 0  C300              LD    3 0                                     8C307350
0896 0  F015              EOR     PHKX6     CK FOR TERMINATOR           8C307360
0897 0  4820              BSC     Z         SKIP IF FOUND               8C307370
0898 0  70C8              MDX     PHKY5     GET NEXT NUMBER             8C307380
                   *                                                    8C307390
                   *                  EXIT FROM RT                      8C307400
```

8K EDIT CONTROL

```
                   *
0899 00 7402084B          MDX  L  HKY8,2
089B 00 65000000   PHKY6 LDX  L1 0             RESTORE REGS
089D 00 66000000   PHKY7 LDX  L2 0
089F 00 67000000   PHKY8 LDX  L3 0
08A1 0  2000       PHKYS LDS     0
08A2 0  C803             LDD     PHKX1
08A3 00 4C80084B         BSC  I  HKYB          EXIT FROM SUBRT
                   *
                   *
08A6    0000             BSS  E  0
08A6    0002       PHKX1 BSS     2             SAVE A + Q
08A8 0  0000       PHKX2 DC      0             CHAR PER WORD
08A9 0  01DE       PHKX3 DC      KEYIN-1
08AA 0  0000       PHKX4 DC      0             STARTING ADDR
08AB 0  0001       PHKX5 DC      1             CONSTANT 1
08AC 0  FFFF       PHKX6 DC      /FFFF         CONSTANT FFFF
08AD 0  0000       PHKX7 DC      0             CONSTANT 0
08AE 0  0010       PHKX8 DC      16            CONSTANT 16
08AF 0  0000       PHDSW DC      0             HEX-DEC SWITCH
                   *
                   *                     CONV NUM TO DEC AND STORE
                   *                     * IN BINARY BUF
                   *
08B0 0  10A0       PDKY1 SLT     32
08B1 0  D840             STD     PDKWA         ZERO OUT WORK AREA
                   *
                   *                     CK FOR 9 CH/WD
                   *
08B2 0  C0F5             LD      PHKX2         GET CH/WD
08B3 00 B400092E         CMP  L  PCKX1         COMPARE TO 9
08B5 0  7039             MDX     PDKYE         ERROR TOO GREAT
08B6 0  7001             MDX     *+1
08B7 0  90F3             S       PHKX5         SUB ONE
08B8 0  D001             STO     PDKY2+1
08B9 00 67000000   PDKY2 LDX  L3 0             LDX MODIFIED CH/WD
08BB 00 66800872         LDX  I2 PHKY1+1
08BD 00 768008A8         MDX  I2 PHKX2         SET UP 1ST POWER
08BF 0  6100             LDX   1 0
08C0 0  C200       PDKY3 LD    2 0             GET BIN NUMBER
08C1 00 A50008F6         M    L1 PDKX2         MULT BY POWER
08C3 0  71FC             MDX   1 -4            CK FOR CH/WD GRT 4
08C4 0  7009             MDX     PDKYH         CH/WD GRT 4
08C5 0  7104       PDKYJ MDX   1 4
08C6 0  1000             SLA     0
08C7 0  882A             AD      PDKWA
08C8 0  D829             STD     PDKWA
08C9 0  7101             MDX   1 1
08CA 0  72FF             MDX   2 -1
08CB 0  73FF             MDX   3 -1
08CC 0  70F3             MDX     PDKY3
08CD 0  7003             MDX     PDKY6
08CE 0  18D0       PDKYH RTE     16            CH/WD GRT 4
08CF 0  A02A             M       PDKX1+3       MULTIPY BY 10,000
08D0 0  70F4             MDX     PDKYJ
                   *                     CK FOR SIGNED NUMBER
                   *
08D1 0  C006       PDKY6 LD      PHKX2
08D2 00 B400092E         CMP  L  PCKX1         CONS 9
08D4 0  701A             MDX     PDKYE         ERROR TOO GREAT
08D5 0  7001             MDX     *+1
08D6 0  7009             MDX     PDKY7         CK SIGN
                   *                     CK FOR CH/WD GREATER
                   *                     * THAN 5
08D7 0  C0D0             LD      PHKX2
08D8 0  B026             CMP     PDKX3         CONS 5
08D9 0  700F             MDX     PDKY8
08DA 0  7001             MDX     *+1
```


8K EDIT CONTROL

```
08DB 0  700F             MDX     PDKYA         GO TO CK FOR /7FFF
                   *
                   *                     SINGLE PRECISION NUMBER
                   *
08DC 00 66800872   PDKYF LDX  I2 PHKY1+1
08DE 0  C014             LD      PDKWA+1       GET CONV NUMBER
08DF 0  70AB             MDX     PHKYF
                   *                     CORRECT SIGN
08E0 0  C200       PDKY7 LD    2 0
08E1 00 4C1808E9         BSC  L  PDKY8,+-      BRANCH IF POS NUMB
08E3 0  10A0             SLT     32            CHANGE SIGN
08E4 0  980D             SD      PDKWA
08E5 0  DA00       PDKY9 STD   2 0
08E6 00 7402013D         MDX  L  BWC,2
08E8 0  70A6             MDX     PHKYH
08E9 0  C808       PDKY8 LDD     PDKWA         DOUBLE PREC POS NUMB
08EA 0  70FA             MDX     PDKY9
                   *                     CK LESS THAN OR EQ /7FFF
08EB 0  C806       PDKYA LDD     PDKWA
08EC 0  9807             SD      PDKX4         CONS 00008000
08ED 00 4C2808DC         BSC  L  PDKYF,+Z      BRANCH TO SINGLE PREC
08EF 00 44800132   PDKYE BSI  I  SER
08F1 0  08B2             DC      PCKBE
08F2    0000             BSS  E  0
08F2    0002       PDKWA BSS     2             WORK AREA
08F4 0  0000       PDKX4 DC      0             CONS /00008000
08F5 0  8000             DC      /8000
08F6 0  0001       PDKX2 DC      1             CONV TABLE
08F7 0  000A       PDKX1 DC      10
08F8 0  0064             DC      100
08F9 0  03E8             DC      1000
08FA 0  2710             DC      10000
08FB 0  000A             DC      10
08FC 0  0064             DC      100
08FD 0  03E8             DC      1000
08FE 0  2710             DC      10000
08FF 0  0005       PDKX3 DC      5             CONS 5
                   *
                   *
                   *
                   *
                   *
                   *                     KEYBOARD TO BINARY RT
                   *
0900 0  0000       PCKB  DC      0
0901 0  6B27             STX   3 PCKBX+1       SAVE X3
0902 0  D029             STO     PCKBA         SAVE NUMBER
0903 00 C4800900         LD   I  PCKB          GET LIMIT CK
0905 0  D001             STO     PCKB1+1
0906 00 67000000   PCKB1 LDX  L3 0             SET X3 TO LIM CK
0908 00 C7000A5E         LD   L3 KECOD         LK UP CODE
090A 0  F021             EOR     PCKBA
090B 00 4C180922         BSC  L  PCKB3,+-      BRANCH IF FOUND
090D 0  73FF             MDX   3 -1            SKIP IF ILLEGAL
090E 0  70F9             MDX     PCKB1+2
090F 00 C40008A8         LD   L  PHKX2         CK FOR 9 CHAR FIELD
0911 0  901C             S       PCKX1
0912 00 4C20091F         BSC  L  PCKB4,Z       GO TO ERROR IF NOT 9
0914 0  C017             LD      PCKBA         CK FOR +
0915 0  F019             EOR     PCKX2
0916 00 4C180926         BSC  L  PCKBX-2,+-
0918 0  C013             LD      PCKBA         CK FOR -
0919 0  F016             EOR     PCKX3
091A 00 4C20091F         BSC  L  PCKB4,Z       GO TO ERROR, NO + -
091C 00 C40008BE         LD   L  PCKX4
091E 0  7007             MDX     PCKBX-2
091F 00 44800132   PCKB4 BSI  I  SER           IMPROPER KEY CODE
0921 0  08B2             DC      PCKBE         * I.E NOT 0-9 OR 0-F
```

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```
0922 0  73FF        PCKB3 MDX   3 -1                                  8C308770
0923 0  1000              SLA     0                                    8C308780
0924 0  6808              STX   3 PCKBB                                8C308790
0925 0  C007              LD      PCKBB       GET CONVERTED NUM        8C308800
0926 00 74010900          MDX   L PCKB,1                               8C308810
0928 00 67000000  PCKBX   LDX   L3 0          RESTORE X3               8C308820
092A 00 4C800900          BSC   I PCKB                                 8C308830
                  *                                                    8C308840
092C 0  0000      PCKBA   DC      0           ORIGINAL NUMBER          8C308850
092D 0  0000      PCKBB   DC      0           CONVERTED NUMBER         8C308860
092E 0  0009      PCKX1   DC      9                                    8C308870
092F 0  8000      PCKX2   DC      /8000       +                        8C308880
0930 0  4000      PCKX3   DC      /4000       -                        8C308890
                  *                                                    8C308900
                  *                                                    8C308910
                  *                                                    8C308920
                  *           PUNCH EDIT CARD OUTPUT ROUTINE           8C308930
                  *                                                    8C308940
0931 0  0000      PECOR   DC      0                                    8C308950
0932 00 DC000986          STD   L PECX1       SAVE REGISTERS           8C308960
0934 0  285C              STS     PECOS                                8C308970
0935 0  1810              SRA     16                                   8C308980
0936 0  6955      PECYF   STX   1 PECY1+1                              8C308990
0937 0  6A56              STX   2 PECY2+1                              8C309000
0938 0  6857              STX   3 PECY3+1                              8C309010
0939 00 4480012C          BSI   I KEY         PRINT EDIT CARD LIST     8C309020
093B 0  08C9              DC      PECXF       * MESSAGE                8C309030
093C 0  0000              DC      0                                    8C309040
                  *                                                    8C309050
                  *                                                    8C309060
                  *                                                    8C309070
                  *           READ A CARD AND VERIFY                   6C309080
                  *           * THAT IT IS BLANK                       8C309090
093D 00 66000442          LDX   L2 SEIB       SET X2 = ED IMAG BUF     8C309100
093F 00 650001E0          LDX   L1 KEYIN+1    X1 = OPT REG             8C309110
0941 00 0C000B38  PECY7   XIO   L RDSW        READ DATA SWS            8C309120
0943 00 C4000B3A          LD    L DTSW        GET SWS                  8C309130
0945 00 4C28094B          BSC   L PT,+Z       BRANCH IF P T            8C309140
0947 0  1001              SLA     1                                    8C309150
0948 00 4C28094B          BSC   L PT,+Z       BRANCH IF BOTH           8C309160
094A 0  7007              MDX     NTPT        NOT PAPER TAPE           8C309170
094B 00 44000B17  PT      BSI   L PPT         PUNCH LEADER       SRC   8C309180
094D 00 C4000B3A          LD    L DTSW        GET SWS                  8C309190
094F 0  1001              SLA     1                                    8C309200
0950 00 4C100966          BSC   L PECYE,-     BRANCH IF NOT BOTH       8C309210
0952 0  0868      NTPT    XIO     PECX5       SENSE DSW                8C309220
0953 00 4C0409A8          BSC   L PECY6,E     XFER IF NOT READY        8C309230
0955 0  0866              XIO     PECX4       READ A CARD              8C309240
0956 0  0867      PECY4   XIO     PECX5       SENSE DSW                8C309250
0957 0  1801              SRA     1           CK BUSY                  8C309260
0958 00 4C040956          BSC   L PECY4,E     XFER IF BUSY             8C309270
095A 0  180C              SRA     12                                   8C309280
095B 00 4C0409AE          BSC   L PECY8,E     XFER IF ERROR ON         8C309290
095D 0  0862              XIO     PECX6       RESET DSW                8C309300
                  *                                                    8C309310
                  *           CK FOR BLANK CARD                        8C309320
                  *                                                    8C309330
095E 0  1810              SRA     16                                   8C309340
095F 0  6350              LDX   3 80                                   8C309350
0960 00 EF0001DF  PECY5   OR    L3 KEYIN                               8C309360
0962 0  73FF              MDX   3 -1                                   8C309370
0963 0  70FC              MDX     PECY5                                8C309380
0964 00 4C200952          BSC   L NTPT,Z                               8C309390
                  *                                                    8C309400
                  *                                                    8C309410
                  *           BLANK OUT OUTPUT BUFF                    8C309420
                  *                                                    8C309430
0966 0  1810      PECYE   SRA     16                                   8C309440
0967 0  6380              LDX   3 -80
```

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```
0968 00 D7000230  PECYA   STD   L3 KEYIN+81                          8C309450
096A 0  7301              MDX   3 1                                  8C309460
096B 0  70FC              MDX     PECYA                              8C309470
                  *                                                  8C309480
096C 00 6700FFB0          LDX   L3 -80        SET X3 = COL CONTROL   8C309490
                  *                                                  8C309500
                  *                   SET E INTO OUTPUT AREA         8C309510
096E 00 C4000A6D          LD    L PBIX2                              8C309520
0970 0  D100              STO   1 0                                  8C309530
0971 0  7301              MDX   3 1                                  8C309540
                  *                                                  8C309550
                  *                   SET PID INTO OUTPUT AREA       8C309560
                  *                                                  8C309570
0972 0  C200              LD    2 0                                  8C309580
0973 0  1008              SLA     8                                  8C309590
0974 0  4051              BSI     PBIHX       CONV TO HEX AND    SRC 8C309600
                  *                           * STORE IN OUTPUT      8C309610
                  *                                                  8C309620
                  *                   CK FOR END OF ED CD DIR        8C309630
                  *                                                  8C309640
0975 0  C201              LD    2 1                                  8C309650
0976 00 F4000BC8          EOR   L PECXD                              8C309660
0978 00 4C200995          BSC   L PECYB,Z     BRANCH IF NOT END CD   8C309670
097A 00 C4000BC8          LD    L PECXD       SET FFFF EDIT SND      8C309680
097C 0  4049              BSI     PBIHX       CONV AND STORE     SRC 8C309690
097D 0  4061              BSI     PED         PUNCH CARD         SRC 8C309700
097E 00 44000A0A          BSI   L PPECD       PRINT THE EDIT CARD    8C309710
0980 00 C4000B3A          LD    L DTSW        GET SWS                8C309720
0982 00 4C280988          BSC   L PECY1,+Z    BRANCH IF NOT CARDS    8C309730
0984 0  0835              XIO     PECXC       STACKER SELECT         8C309740
0985 0  083C              XIO     PECX7       FEED A CARD            8C309750
0986 0  0837      PECYC   XIO     PECX5       SENSE DSW              8C309760
0987 0  1801              SRA     1           /                      8C309770
0988 00 4C040986          BSC   L PECYC,E                            8C309780
098A 0  0835              XIO     PECX6       RESET DSW              8C309790
                  *                                                  8C309800
098B 00 65000000  PECY1   LDX   L1 0          RESTORE REGS           8C309810
098D 00 66000000  PECY2   LDX   L2 0                                 8C309820
098F 00 67000000  PECY3   LDX   L3 0                                 8C309830
0991 0  2000      PECOS   LDS     0                                  8C309840
0992 0  C823              LDD     PECX1                              8C309850
0993 00 4C800931          BSC   I PECOR       EXIT FROM ROUTINE      8C309860
                  *                   SET CARD NUMB IN OUTPUT        8C309870
0995 0  C201      PECYB   LD    2 1                                  8C309880
0996 0  E821              DR      PECX3       ADD IN ED              8C309890
0997 0  402E              BSI     PBIHX       CONV AND STORE     SRC 8C309900
                  *                                                  8C309910
                  *                   SET NUMB ENTRIES PER CARD      8C309920
                  *                                                  8C309930
0998 0  C202              LD    2 2                                  8C309940
0999 0  1888              SRT     8                                  8C309950
099A 0  1810              SRA     16                                 8C309960
099B 0  1088              SLT     8                                  8C309970
099C 0  D01C              STO     PECXE       SAVE                   8C309980
099D 0  4028              BSI     PBIHX       CONV AND STORE     SRC 8C309990
                  *                   MOVE DATA TO OUTPUT BUFF       8C310000
099E 0  C203      PECYD   LD    2 3                                  8C310010
099F 0  4026              BSI     PBIHX       CONV AND STORE     SRC 8C310020
09A0 0  7201              MDX   2 1          BUMP IMAG BUF ADDR     8C310030
09A1 00 74FF09B9          MDX   L PECXE,-1    DECREMENT ENTRIES/CD   8C310040
09A3 0  70FA              MDX     PECYD                              8C310050
09A4 0  403A              BSI     PED         PUNCH A CARD       SRC 8C310060
09A5 0  4064              BSI     PPECD       PRINT CARD         SRC 8C310070
09A6 0  72C3              MDX   2 3                                  8C310080
09A7 0  70A5              MDX     PY+2        BRANCH                 8C310090
                  *                                                  8C310100
09A8 00 4480012C  PECY6   BSI   I KEY                                8C310110
09AA 0  08BF              DC      PECX9                              8C310120
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```
09AB 0  0000          DC     0
09AC 0  3003   WAIT3   WAIT   3          1442 NOT READY =RDY
               *                         *PUSH START TO RETRY
09AD 0  7093          MDX    PECY7      BRANCH
               *
09AE 00 4480012C PECY8 BSI  I  KEY
09B0 0  08BF          DC     PECX9
09B1 0  0000          DC     0          1442 READ ERROR
09B2 0  080D          XIO    PECX6      RESET DSW
09B3 0  3004   WAIT4   WAIT   4          PUSH START TO REREAD
09B4 0  708C          MDX    PECY7      BRANCH
               *
09B6    0000          BSS  E 0
09B6    0002   PECX1  BSS    2          SAVE A + Q
09B8 0  ED00   PECX3  DC     /ED00
09B9 0  0000   PECXE  DC     0          ENTRIES PER CARD
09BA 0  0000   PECXC  DC     0          STACKER SELECT IOCC
09BB 0  1480          DC     /1480
09BC 0  01E0   PECX4  DC     KEYIN+1    READ A CARD IOCC
09BD 0  1600          DC     /1600
09BE 0  0000   PECX5  DC     0          SENSE 1442 DSW
09BF 0  1700          DC     /1700
09C0 0  0000   PECX6  DC     0          SENSE AND RESET DSW
09C1 0  1703          DC     /1703
09C2 0  0000   PECX7  DC     0          FEED A CARD IOCC
09C3 0  1402          DC     /1402
09C4 0  01E0   PECX8  DC     KEYIN+1    PUNCH A CARD IOCC
09C5 0  1500          DC     /1500
               *
               *
               *                  BINARY TO HEX  CARD IMAGE RT
               *
09C6 0  0000   PBIHX  DC     0
09C7 0  18D0          RTE    16         PUT BIN WORD TO BE
               *                         * CONVERTED IN Q REG
09C8 0  6911          STX    1 PBIY1+1  SAVE X1
09C9 0  6A12          STX    2 PBIY2+1  SAVE X2
09CA 0  6104          LDX    1 4        SET LOOP CONTROL
09CB 0  1810   PBIY3  SRA    16         CONV CHAR TO HEX
09CC 0  1084          SLT    4
09CD 0  D001          STO    *+1
09CE 00 66000000      LDX  L2 0
09D0 00 C6000A5F      LD   L2 KECOD+1    GET HEX EQUIV
09D2 00 D7000230      STO  L3 KEYIN+81
09D4 0  7301          MDX    3 1        BUMP TO NEXT OUTPUT
09D5 0  1000          SLA    0          NOP
09D6 0  71FF          MDX    1 -1
09D7 0  70F3          MDX    PBIY3
09D8 0  7301          MDX    3 1        PUT BLANK IN OUTPUT
09D9 00 65000000 PBIY1 LDX   L1 0       RESTORE X1
09DB 00 66000000 PBIY2 LDX   L2 0       RESTORE X2
09DD 00 4C8009C6      BSC  I PBIHX
               *
               *                  PUNCH A CARD ROUTINE
09DF 0  0000   PED    DC     0                                    SE
09E0 00 C4000B3A      LD   L DTSW        GET SWS
09E2 00 4C280B3B      BSC  L HB05,+Z     BRANCH IF P T
09E4 0  1001          SLA    1
09E5 00 4C280B3B      BSC  L HB05,+Z     BRANCH IF BOTH
09E7 00 C400022F PEDEN LD    L KEYIN+80
09E9 0  E81F          OR     PEDX1      * AT END OF OUTPUT
09EA 00 D400022F      STO  L KEYIN+80
09EC 0  08D1   PEDY4  XIO    PECX5      SENSE DSW
09ED 00 4C0409F8      BSC  L PEDY1,E     XFER IF NOT RDY
09EF 0  08CA          XIO    PECXC      STACKER SELECT
09F0 0  08D3          XIO    PECX8      PUNCH CARD
09F1 0  08CC   PEDY2  XIO    PECX5      SENSE DSW
09F2 0  1801          SRA    1          CK BUSY
```

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8C310130
8C310140
8C310150
8C310160
8C310170
8C310180
8C310190
8C310200
8C310210
8C310220
8C310230
8C310240
8C310250
8C310260
8C310270
8C310280
8C310290
8C310300
8C310310
8C310320
8C310330
8C310340
8C310350
8C310360
8C310370
8C310380
8C310390
8C310400
8C310410
8C310420
8C310430
8C310440
8C310450
8C310460
8C310470
8C310480
8C310490
8C310500
8C310510
8C310520
8C310530
8C310540
8C310550
8C310560
8C310570
8C310580
8C310590
8C310600
8C310610
8C310620
8C310630
8C310640
8C310650
8C310660
8C310670
8C310680
8C310690
8C310700
8C310710
8C310720
8C310730
8C310740
8C310750
8C310760
8C310770
8C310780
8C310790
8C310800
```



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09F3 00 4C0409F1      BSC  L PEDY2,E     XFER IF BUSY
09F5 0  180C          SRA    12
09F6 00 4C040A02      BSC  L PEDY3,E     XFER IF ERROR ON
09F8 0  08C7          XIO    PECX6       RESET DSW
09F9 00 4C8009DF PEDEX BSC  I PED         EXIT                    SX
               *
09FB 0  08C2   PEDY1  XIO    PECX5       SENSE DSW
09FC 00 4480012C      BSI  I KEY
09FE 0  08BF          DC     PECX9
09FF 0  0000          DC     0
0A00 0  3006   WAIT6  WAIT   6           1442 NOT RDY=PUNCH)
0A01 0  70EA          MDX    PEDY4
               *
0A02 0  08BD   PEDY3  XIO    PECX6       RESET DSW
0A03 00 4480012C      BSI  I KEY
0A05 0  08BF          DC     PECX9
0A06 0  0000          DC     0
0A07 0  3007   WAIT7  WAIT   7           1442 ERROR AFTER
               *                         * PUNCHING
0A08 0  70E3          MDX    PEDY4
               *
0A09 0  0008   PEDX1  DC     /0008       END OF PUNCH BIT
               *
               *
               *
               *                  CONVERT CCD TO EBDIC + KEY
               *
0A0A 0  0000   PPECD  DC     /0000
0A0B 0  692B          STX    1 PPEY5+1   SAVE XRS + A + Q
0A0C 0  6A2C          STX    2 PPEY6+1
0A0D 0  6B2D          STX    3 PPEY7+1
0A0E 0  D833          STD    PPEX3
               *
               *
0A0F 00 650001DF      LDX  L1 KEYIN      INITIALIZE ROUTINE
0A11 00 6D0001DE      STX  L1 KIWC
0A13 0  6380          LDX    3 -80
0A14 0  6202          LDX    2 2
0A15 0  61EF   PPEY4  LDX    1 -17       RESTORE KECOD POINTR
0A16 00 C7000230 PPEY2 LD    L3 KEYIN+81 FETCH KEYBD CHAR
0A18 00 F5000A6F      EOR  L1 KECOD+17
0A1A 0  1804          SRA    4
0A1B 00 4C180A1F      BSC  L PPEY1,+-    BR IF COMPARE
0A1D 0  7101          MDX    1 1
0A1E 0  70F7          MDX    PPEY2       TRY NEXT CHAR
               *
               *
0A1F 00 C5000AA3 PPEY1 LD    L1 KTILT+16 PACK 2 EBDIC CHARS
0A21 0  1008          SLA    8
0A22 0  18D8          RTE    24
0A23 0  72FF          MDX    2 -1        SKIP IF DONE TWO CHARS
0A24 0  7019          MDX    PPEY3       FETCH NEXT CHAR
0A25 0  6202          LDX    2 2
0A26 0  18D0          RTE    16
0A27 00 D48001DE      STO  I KIWC        PLACE IN OUTPUT AREA
0A29 00 740101DE      MDX  L KIWC,1      NEXT STORAGE AREA
0A2B 0  F015          EOR    PPEX2
0A2C 00 4C200A3E      BSC  L PPEY3,Z     BR - NOT DBLE BLANK
0A2E 0  61FF          LDX    1 -1        SET TERM
0A2F 00 6D8001DE      STX  I1 KIWC
0A31 00 4480012C      BSI  I KEY         GO PRINT WHOLE EDIT
0A33 0  01DF          DC     KEYIN       MSG AREA
0A34 0  0000          DC     0
0A35 0  C80C          LDD    PPEX3       RESTORE XRS, A AND Q
0A36 00 65000000 PPEY5 LDX   L1 /0000
0A38 00 66000000 PPEY6 LDX   L2 /0000
0A3A 00 67000000 PPEY7 LDX   L3 /0000
```

```
8C310810
8C310820
8C310830
8C310840
8C310850
8C310860
8C310870
8C310880
8C310890
8C310900
8C310910
8C310920
8C310930
8C310940
8C310950
8C310960
8C310970
8C310980
8C310990
8C311000
8C311010
8C311020
8C311030
8C311040
8C311050
8C311060
8C311070
8C311080
8C311090
8C311100
8C311110
8C311120
8C311130
8C311140
8C311150
8C311160
8C311170
8C311180
8C311190
8C311200
8C311210
8C311220
8C311230
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8C311260
8C311270
8C311280
8C311290
8C311300
8C311310
8C311320
8C311330
8C311340
8C311350
8C311360
8C311370
8C311380
8C311390
8C311400
8C311410
8C311420
8C311430
8C311440
8C311450
8C311460
8C311470
8C311480
```

```
0A3C 00 4C800A0A        BSC  I  PPECD     EXIT TO USER                    8C311490
                        *                                                   8C311500
0A3E 0  7301    PPEY3   MDX    3 1        SKIP IF DONE                    8C311510
0A3F 0  70D5            MDX    PPEY4                                      8C311520
0A40 0  70ED            MDX    PPEY8                                      8C311530
                        *                                                   8C311540
0A41 0  4040    PPEX2   DC     /4040      DOUBLE SPACE EBDIC              8C311550
0A42    0002    PPEX3   BSS    E 2        SAVED A AND Q                   8C311560
                        *                                                   8C311570
                        *                                                   8C311580
                        *                                                   8C311590
                        *                  KEYBOARD CODES                   8C311600
0A44    0000            BSS    E                                          8C311610
0A44 0  0000    KSNS    DC     /0000      SENSE-NO RESET                  8C311620
0A45 0  0F02            DC     /0F02                                      8C311630
0A46 0  0000    KMSG    DC     /0000      MESS ADRS                       8C311640
0A46            KECSD   EQU    KMSG                                       8C311650
0A47 0  0000    KOUT    DC     /0000      ROT-TLT OUTPUT TABLE            8C311660
0A48 0  0000            DC     /0000                                      8C311670
0A49 0  0000            DC     /0000                                      8C311680
0A4A 0  0004    K0004   DC     4               CONSTANT                   8C311690
                        *                                                   8C311700
0A4B 0  4400    KL      DC     /4400                                      8C311710
0A4C 0  0000    KAQ     DC     0          ACC                             8C311720
0A4D 0  0000            DC     0          Q REG                           8C311730
0A4E 0  0000    KRDY    DC     /0000      SENSE - RESET CMND              8C311740
0A4F 0  0F03            DC     /0F03                                      8C311750
0A50 0  0A4E    KPRT    DC     KRDY       PRINT COMMAND                   8C311760
0A51 0  0902            DC     /0902                                      8C311770
0A52 0  0000    KPCD    DC     /0000      KBD PROCEED COMMAND             8C311780
0A53 0  0C02            DC     /0C02                                      8C311790
0A54 0  01DF    KRED    DC     KEYIN      READ KBD COMMAND                8C311800
0A55 0  0A02            DC     /0A02                                      8C311810
0A56 0  0001    K0NE    DC     1          CONSTANT 1                      8C311820
0A57 0  8120    KN      DC     /8120      UPPER CASE N                    8C311840
0A58 0  8060    KY      DC     /8060           Y                          8C311850
0A59 0  4420            DC     /4420           *                          8C311860
0A5A 0  FFFF            DC     /FFFF                                      8C311870
0A5B 0  8420    KECPD   DC     /8420                                      8C311880
0A5C 0  80A0            DC     /80A0           +                          8C311890
0A5D 0  4000            DC     /4000           -                          8C311900
                        *                                                   8C311910
0A5E 0  0000    KECOD   DC     /0000      SPACE                           8C311920
0A5F 0  2000            DC     /2000      0                               8C311930
0A60 0  1000            DC     /1000      1                               8C311940
0A61 0  0800            DC     /0800      2                               8C311950
0A62 0  0400            DC     /0400      3                               8C311960
0A63 0  0200            DC     /0200      4                               8C311970
0A64 0  0100            DC     /0100      5                               8C311980
0A65 0  0080            DC     /0080      6                               8C311990
0A66 0  0040            DC     /0040      7                               8C312000
0A67 0  0020            DC     /0020      8                               8C312010
0A68 0  0010            DC     /0010      9                               8C312020
                        *                                                   8C312030
0A69 0  9000    KECAD   DC     /9000      A                               8C312040
0A6A 0  8800            DC     /8800      B                               8C312050
0A6B 0  8400    KC      DC     /8400      C                               8C312060
0A6C 0  8200            DC     /8200      D                               8C312070
0A6D 0  8100    PBIX2   DC     /8100      E                               8C312080
0A6E 0  8080            DC     /8080      F                               8C312090
                        *                                                   8C312100
0A6F 0  0002    KRENT   DC     /0002      ERASE FIELD                     8C312110
0A70 0  0004    KERSE   DC     /0004      ERASE CHAR                      8C312120
0A71 0  0008    KENDK   DC     /0008      END OF MESSAGE                  8C312130
0A72 0  4100    KAL     DC     /4100      LOWER CASE N                    8C312140
0A73 0  2020            DC     /2020           Y                          8C312150
0A74 0  4220            DC     /4220           *                          8C312160
0A75 0  FFFF            DC     /FFFF                                      8C312170
```



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0A76 0  8220            DC     /8220                                      8C312180
0A77 0  FFFF            DC     /FFFF                                      8C312190
0A78 0  FFFF            DC     /FFFF                                      8C312200
0A79 0  2420    KCMA    DC     /2420                                      8C312210
                        ***************************************************8C312220
                        *                                                  8C312230
                        *                  TYPEWRITER CODES                8C312240
                        *                     AND EBDIC CODES              8C312250
                        *                                                  8C312260
0A7A 0  16C7    KTGLT   DC     /16C7      G                               8C312270
0A7B 0  26C8            DC     /26C8      H                               8C312280
0A7C 0  22C9            DC     /22C9      I                               8C312290
0A7D 0  7ED1            DC     /7ED1      J                               8C312300
0A7E 0  5AD2            DC     /5AD2      K                               8C312310
                        *                                                  8C312320
0A7F 0  5ED3    KLRT    DC     /5ED3      L                               8C312330
0A80 0  72D4            DC     /72D4      M                               8C312340
                        *                                                  8C312350
0A81 0  96E7            DC     /96E7      X                               8C312360
0A82 0  52D6            DC     /52D6      O                               8C312370
0A83 0  56D7            DC     /56D7      P                               8C312380
0A84 0  66D8            DC     /66D8      Q                               8C312390
0A85 0  62D9            DC     /62D9      R                               8C312400
0A86 0  9AE2            DC     /9AE2      S                               8C312410
0A87 0  9EE3            DC     /9EE3      T                               8C312420
0A88 0  B2E4            DC     /B2E4      U                               8C312430
0A89 0  B6E5            DC     /B6E5      V                               8C312440
0A8A 0  92E6            DC     /92E6      W                               8C312450
0A8B 0  76D5            DC     /76D5      N                               8C312460
                        *                                                  8C312470
0A8C 0  A6E8            DC     /A6E8      Y                               8C312480
0A8D 0  D65C            DC     /D65C      *                               8C312490
0A8E 0  806B            DC     /806B      .                               8C312500
0A8F 0  004B    KTPLT   DC     /004B      .                               8C312510
0A90 0  DA4E            DC     /DA4E      +                               8C312520
0A91 0  8460            DC     /8460      -                               8C312530
                        *                                                  8C312540
0A92 0  2140    KTDLT   DC     /2140      SPACE                           8C312550
0A93 0  C4F0    KTILT   DC     /C4F0      0                               8C312560
0A94 0  FCF1            DC     /FCF1      1                               8C312570
0A95 0  D8F2            DC     /D8F2      2                               8C312580
0A96 0  DCF3            DC     /DCF3      3                               8C312590
0A97 0  F0F4            DC     /F0F4      4                               8C312600
0A98 0  F4F5            DC     /F4F5      5                               8C312610
0A99 0  D0F6            DC     /D0F6      6                               8C312620
0A9A 0  D4F7            DC     /D4F7      7                               8C312630
0A9B 0  E4F8            DC     /E4F8      8                               8C312640
0A9C 0  E0F9            DC     /E0F9      9                               8C312650
                        *                                                  8C312660
0A9D 0  3EC1    KTALT   DC     /3EC1      A                               8C312670
0A9E 0  1AC2            DC     /1AC2      B                               8C312680
0A9F 0  1EC3            DC     /1EC3      C                               8C312690
0AA0 0  32C4            DC     /32C4      D                               8C312700
0AA1 0  36C5            DC     /36C5      E                               8C312710
0AA2 0  12C6            DC     /12C6      F                               8C312720
                        *                                                  8C312730
0AA3 0  815B    KCR     DC     /815B      CARRIER RETURN                  8C312740
                        *                                                  8C312750
                        *                  KEYBOARD ERROR MSG              8C312760
0AA4 0  D600    KFELD   DC     /D600      *                               8C312770
0AA5 0  D600            DC     /D600      *                               8C312780
0AA6 0  D600            DC     /D600      *                               8C312790
0AA7 0  8100            DC     /8100      CR                              8C312800
0AA8 0  3600            DC     /3600      E                               8C312810
0AA9 0  C400            DC     /C400      0                               8C312820
0AAA 0  C400            DC     /C400      0                               8C312830
0AAB 0  FC00            DC     /FC00      1                               8C312840
0AAC 0  2100            DC     /2100                                      8C312850
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```
0AAD 0  2100            DC      /2100     SP                          8C312860
0AAE 0  5E00            DC      /5E00     L                           8C312870
0AAF 0  2200            DC      /2200     I                           8C312880
0AB0 0  7600            DC      /7600     N                           8C312890
0AB1 0  3600            DC      /3600     E                           8C312900
0AB2 0  2100            DC      /2100     SP                          8C312910
0AB3 0  1E00            DC      /1E00     C                           8C312920
0AB4 0  3E00            DC      /3E00     A                           8C312930
0AB5 0  7600            DC      /7600     N                           8C312940
0AB6 0  1E00            DC      /1E00     C                           8C312950
0AB7 0  3600            DC      /3600     E                           8C312960
0AB8 0  5E00            DC      /5E00     L                           8C312970
0AB9 0  5E00            DC      /5E00     L                           8C312980
0ABA 0  3600            DC      /3600     E                           8C312990
0ABB 0  3200            DC      /3200     D                           8C313000
0ABC 0  8120      K8120 DC      /8120                                 8C313010
0ABD 0  8101            DC      /8101     CR                          8C313020
                *                                                     8C313030
                *               ROUTINE TO READ ONE                   8C313040
                *               SKELTON SECTION                       8C313050
                *                                                     8C313060
0ABE 0  0000      RDSK  DC      0                                SE   8C313070
0ABF 0  C005            LD      RDSX0     GET LDR RETURN              8C313080
0AC0 00 D4000124        STO   L /0124     SET                         8C313090
0AC2 0  6050            LDX   X /0050     BRANCH TO LDR               8C313100
0AC3 00 4C800ABE  RDSK1 BSC   I RDSK      EXIT                  SX    8C313110
0AC5 0  0AC3      RDSXC DC      RDSK1     RETURN                      8C313120
                ********************************************          8C313130
                *                                                     8C313140
                *                                                     8C313150
                *                                                     8C313160
                *               XFER VECTOR TBLS BY FORM NO.          8C313170
0AC6 0  0ADB      LRAIT DC      DONT      FORM 0                      8C313180
0AC7 0  0BD6            DC      LRTF1          1                      8C313190
0AC8 0  0AFE            DC      LRTF2          2                      8C313200
                *                                                     8C313210
                *                                                     8C313220
                *                                                     8C313230
                *                                                     8C313240
                *                                                     8C313250
                *                                                     8C313260
                *                                                     8C313270
                *                                                     8C313280
0AC9 0  0000      LWKA  DC      -         WORK STORAGE AREA           8C313290
                *                                                     8C313300
0ACA 0  0000      LDOIT DC                                       SE   8C313310
0ACB 0  6200            LDX     2 0                                   8C313320
0ACC 00 6E00043F        STX   L2 LGROP    RESET GROUP CNTR            8C313330
0ACE 00 65800ACA        LDX   I1 LDOIT                                8C313340
0AD0 0  C101            LD      1 1       LD CHR / WORD CNT           8C313350
0AD1 0  D0F7            STO     LWKA      SAVE IT                     8C313360
0AD2 0  6901            STX     1 LWCLD+1                             8C313370
0AD3 00 65800000  LWCLD LDX   I1          LD FORM NUMBER              8C313380
0AD5 00 45800AC6        BSI   I1 LRAIT    BRANCH TO RTN               8C313390
0AD7 00 74020ACA  DONT1 MDX   L LDOIT,2   INCR RETURN                 8C313400
0AD9 00 4C800ACA        BSC   I LDOIT     EXIT                  SX    8C313410
                *                                                     8C313420
0ADB 0  0000      DONT  DC      0                                     8C313430
0ADC 00 4C000AD7        BSC   L DONT1                                 8C313440
                *                                                     8C313450
                *                                                     8C313460
                *                                                     8C313470
0ADE 0  0000      LBGNR DC                                       SE   8C313480
0ADF 00 650001DE        LDX   L1 KIWC     LD INPUT TBL ADDR           8C313490
0AE1 0  C100            LD      1 0       LD INPUT WC                 8C313500
0AE2 00 D400043E        STO   L LWC       SAVE WC                     8C313510
0AE4 00 6680043E        LDX   I2 LWC -                                8C313520
0AE6 0  7201            MDX     2 1                                   8C313530
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```
0AE7 00 7402043E        MDX   L LWC,2     ADD 2 TO WC                 8C313540
0AE9 00 4C800ADE        BSC   I LBGNR     EXIT                  SX    8C313550
                *                                                     8C313560
                *                                                     8C313570
                *                                                     8C313580
                *                   DATA WRONG ERROR                  8C313590
0AEB 0  0000      LERR  DC      0                                     8C313600
0AEC 00 44800132        BSI   I SER       DATA WRONG            SRC   8C313610
0AEE 0  0BB2            DC      PCKBE                                 8C313620
                *                                                     8C313630
                *                                                     8C313640
                *                                                     8C313650
0AEF 0  0000      LWCC  DC                SE                          8C313660
0AF0 0  6801            STX     3 LD01+1                              8C313670
0AF1 00 C5000000  LD01  LD    L1          LD SPACE                    8C313680
0AF3 00 44200AF7        BSI   L LMTRM,Z   BR IF NOT SPACE             8C313690
0AF5 00 4C800AEF        BSC   I LWCC      EXIT                  SX    8C313700
                *                                                     8C313710
                *                                                     8C313720
                *                                                     8C313730
                *                                                     8C313740
0AF7 0  0000      LMTRM DC                                       SE   8C313750
0AF8 0  F004            EOR     LTERM                                 8C313760
0AF9 00 44200AEB        BSI   L LERR,Z    BR IF ERROR           SRC   8C313770
0AFB 00 4C800AF7        BSC   I LMTRM     EXIT                  SX    8C313780
0AFD 0  FFFF      LTERM DC      /FFFF     ALL BITS                    8C313790
                *                                                     8C313800
                *                                                     8C313810
                *                                                     8C313820
                *                                                     8C313830
                *                                                     8C313840
                *                                                     8C313850
                *                                                     8C313860
0AFE 0  0000      LRTF2 DC                                       SE   8C313870
0AFF 0  D002            STO     LCHBW     SET CHR / WD                8C313880
0B00 00 44800137        BSI   I PHKYB     GO CONVERT TO HEX     SRC   8C313890
0B02 0  0000      LCHBW DC                CHR / BINARY WORD           8C313900
0B03 0  0437            DC      ZERO      DISPLACEMENT ADDR           8C313910
0B04 00 4C800AFE        BSC   I LRTF2     EXIT                  SX    8C313920
                *                                                     8C313930
                *                                                     8C313940
                *                                                     8C313950
                *                                                     8C313960
                *                                                     8C313970
0B06 0  0000      LRTF1 DC                                       SE   8C313980
0B07 0  D003            STO     LCHBD     SET CHR / WD                8C313990
0B08 0  4006            BSI     LTRFX     GO TO SETUP AND CK          8C314000
0B09 00 44800136        BSI   I PDKYB     GO CONVERT TO DEC     SRC   8C314010
0B0B 0  0000      LCHBD DC                CHR / BINARY WORD           8C314020
0B0C 0  0437            DC      ZERO      DISPLACEMENT ADDR           8C314030
0B0D 00 4C800B06        BSC   I LRTF1     EXIT                  SX    8C314040
                *                                                     8C314050
                *                                                     8C314060
                *                                                     8C314070
                *                                                     8C314080
0B0F 0  0000      LTRFX DC                                       SE   8C314090
0B10 0  40CD            BSI     LBGNR     GO SET UP FOR FORM          8C314100
0B11 00 67800AC9        LDX   I3 LWKA     LD CHAR / WC CNT            8C314110
0B13 0  7301            MDX     3 1                                   8C314120
0B14 0  40DA            BSI     LWCC      GO TO CHECK FORM            8C314130
0B15 00 4C800B0F        BSC   I LTRFX     EXIT                  SX    8C314140
                *                                                     8C314150
                *                                                     8C314160
                *                                                     8C314170
                *                                                     8C314180
                *                                                     8C314190
                *                   PUNCH LEADER                      8C314200
                *                                                     8C314210
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8K EDIT CONTROL

```
0B17 0  0000       PPT   DC        0                          SE   8C314220
0B18 0  6303       PPT1  LDX    3 3         SET IXING              8C314230
0B19 0  C009       PPT1A LD       WDCT      SET WD CT              8C314240
0B1A 0  D018             STO      CHOUT                            8C314250
0B1B 00 C7000B23         LD    L3 LEADF-1   GET PATTERN            8C314260
0B1D 0  D014             STO      XIOUT     SET                    8C314270
0B1E 0  4008             BSI      PUTAP     PUNCH TAPE        SRC  8C314280
0B1F 0  73FF             MDX    3 -1        DECR IX 3              8C314290
0B20 0  70F8             MDX      PPT1A     LOOP                   8C314300
0B21 00 4C800B17         BSC   I  PPT       EXIT              SX   8C314310
                   *                                               8C314320
0B23 0  0019       WDCT  DC       25        WD CT                  8C314330
0B24 0  7F00       LEADE DC       /7F00     PATTERNS               8C314340
0B25 0  0000             DC       /0000                            8C314350
0B26 0  7F00             DC       /7F00                            8C314360
                   *                                               8C314370
                   *              PUNCH TAPE                       8C314380
                   *                                               8C314390
0B27 0  0000       PUTAP DC       0                          SE    8C314400
0B28 0  080B       BCK   XIO      SEN55     SENSE                  8C314410
0B29 0  1808             SRA      8                                8C314420
0B2A 00 4C040B28         BSC   L  BCK,E     BRANCH = NOT READY     8C314430
0B2C 0  0809             XIO      PUNK      PUNCH A CHR            8C314440
0B2D 00 74FF0B33         MDX   L  CHOUT,-1  DECR WD CT             8C314450
0B2F 0  70F8             MDX      BCK       LOOP                   8C314460
0B30 00 4C800B27         BSC   I  PUTAP     EXIT              SX   8C314470
                   *                                               8C314480
0B32    0000             BSS   E  0                                8C314490
0B32 0  0000       XIOUT DC       0         OUTPUT AREA            8C314500
0B33 0  0000       CHOUT DC       0         WD CT                  8C314510
0B34 0  0000       SEN55 DC       0         SENSE IOCC             8C314520
0B35 0  1F01             DC       /1F01                            8C314530
0B36 0  0B32       PUNK  DC       XIOUT     PUNCH IOCC             8C314540
0B37 0  1900             DC       /1900                            8C314550
0B38 0  0B3A       RDSW  DC       DTSW      RD SWS IOCC            8C314560
0B39 0  0240             DC       /0240                            8C314570
0B3A 0  0000       DTSW  DC       0         SW STORAGE             8C314580
                   *                                               8C314590
                   *              CONVERT AND PUNCH                8C314600
                   *                                               8C314610
0B3B 0  6909       HB05  STX    1 EXT+1     SAVE IXING             8C314620
0B3C 0  6A0A             STX    2 EXT1+1                           8C314630
0B3D 0  6B11             STX    3 EXT2+1                           8C314640
0B3E 00 6500FF80         LDX   L1 -80       SET IXING              8C314650
0B40 00 C5000230         LD    L1 KEYIN+81  GET A WD               8C314660
0B42 00 4C200B56         BSC   L  HB05A,Z   BRANCH IF NOT 0        8C314670
0B44 00 65000000   EXT   LDX   L1 0         RESTORE IXING          8C314680
0B46 00 66000000   EXT1  LDX   L2 0                                8C314690
0B48 00 C4000141         LD    L  BINRY+3   GET CD NO              8C314700
0B4A 00 F400043D         EOR   L  TERM      CK FOR END CD          8C314710
0B4C 00 44180B17         BSI   L  PPT,+-    PUNCH TRAILER IF END   8C314720
0B4E 00 67000000   EXT2  LDX   L3 0                                8C314730
0B50 0  C0E9             LD       DTSW      GET SWS                8C314740
0B51 0  1001             SLA      1                                8C314750
0B52 00 4C1009F9         BSC   L  PEDEX,-   BRANCH IF NOT BOTH     8C314760
0B54 00 4C0009E7         BSC   L  PEDEN     PUNCH CARD             8C314770
0B56 0  1810       HB05A SRA      16        CLEAP WD CT            8C314780
0B57 0  D022             STO      PCAM                             8C314790
0B58 0  7101       HB06  MDX    1 1         DECR IX 1              8C314800
0B59 0  7001             MDX      HB07      CONTINUE               8C314810
0B5A 0  7022             MDX      LB06      PUNCH CARD             8C314820
0B5B 0  6204       HB07  LDX    2 4         SET 4 CHRS             8C314830
0B5C 0  1004       HB10  SLA      4         MOVE CHR               8C314840
0B5D 0  D01E             STO      TEMP1     SAVE                   8C314850
0B5E 00 C5000230         LD    L1 KEYIN+81  GET WD                 8C314860
0B60 00 4C180B7D         BSC   L  LB06,+-   BRANCH IF 0            8C314870
0B62 0  6300       HTDB  LDX    3 0         SET COUNTER            8C314880
0B63 0  4828             BSC      +Z        IS IT NEG              8C314890
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8K EDIT CONTROL

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0B64 0  7309             MDX    3 9         YES                    8C314900
0B65 0  1003             SLA      3         REMOVE ZONE            8C314910
0B66 00 4C180B6F         BSC   L  HTBZ,+-   BRANCH IF 0            8C314920
0B68 0  7301             MDX    3 1         INCR CTR               8C314930
0B69 00 4C280B6D   HTDB1 BSC   L  HTBX,+Z   BRANCH IF NEG          8C314940
0B6B 0  1001             SLA      1         MOVE BIT               8C314950
0B6C 0  70FB             MDX      HTDB1-1   BRANCH                 8C314960
0B6D 0  6B0D       HTBX  STX    3 TEMP      SAVE CT                8C314970
0B6E 0  C00C             LD       TEMP      GET CT                 8C314980
0B6F 0  E80C       HTBZ  OR       TEMP1     ADD TO SAVED           8C314990
0B70 0  7101             MDX    1 1         DECR IX 1              8C315000
0B71 0  72FF             MDX    2 -1        DECR IX 2              8C315010
0B72 0  70E9             MDX      HB10      LOOP                   8C315020
0B73 00 67800B7A         LDX   I3 PCAM      SET IX 3               8C315030
0B75 00 D7000140         STO   L3 BINRY+2   SAVE                   8C315040
0B77 00 74010B7A         MDX   L  PCAM,1    INCR LOC               8C315050
0B79 0  700E             MDX      HB06      LOOP                   8C315060
                   *                                               8C315070
0B7A 0  0000       PCAM  DC       0         STORAGE                8C315080
0B7B 0  0000       TEMP  DC       0                                8C315090
0B7C 0  0000       TEMP1 DC       0                                8C315100
                   *                                               8C315110
                   *              PUNCH EDIT                       8C315120
                   *                                               8C315130
0B7D 0  C02C       LB06  LD       H8100     GET E                  8C315140
0B7E 00 D400013F         STO   L  BINRY+1   SAVE                   8C315150
0B80 00 C4000141         LD    L  BINRY+3   GET CD NO              8C315160
0B82 00 F400043D         EOR   L  TERM      CK FOR TERM            8C315170
0B84 00 4C180BAD         BSC   L  LB08,+-   BRANCH IF TERM         8C315180
0B86 00 C4000142         LD    L  BINRY+4   GET NO ENTRIES         8C315190
0B88 0  8022             A        FOUR      ADD 4                  8C315200
0B89 0  D004             STO      LB0A+1    SAVE                   8C315210
0B8A 0  1008             SLA      8         MOVE                   8C315220
0B8B 00 D400013E         STO   L  BINRY     SAVE                   8C315230
0B8D 00 66000000   LB0A  LDX   L2 0         SET IXING              8C315240
0B8F 00 6500013E   LB09  LDX   L1 BINRY                            8C315250
0B91 0  C100             LD     1 0         GET WD                 8C315260
0B92 0  D09F             STO      XIOUT     SET                    8C315270
0B93 0  C014             LD       ONE       GET 1                  8C315280
0B94 00 D4000333         STO   L  CHOUT     SET                    8C315290
0B96 0  4090             BSI      PUTAP     PUNCH TAPE        SRC  8C315300
0B97 0  7101             MDX    1 1         INCR IX 1              8C315310
0B98 0  C100       LB07  LD     1 0         GET WD                 8C315320
0B99 0  D098             STO      XIOUT     SET                    8C315330
0B9A 0  C00D             LD       ONE       SET WD CT              8C315340
0B9B 0  D097             STO      CHOUT                            8C315350
0B9C 0  408A             BSI      PUTAP     PUNCH TAPE        SRC  8C315360
0B9D 0  C100             LD     1 0         GET WD                 8C315370
0B9E 0  1008             SLA      8         SET 2ND HALF           8C315380
0B9F 0  D092             STO      XIOUT     SET                    8C315390
0BA0 0  C007             LD       ONE       GET 1                  8C315400
0BA1 0  D091             STO      CHOUT     SET WD CT              8C315410
0BA2 00 44000B27         BSI   L  PUTAP     PUNCH TAPE        SRC  8C315420
0BA4 0  7101             MDX    1 1         INCR IX 1              8C315430
0BA5 0  72FF             MDX    2 -1        DECR IX 2              8C315440
0BA6 0  70F1             MDX      LB07      LOOP                   8C315450
0BA7 0  709C             MDX      EXT       EXIT                   8C315460
                   *                                               8C315470
0BA8 0  0001       ONE   DC       1         CONSTANTS              8C315480
0BA9 0  8000       K8000 DC       /8000                            8C315482
0BAA 0  8100       H8100 DC       /8.00                            8C315490
0BAB 0  0004       FOUR  DC       4                                8C315500
0BAC 0  0300       TREE  DC       /0300                            8C315510
                   *                                               8C315520
0BAD 0  C0FE       LB08  LD       TREE      GET 0300               8C315530
0BAE 00 D400013E         STO   L  BINRY     SET                    8C315540
0BB0 0  6203             LDX    2 3         SET IX 2               8C315550
0BB1 0  700D             MDX      LB09      BRANCH                 8C315560
```

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0BB2    0012        PCKBE EBC     .E003 CNTRL-ILLEGAL.                8C315570
0BBB    0006              EBC     . ENTRY.                            8C315580
0BBE 0  FFFF        PCKX4 DC      /FFFF                               8C315590
0BBF    0012        PECX9 EBC     .E005 CNTRL-1442 ER.                8C315600
0BC8 0  FFFF        PECXD DC      /FFFF                               8C315620
0BC9    0012        PECXF EBC     .$$A001 CNTRL-EDIT .                8C315630
0BD2    0007              EBC     .CD LIST.                           8C315640
0BD6 0  FFFF              DC      /FFFF                               8C315650
0BD7    0012        SE002 EBC     .E002 CNTRL-ENTRY T.                8C315660
0BE0    0008              EBC     .DD LARGE.                          8C315670
0BE4 0  FFFF              DC      /FFFF                               8C315680
0BE5    0012        SM2   EBC     .C000 CNTRL-ENTER 2.                8C315690
0BEE    0012              EBC     . DIGIT PID TO BE E.                8C315700
0BF7    0005              EBC     .DITED.                             8C315710
0BFA 0  FFFF              DC      /FFFF                               8C315720
0BFB    000F        SM33  EBC     .A002 END OF PRG.                   8C315730
0C03 0  FFFF              DC      /FFFF                               8C315740
0C04    0012        LEM01 EBC     .E004 CNTRL-FORMAT .                8C315750
0C0D    0002              EBC     .ER.                                8C315760
0C0E 0  FFFF              DC      /FFFF                               8C315770
0C0F 0  0000        HLTE  DC      0                          SRC      8C315772
0C10 0  3005        WAIT5 WAIT    5          RELOAD REQUIRED          8C315774
0C11 00 4C800C0F          BSC   I HLTE                       SX       8C315776
0C14    058A              END     START                      8C31577  8C315786
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CROSS REFERENCE LISTING

8K EDIT CONTROL

```
KEYFM   0753    0665,068A
KEYIN   01DF    066F,07A5,07AA,07AF,0784,08A9,093F,0960,0968,09BC,
                09C4,09D2,09E7,09EA,0A0F,0A16,0A33,0A54,0B40,0B5E
KEYND   0754    0669,0739
KEYDG   0668    076C
KEY0    0671    0630,06DF,0710,0719,071C,0728,0735,0760,076A
KEY1    0675    067D
KEY2    0677    067F
KEY3    0680    067A
KEY96   0653    0612,0755
KEY97   0655    0613
KEY98   0657    0614
KEY99   065B    0617
KFELD   0AA4    0758
KFMD    06A7    068E,0698
KFMD1   06A8    06AE
KFMD2   06B0    06B6
KFMS    0682
KFMS1   0683    0689
KFM2    0690
KFM21   0691    0697
KFRM    0660    0651
KHEX    06E0    0694
KINO    0838    0135,0840
KINI    082D    0134,0836
KIWC    01DE    066D,06F1,06FC,0706,0717,0722,0737,073C,073E,0742,
                0748,075C,0765,0768,0832,083C,0A11,0A27,0A29,0A2F,
                0ADF
KL      0A4B    06B8
KLRT    0A7F    06C7
KMDX    06D2    06AB
KMPX    06DB    06B3,06D5
KMSG    0A46    061A,0625,062F,0646,0A47
KN      0A57    06A9,06DB
KNBY    076F    0673,0786,078F,0795
KNBY0   0775    0780
KNBY1   0777    077D
KNBY4   0787    0781
KNBY5   078B    0770,077A
KNEG    076E    074F,0762
KONE    0A56    0627,063C,068C,06C9,06EA,0709
KOUT    0A47    061E,0640,0644,06CB,06EC
KPCD    0A52    0675
KPNE    06C9    06A6
KPRT    0A50    0793,079D
KRDY    CA4E    0780,0796,0A50
KRED    0A54    0671,0680,0683,0683,0691,0691,0698,0698,0732,0732
KRENT   0A6F    072E
KSNS    0A44    0677,0777
KSPC    06F6    06BA
KSPCA   073E    0745
KSPCE   074F    0748,074D
KSPC2   0709    0704
KSPC5   0712    06FA
KSPC6   0725    071F
KSPC9   072D    0715
KSTO    06E2    06DE,06E6,06F4
KTALT   0A9D
KTGLT   0A7A    062C,06E8
KTILT   0A93    0586,0A1F
KTIME   0791    0773,077E
KTOLT   0A92
KTPLT   0A8F    06A4
KTYP    0792    0584,0642-064D,06CE,06EF,070E,0727,075A,07A0
KTYPS   0584
KTYP1   0793    07A3
KTYP5   0796    079C
KTYP6   079D    0799
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8K EDIT CONTROL

```
KY      0A58
K00FF   0610    05A5
K0002   07E3    05DA,06FE,07C6
K0003   082C    081F
K0004   0A4A
K1048   0602    058C
K8000   0BA9    06A0,06C0
K8120   0ABC
LBGNR   0ADE    0438,0AE9,0B10
LB0A    0B8D    0B89
LB06    0B7D    085A,0B60
LB07    0B96    08A6
LB08    0BAD    0B84
LB09    0B8F    0BB1
LCHBD   0B0B    0B07
LCHBW   0B02    0AFF
LDOIT   0ACA    0751,0ACE,0AD7,0AD9
LD01    0AF1    0AF0
LEADE   0B24    0B1B
LEM01   0C04
LERR    CAEB    0439,0AF9
LGROP   043F    0ACC
LMTRM   0AF7    043B,0AF3,0AFB
LRAIT   0AC6    0AD5
LRTF1   0B06    0AC7,0B0D
LRTF2   0AFE    0AC8,0B04
LTERM   0AFD    0AF8
LTRFX   0B0F    043C,0B08,0B15
LWC     043E    0AE2,0AE4,0AE7
LWCC    0AEF    043A,0AF5,0B14
LWCLD   0AD3    0AD2
LWKA    0AC9    0AD1,0B11
MTRM    043B
ND      07C2    07B1
NDEN    082A    0805,080E,0814,0820
ND1     07C3    07B6
NTPT    0952    094A,0964
ONE     0BA8    0B93,0B9A,0BA0
PBIHX   09C6    0974,097C,0997,099D,099F,09DD
PBIX2   0A6D    096E
PBIY1   09D9    09C8
PBIY2   09DB    09C9
PBIY3   09CB    09D7
PCAM    0B7A    0857,0B73,0B77
PCKB    0900    086E,0903,0926,092A
PCKBA   092C    0902,090A,0914,0918
PCKBB   092D    0924,0925
PCKBE   0BB2    07BB,08F1,0921,0AEE
PCKBX   0928    0901,0916,091E
PCKB1   0906    0905,090E
PCKB3   0922    090B
PCKB4   091F    0912,091A
PCKX1   092E    08B3,08D2,0911
PCKX2   092F    0915
PCKX3   0930    0919
PCKX4   0BBE    G91C
PDKWA   08F2    08B1,08C7,08C8,08DE,08E4,08E9,08E8
PDKX1   08F7    0848,08CF
PDKX2   08F6    08C1
PDKX3   08FF    08D8
PDKX4   08F4    08EC
PDKYA   08EB    08DB
PDKYB   0136    0809
PDKYE   08EF    08B5,08D4
PDKYF   08DC    08ED
PDKYH   08CE    08C4
PDKYJ   08C5    08D0
PDKY1   08B0    0878
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PDKY2	08B9	08B8
PDKY3	08C0	08CC
PDKY6	08D1	08CD
PDKY7	08E0	08D6
PDKY8	08E9	08D9,08E1
PDKY9	08E5	08EA
PECOR	0931	09F4,0993
PECOS	0991	0934
PECXC	09BA	0984,09EF
PECXD	08C8	0976,097A
PECXE	09B9	099C,09A1
PECXF	08C9	0938
PECX1	09B6	0932,0992
PECX3	09B8	0996
PECX4	09BC	0955
PECX5	09BE	0952,0956,0986,09FC,09F1,09F8
PECX6	09C0	095D,098A,0982,09F8,0A02
PECX7	09C2	0985
PECX8	09C4	09F0
PECX9	08BF	09AA,09B0,09FE,0A05
PECYA	0968	0968
PECYB	0995	0978
PECYC	0986	0988
PECYD	099E	09A3
PECYE	0966	0950
PECYF	0936	
PECY1	098B	0936,0982
PECY2	098D	0937
PECY3	098F	0938
PECY4	0956	0958
PECY5	0960	0963
PECY6	09A8	0953
PECY7	0941	09AD,09B4
PECY8	09AE	095B
PED	09DF	097D,09A4,09F9
PEDEN	09E7	0854
PEDEX	09F9	0852
PEDX1	0A09	09E9
PEDY1	09FB	09ED
PEDY2	09F1	09F3
PEDY3	0A02	09F6
PEDY4	09EC	0A01,0A08
PHDSW	08AF	0846,084E,0876
PHKX1	08A6	0843,084C,08A2
PHKX2	08A8	0859,0867,0868,0879,0882,088F,0882,088D,08D1,08D7, 090F
PHKX3	08A9	085C
PHKX4	08AA	085D,0869,0891,0892,0893
PHKX5	08AB	0890,08B7
PHKX6	08AC	0896
PHKX7	08AD	084D
PHKX8	08AE	084F
PHKY8	0137	0800
PHKYC	0870	0850
PHKYD	0850	084A
PHKYF	088B	08DF
PHKYH	088F	08E8
PHKYS	08A1	0851
PHKY1	0871	0865,08BB,08DC
PHKY2	086D	0875
PHKY3	087C	0866,0880
PHKY4	0884	0889
PHKY5	0861	0898
PHKY6	089B	0852
PHKY7	089D	0853
PHKY8	089F	0854
PHKY9	0888	0886,0887
PPECD	0A0A	097E,09A5,0A3C

PPEX2	0A41	0A2B
PPEX3	0A42	0A0E,0A35
PPEY1	0A1F	0A1B
PPEY2	0A16	0A1E
PPEY3	0A3E	0A24,0A2C
PPEY4	0A15	0A3F
PPEY5	0A36	0A0B
PPEY6	0A38	0A0C
PPEY7	0A3A	0A0D
PPEY8	0A2E	0A40
PPT	0B17	094B,0B21,084C
PPT1	0B18	
PPT1A	0B19	0B20
PT	094B	0945,0948,09A7
PUNK	0B36	0B2C
PUTAP	0B27	0B1E,0B30,0896,089C,0BA2
RDSK	0ABE	0138,05AA,0AC3
RDSK1	0AC3	0AC5
RDSW	0B38	0941
RDSXO	0AC5	0ABF
RLFT	05C6	05C3
RLFT1	05D2	05D1
RLFT2	05DF	05DC
RLTBL	0603	05C1,05CF,05D8
SCH	0131	
SCHE	07E4	0131,07F1
SCHER	07EB	07E8
SCH1	07EF	07E9,07EA,07EC
SECB	0828	0803,0812
SECSE	07FF	0133,0800,0823,0825
SECSU	0133	
SEIB	0442	05F8,0828,093D
SEN55	0B34	0828
SER	0132	0600,07B9,07D3,08EF,091F,0AEC
SERE	07F5	0132,07F6
SER1	07FB	07F8
SE002	0BD7	060F,07D5
SE1	0803	
SE2	080C	0809
SE3	0817	081C
SIA	07E0	
SIL	012F	
SILE	07C8	012F,07D6
SILER	07D3	07D0,07DE,07EE
SILSE	07D9	0130,07E0
SILSW	0130	
SIL1	07D6	07D1,07D2
SIWB	0827	0802,080A
SKINA	0832	0835
SKINB	083C	083F
SKINO	0135	
SKIN1	0134	0668
SKI1	0C17	012C,05AF,05EE
SKI2	0C18	012C
SKI3	0C19	012C
SKI4	0C1A	05CA
SM2	0BE5	05A1
SM33	08F8	05F3
SRST	0588	059A,05AC
SRTRY	0441	07C7,07FD
SSEUR	07C4	
SSUEE	07C4	012F,07C5,07C9,07CB
SSUER	012E	059D
STARI	058A	0C13
START	0590	0588,05E6
STBF	0440	0595,05E7,05F7,0807,081D,0821
STBF1	0828	05F9,0806
STTR	05FB	05FE

8K EDIT CONTROL

STTRM	05E7	05D6
SVIX3	058C	0593,0582,05C5
S00F0	07E2	07DD
S000F	07F3	07EB
S0008	07F4	07E7
S1700	07D8	07CF
S2	013A	
S2E	05AA	05BA,05CC
TEMP	0B7B	0B6D,0B6E
TEMP1	0B7C	0B5D,0B6F
TERM	043D	05C8,05D4,05F1,0830,0B4A,0B82
TREE	0BAC	0BAD
TRFX	043C	
WAIT1	0798	3001
WAIT2	0785	3002
WAIT3	09AC	3003
WAIT4	0983	3004
WAIT5	0C10	3005
WAIT6	0A00	3006
WAIT7	0A07	3007
WAIT8	05E5	3008
WCC	043A	
WDCT	0823	0B19
XIOUT	0B32	0B1D,0B36,0392,0B99,0B9F
XPID	0600	05A9,05B1
YES	07C0	07A7
YES1	07C1	07AC
ZERO	0437	0B03,0B0C

CPIO-DIAG MON SKELETONS   SKELETON ID-08C4-01-0

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0000                   ORG     *+3095                                   C4010001
012C         KEY    EQU    300                                          C4010002
012D         CKYN   EQU    KEY+1                                        C4010003
012E         SSUER  EQU    CKYN+1                                       C4010004
012F         SIL    EQU    SSUER+1                                      C4010005
0130         SILSW  EQU    SIL+1                                        C4010006
0131         SCH    EQU    SILSW+1                                      C4010007
0132         SER    EQU    SCH+1                                        C4010008
0133         SECSU  EQU    SER+1                                        C4010009
0134         SKIN1  EQU    SECSU+1                                      C4010010
0135         SKINO  EQU    SKIN1+1                                      C4010011
0136         PDKYB  EQU    SKINO+1                                      C4010012
0137         PHKYB  EQU    PDKYB+1                                      C4010013
0138         ENDO   EQU    PHKYB+1                                      C4010014
013A         S2     EQU    ENDO+2                                       C4010015
013E         BINRY  EQU    S2+4                                         C4010016
01DF         KEYIN  EQU    BINRY+161                                    C4010017
0437         ZERO   EQU    KEYIN+600                                    C4010018
0438         BGNR   EQU    ZERO+1                                       C4010019
0439         ERR    EQU    BGNR+1                                       C4010020
043A         WCC    EQU    ERR+1                                        C4010021
043B         MTRM   EQU    WCC+1                                        C4010022
043C         TRFX   EQU    MTRM+1                                       C4010023
043D         TERM   EQU    TRFX+1                                       C4010024
043E         LWC    EQU    TERM+1                                       C4010025
043F         LGROP  EQU    LWC+1                                        C4010026
0440         STBF   EQU    LGROP+1                                      C4010027
0441         SRTRY  EQU    STBF+1                                       C4010028
0C17 0 0001  SKI1   DC        /0001    PID                              C4010029
0C18 0 0000  SKI2   DC        /0000    CD NUMBER                        C4010030
0C19 0 0002  SKI3   DC        /0002    NUMBER OF ENTRIES                C4010031
0C1A 00 4480012E SKI4 BSI  I  SSUER    SET ERROR RETURN        SRC      C4010032
0C1C 00 4480012C      BSI  I  KEY      ENTER CONS IL           SRC      C4010033
0C1E 1  0C70          DC      SM1      MSG ADRS                         C4010034
0C1F 0  8120          DC      /8120    KYBD-FRM 1-2 DIGITS              C4010035
             *                                                          C4010036
0C20 00 4480012F      BSI  I  SIL      CK LVL                  SRC      C4010037
0C22 01 D4000D34      STO  L  SWB1     STORE                            C4010038
             *                                                          C4010039
0C24 00 4480012E      BSI  I  SSUER    SET ERROR RETURN        SRC      C4010040
0C26 00 4480012C      BSI  I  KEY      ENTER CONS ILSW         SRC      C4010041
0C28 1  0C95          DC      SM2      MSG ADRS                         C4010042
0C29 0  8120          DC      /8120                                     C4010043
             *                                                          C4010044
0C2A 00 44800130      BSI  I  SILSW    CK ILSW                 SRC      C4010045
0C2C 01 D4000D35      STO  L  SWB2     STORE                            C4010046
             *                                                          C4010047
0C2E 01 C4000D3A      LD   L  S000F    SET CH = F                       C4010048
0C30 01 D4000D36      STO  L  SWB3     STORE                            C4010049
             *                                                          C4010050
             *                                                          C4010051
0C32 00 4480012E      BSI  I  SSUER    SET ERROR RETURN        SRC      C4010052
0C34 00 4480012C      BSI  I  KEY      ENTER OTPT DV IL        SRC      C4010053
0C36 1  0CB9          DC      SM3      MSG ADRS                         C4010054
0C37 0  8120          DC      /8120    KYBD-FORM 1-2 DIGITS             C4010055
             *                                                          C4010056
0C38 00 4480012F      BSI  I  SIL      CK IL                   SRC      C4010057
0C3A 01 D4000D37      STO  L  SWB4     STORE                            C4010058
             *                                                          C4010059
0C3C 00 4480012E      BSI  I  SSUER    SET ERROR RETURN        SRC      C4010060
0C3E 00 4480012C      BSI  I  KEY      ENTER OTPD DV ILSW               C4010061
0C40 1  0CE1          DC      SM4      MSG ADRS                         C4010062
0C41 0  8120          DC      /8120                                     C4010063
             *                                                          C4010064
0C42 00 44800130      BSI  I  SILSW    CK ILSW                 SRC      C4010065
0C44 01 D4000D38      STO  L  SWB5     STORE                            C4010066
             *                                                          C4010067
0C46 00 4480012E      BSI  I  SSUER    SET ERROR RETURN        SRC      C4010068
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CPIO-DIAG MON SKELETONS   SKELETON ID-08C4-01-0

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0C48 00 4480012C      BSI  I  KEY      ENTER OTPT DV CH        SRC      C4010069
0C4A 1  0D06          DC      SM5      MSG ADRS                         C4010070
0C4B 0  8010          DC      /8010                                     C4010071
0C4C 00 C40001DF      LD   L  KEYIN                                     C4010072
0C4E 01 4C280C6D      BSC  L  SK1,+Z                                    C4010073
0C50 00 44800136      BSI  I  PDKYB                                     C4010074
0C52 0  0001          DC      1                                         C4010075
0C53 0  0437          DC      ZERO                                      C4010076
             *                                                          C4010077
0C54 00 44800131      BSI  I  SCH      CK CH                   SRC      C4010078
0C56 01 D4000D39 SK2  STO  L  SWB6                                      C4010079
             *                                                          C4010080
             *                                                          C4010081
0C58 01 65000D34      LDX  L1 SWB1                                      C4010082
0C5A 0  C100          LD   1  0        BUILD CONS DDEF                  C4010083
0C5B 0  F101          EOR  1  1                                         C4010084
0C5C 0  F102          EOR  1  2                                         C4010085
0C5D 0  D100          STO  1  0                                         C4010086
             *                                                          C4010087
0C5E 0  C103          LD   1  3        BUILD OTPUT DEV DDEF             C4010088
0C5F 0  F104          EOR  1  4                                         C4010089
0C60 0  F105          EOR  1  5                                         C4010090
0C61 0  D101          STO  1  1                                         C4010091
             *                                                          C4010092
0C62 01 66800C18      LDX  I2 SKI2     SET IXING                        C4010093
0C64 01 65800C17      LDX  I1 SKI1                                      C4010094
0C66 01 67800C19      LDX  I3 SKI3                                      C4010095
             *                                                          C4010096
0C68 00 44800133      BSI  I  SECSU    GO SET CD               SRC      C4010097
0C6A 1  0D34          DC      SWB1     ADRS OF ENTRYS                   C4010098
0C6B 00 4C00013A      BSC  L  S2       GET NEXT SKELTON                 C4010099
0C6D 01 C4000D3A SK1  LD   L  S000F                                     C4010100
0C6F 0  70E6          MDX     SK2                                       C4010101
             *                                                          C4010102
0C70    0012     SM1  EBC     .C001  PID 01-CD 00.                      C4010103
0C79    0012          EBC     .  ENTER 2 DIGIT DE.                      C4010104
0C82    0012          EBC     .CIMAL INTRPT LVL F.                      C4010105
0C8B    0C11          EBC     .OR CONSOLE INTRPT.                       C4010106
0C94 0  FFFF          DC      /FFFF                                     C4010107
             *                                                          C4010108
0C95    0012     SM2  EBC     .C002  PID 01-CD 00.                      C4010109
0C9E    0012          EBC     .  ENTER 2 DIGIT DE.                      C4010110
0CA7    0012          EBC     .CIMAL ILSW BIT FUR.                      C4010111
0CB0    000F          EBC     . CONSOLE INTRPT.                         C4010112
0CB8 0  FFFF          DC      /FFFF                                     C4010113
             *                                                          C4010114
0CB9    0012     SM3  EBC     .C001  PID 01-CD 00.                      C4010115
0CC2    0012          EBC     .  ENTER 2 DIGIT DE.                      C4010116
0CCB    0012          EBC     .CIMAL INTRPT LVL F.                      C4010117
0CD4    0012          EBC     .OR DESIRED OUTPUT .                      C4010118
0CDD    0006          EBC     .DEVICE.                                  C4010119
0CE0 0  FFFF          DC      /FFFF                                     C4010120
             *                                                          C4010121
0CE1    0012     SM4  EBC     .C002  PID 01-CD 00.                      C4010122
0CEA    0012          EBC     .  ENTER 2 DIGIT DE.                      C4010123
0CF3    0012          EBC     .CIMAL ILSW BIT FOR.                      C4010124
0CFC    0012          EBC     . DESIRED OUTPUT DV.                      C4010125
0D05 0  FFFF          DC      /FFFF                                     C4010126
             *                                                          C4010127
0D06    0012     SM5  EBC     .C003  PID 01-CD 00.                      C4010128
0D0F    0012          EBC     .  ENTER 1 DIGIT DE.                      C4010129
0D18    0012          EBC     .CIMAL CH FOR DESIR.                      C4010130
0D21    0012          EBC     .ED OPTPT DV-IF 105.                      C4010131
0D2A    0011          EBC     .3 OR 1816-ENTER F.                       C4010132
0D33 0  FFFF          DC      /FFFF                                     C4010133
0D34 0  0000     SWB1 DC      0                                         C4010134
0D35 0  0000     SWB2 DC      0                                         C4010135
0D36 0  0000     SWB3 DC      0                                         C4010136
```

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0037 0  0000        SWB4  DC      0                       C4010137
0038 0  0000        SWB5  DC      0                       C4010138
0039 0  0000        SWB6  DC      0                       C4010139
003A 0  000F        S000F DC      /000F                   C4010140
003B 00 4C000138    END1  BSC   L ENDO                    C4010141
003E    003B              END     END1                  C401014 C4010151
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0138	0C17, 0D38
END1	0D3B	0D3D
ERR	0439	0C17
KEY	012C	0C17, 0C1C, 0C26, 0C34, 0C3E, 0C48
KEYIN	01DF	0C17, 0C4C
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17, 0C50
PHKYB	0137	0C17
SCH	0131	0C17, 0C54
SECSU	0133	0C17, 0C68
SER	0132	0C17
SIL	012F	0C17, 0C20, 0C38
SILSW	0130	0C17, 0C2A, 0C42
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C64
SKI2	0C18	0C62
SKI3	0C19	0C66
SKI4	0C1A	
SK1	0C6D	0C4E
SK2	0C56	0C6F
SM1	0C70	0C1E
SM2	0C95	0C28
SM3	0CB9	0C36
SM4	0CE1	0C40
SM5	0D06	0C4A
SRTRY	0441	
SSUER	012E	0C17, 0C1A, 0C24, 0C32, 0C3C, 0C46
STBF	0440	0C17
SWB1	0D34	0C22, 0C58, 0C6A
SWB2	0D35	0C2C
SWB3	0D36	0C30
SWB4	0D37	0C3A
SWB5	0D38	0C44
SWB6	0D39	0C56
S000F	0D3A	0C2E, 0C6D
S2	013A	0C17, 0C6B
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17, 0C53

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0000                    ORG     *+3095
012C                KEY EQU     300
012D                CKYN EQU    KEY+1
012E                SSUER EQU   CKYN+1
012F                SIL EQU     SSUER+1
0130                SILSW EQU   SIL+1
0131                SCH EQU     SILSW+1
0132                SER EQU     SCH+1
0133                SECSU EQU   SER+1
0134                SKIN1 EQU   SECSU+1
0135                SKIN0 EQU   SKIN1+1
0136                PDKYB EQU   SKIN0+1
0137                PHKYB EQU   PDKYB+1
0138                ENDO EQU    PHKYB+1
013A                S2 EQU      ENDO+2
013E                BINRY EQU   S2+4
01DF                KEYIN EQU   BINRY+161
0437                ZERO EQU    KEYIN+600
0438                BGNR EQU    ZERO+1
0439                ERR EQU     BGNR+1
043A                WCC EQU     ERR+1
043B                MTRM EQU    WCC+1
043C                TRFX EQU    MTRM+1
043D                TERM EQU    TRFX+1
043E                LWC EQU     TERM+1
043F                LGROP EQU   LWC+1
0440                STBF EQU    LGROP+1
0441                SRTRY EQU   STBF+1
0C17 0  0001        SKI1 DC     /0001       PID                          C4011001
0C18 0  0001        SKI2 DC     /0001       CD NO                        C4011002
0C19 0  0000        SKI3 DC     /0000       NO ENTRIES                   C4011003
0C1A 00 4490012E    SKI4 BSI  I SSUER       SET ERROR RETURN      SRC    C4011004
0C1C 0  611E            LDX  1 30                                        C4011005
0C1D 00 C400043D        LD   L TERM         CLEAR BINRY AREA             C4011006
0C1F 00 D500013D    SKO STO  L1 BINRY-1                                  C4011007
0C21 01 D5000CD2        STO  L1 SWB1-1                                   C4011008
0C23 0  71FF            MDX  1 -1                                        C4011009
0C24 0  70FA            MDX     SKO                                      C4011010
0C25 0  1010            SLA     16          CLEAR WD CT                  C4011011
0C26 0  D0F2            STO     SKI3                                     C4011012
0C27 00 4480012C        BSI  I  KEY         ENTER INTR LVL        SRC    C4011013
0C29 1  0CA0            DC      SM2                                      C4011014
0C2A 0  8120            DC      /8120                                    C4011015
0C2B 00 C400013D        LD   L  BINRY-1     GET WD CT                    C4011016
0C2D 0  D0EB            STO     SKI3        SET                          C4011017
0C2E 01 66000CD3        LDX  L2 SWB1        SET IXING                    C4011018
0C30 00 6500013E        LDX  L1 BINRY                                    C4011019
0C32 00 C5000000    SKI6 LD   L1 0          GET A WD                     C4011020
                    *                                                    C4011021
0C34 00 4480012F        BSI  I  SIL         CK IL                 SRC    C4011022
0C36 0  1808            SRA     8                                        C4011023
0C37 0  D200            STO  2 0            SAVE                         C4011024
0C38 0  C101            LD   1 1            GET WD                       C4011025
0C39 00 D400013E        STO  L  BINRY       SET AS 1ST                   C4011026
0C3B 0  7201            MDX  2 1            INCR IX 2                    C4011027
0C3C 0  7101    SKI5    MDX  1 1            INCR IX 1                    C4011028
0C3D 00 74FF013D        MDX  L  BINRY-1,-1  DECR WD CT                   C4011029
0C3F 0  70F2            MDX     SKI6        LOOP                         C4011030
0C40 01 C4000C19    SKI7 LD   L  SKI3       GET NO ENTRIES               C4011031
0C42 01 84000CD2        CMP  L  S000D       CK FOR MAX                   C4011032
0C44 0  7026            MDX     SKER        ERROR                        C4011033
0C45 0  1000            NOP                                              C4011034
                    *                                                    C4011035
0C46 01 66000CD3        LDX  L2 SWB1        SET IXING                    C4011036
0C48 0  6A16            STX  2 TEMP         *                            C4011037
0C49 01 74010C5F        MDX  L  TEMP,1      *                            C4011038
0C4B 01 65800C5F    SK1 LDX  I1 TEMP        *                            C4011039
0C4D 0  C200        SK2 LD   2 0            GET ENTRY                    C4011040
                                                                         C4011041
                                                                         C4011042
                                                                         C4011043
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                                                                         C4011066
                                                                         C4011067
                                                                         C4011068
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0C4E 01 4C280C60        BSC  L  OUT,+Z      BRANCH IF TERM               C4011069
0C50 0  C100            LD   1 0            GET ENTRY                    C4011070
0C51 01 4C280C58        BSC  L  SK3,+Z      BRANCH IF TERM               C4011071
0C53 0  F200            EOR  2 0            CK FOR DUPLICATE             C4011072
0C54 01 4C180C5C        BSC  L  SKER2,+-    BRANCH IF ERROR              C4011073
0C56 0  7101            MDX  1 1            INCR IX 1                    C4011074
0C57 0  70F5            MDX     SK2         LOOP                         C4011075
                    *                                                    C4011076
0C58 0  7201    SK3     MDX  2 1            INCR IX 2                    C4011077
0C59 01 74010C5F        MDX  L  TEMP,1      *                            C4011078
0C5B 0  70EF            MDX     SK1         LOOP                         C4011079
                    *                                                    C4011080
0C5C 00 44800132    SKER2 BSI  I  SER       DUPLICATE LVLS        SRC    C4011081
0C5E 1  0C85            DC      SE001                                    C4011082
                    *                                                    C4011083
0C5F 0  0000        TEMP DC     0                                        C4011084
0C60 01 66800C18    OUT  LDX    I2 SKI2     SET IXING                    C4011085
0C62 01 65800C17         LDX    I1 SKI1                                  C4011086
0C64 01 67800C19         LDX    I3 SKI3                                  C4011087
                    *                                                    C4011088
0C66 00 44800133         BSI  I  SECSU       GO SET CARD           SRC    C4011089
0C68 1  0CD3             DC      SWB1                                     C4011090
0C69 00 4C00013A         BSC  L  S2          EXIT                         C4011091
0C6B 00 44800132    SKER BSI  I  SER         GO PRINT ERROR        SRC    C4011092
0C6D 1  0C6E             DC      SE000       ADRS OF MSG                  C4011093
                    *                                                    C4011094
                    *                                                    C4011095
0C6E    0012        SE000 EBC   .E010  PID 01-CD 00.                     C4011096
0C77    0012              EBC   .  IMPROPER NUMBER .                     C4011097
0C80    0007              EBC   . OF WDS.                                C4011098
0C84 0  FFFF              DC    /FFFF                                    C4011099
                    *                                                    C4011100
0C85    0012        SE001 EBC   .E006  PID 01-CD 01.                     C4011101
0C8E    0012              EBC   .  2 OR MORE ENTRIE.                     C4011102
0C97    000F              EBC   .S ARE IDENTICAL.                        C4011103
0C9F 0  FFFF              DC    /FFFF                                    C4011104
                    *                                                    C4011105
0CA0    0012        SM2   EBC   .C001  PID 01-CD 00.                     C4011106
0CA9    0012              EBC   .  ENTER A 2 DIGIT .                     C4011107
0CB2    0012              EBC   .DECIMAL NUMBER FOR.                     C4011108
0CBB    0012              EBC   . EACH INTERRUPT LE.                     C4011109
0CC4    0012              EBC   .VEL TO BE RUN, 1-1.                     C4011110
0CCD    0007              EBC   .2 LINES.                                C4011111
0CD1 0  FFFF              DC    /FFFF                                    C4011112
                    *                                                    C4011113
0CD2 0  000C        S000D DC    /000C                                    C4011114
0CD3 0  0000        SWB1  DC    0           ENTRY STORAGE                C4011115
0CD4    001D              BSS   29                                       C4011116
0CF1 00 4C000138    END1  BSC L ENDO                                     C4011117
0CF4    0CF1              END   END1                                     C4011127
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CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17,0C1F,0C2B,0C30,0C39,0C3D
CKYN	012D	0C17
END0	0138	0C17,0CF1
END1	0CF1	0CF3
ERR	0439	0C17
KEY	012C	0C17,0C27
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
OUT	0C60	0C4E
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17,0C66
SER	0132	0C17,0C5C,0C6B
SE000	0C6E	0C6D
SE001	0C85	0C5E
SIL	012F	0C17,0C34
SILSW	0130	0C17
SKER	0C68	0C44
SKER2	0C5C	0C54
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C62
SKI2	0C18	0C60
SKI3	0C19	0C26,0C2D,0C40,0C64
SKI4	0C1A	
SKI5	0C3C	
SKI6	0C32	0C3F
SKI7	0C40	
SK0	0C1F	0C24
SK1	0C4B	0C58
SK2	0C4D	0C57
SK3	0C58	0C51
SM2	0CA0	0C29
SRTRY	0441	
SSUER	012E	0C17,0C1A
STBF	0440	0C17
SWB1	0CD3	0C21,0C2E,0C46,0C68
S000D	0CD2	0C42
S2	013A	0C17,0C69
TEMP	0C5F	0C48,0C49,0C4B,0C59
TERM	043D	0C17,0C1D
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17


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0000                    ORG     **3095                          C4012001
012C                KEY EQU     300                             C4012002
012D                CKYN EQU    KEY+1                           C4012003
012E                SSUER EQU   CKYN+1                          C4012004
012F                SIL EQU     SSUER+1                         C4012005
0130                SILSW EQU   SIL+1                           C4012006
0131                SCH EQU     SILSW+1                         C4012007
0132                SER EQU     SCH+1                           C4012008
0133                SECSU EQU   SER+1                           C4012009
0134                SKIN1 EQU   SECSU+1                         C4012010
0135                SKIN0 EQU   SKIN1+1                         C4012011
0136                PDKYB EQU   SKIN0+1                         C4012012
0137                PHKYB EQU   PDKYB+1                         C4012013
0138                END0 EQU    PHKYB+1                         C4012014
013A                S2 EQU      END0+2                          C4012015
013E                BINRY EQU   S2+4                            C4012016
01DF                KEYIN EQU   BINRY+161                       C4012017
0437                ZERO EQU    KEYIN+600                       C4012018
0438                BGNR EQU    ZERO+1                          C4012019
0439                ERR EQU     BGNR+1                          C4012020
043A                WCC EQU     ERR+1                           C4012021
043B                MTRM EQU    WCC+1                           C4012022
043C                TRFX EQU    MTRM+1                          C4012023
043D                TERM EQU    TRFX+1                          C4012024
043E                LWC EQU     TERM+1                          C4012025
043F                LGROP EQU   LWC+1                           C4012026
0440                STBF EQU    LGROP+1                         C4012027
0441                SRTRY EQU   STBF+1                          C4012028
0C17 0  0001        SKI1  DC    /0001       PID                 C4012029
0C18 0  0002        SKI2  DC    /0002       CD NO               C4012030
0C19 0  0000        SKI3  DC    /0000       NO ENTRIES          C4012031
0C1A 00 C4000440    SKI4  LD  L STBF        GET DISPL           C4012032
0C1C 01 D4060CEC          STO L TEMP        SAVE                C4012033
0C1E 00 4480012E          BSI I SSUER       SET ERROR RETURN  SRC C4012034
0C20 01 C4000CEC          LD  L TEMP        GET DISPL           C4012035
0C22 00 D4000440          STO L STBF        SET                 C4012036
0C24 01 84000CED          A   L K0003       ADD 3               C4012037
0C26 01 84000CEE          A   L CNST        ADD ADRS            C4012038
0C28 01 D4000CB2          STO L SM0-1       SET                 C4012039
0C2A 01 D4000C2D          STO L SN0+1       SET                 C4012040
0C2C 00 67000000    SN0   LDX L3 0                              C4012041
0C2E 00 C400043D    SN1   LD  L TERM        SET ENTRIES TO TERM C4012042
0C30 00 D7000000          STO L3 0                              C4012043
0C32 0  7301              MDX  3 1                              C4012044
0C33 01 6F000CF0          STX L3 SN2                            C4012045
0C35 01 C4000CF1          LD  L ADRS                            C4012046
0C37 01 F4000CF0          EOR L SN2                             C4012047
0C39 01 4C200C2E          BSC L SN1,Z                           C4012048
0C3B 01 C4000CEF          LD  L K0002       GET 2               C4012049
0C3D 0  D0DA              STO   SKI2        SET CD NO           C4012050
0C3E 0  1010              SLA   16                              C4012051
0C3F 01 D4000D5A          STO L WDCT        CLEAR COUNTS        C4012052
0C41 01 D4000D5B          STO L WDCT1                           C4012053
0C43 0  D0D5              STO   SKI3        CLEAR ENTRY CT      C4012054
0C44 00 4480012C          BSI I KEY         IL ILSW CH AC MOD,  SRC C4012055
0C46 1  0DA7              DC    SM1                             C4012056
0C47 0  8030              DC    /8030                           C4012057
0C48 00 C40001DE          LD  L KEYIN-1     GET WD CT           C4012058
0C4A 0  B036              CMP   S0560       COMP AGAINST 560    C4012059
0C4B 0  7032              MDX   SKER1       ERRGR               C4012060
0C4C 0  1000              NOP   0                               C4012061
0C4D 00 650001DF          LDX L1 KEYIN      CK ENTRIES FOR      C4012062
0C4F 0  C102        SKA1  LD  1 2           *CORRECT FORMAT     C4012063
0C50 0  4820              BSC   Z                               C4012064
0C51 0  7010              MDX   SKA2                            C4012065
0C52 0  C105              LD  1 5                               C4012066
0C53 0  4820              BSC   Z                               C4012067
0C54 0  700D              MDX   SKA2                            C4012068
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0C55 0  C107          LD    1 7                                    C4012069
0C56 0  4820          BSC     Z                                    C4012070
0C57 0  700A          MDX     SKA2                                 C4012071
0C58 0  C10A          LD    1 10                                   C4012072
0C59 0  4820          BSC     Z                                    C4012073
0C5A 0  7007          MDX     SKA2                                 C4012074
0C5B 0  C10D          LD    1 13                                   C4012075
0C5C 01 4C180C64      BSC   L SKA3,+-                              C4012076
0C5E 00 F400043D      EOR   L TERM                                 C4012077
0C60 01 4C180C66      BSC   L SKA7,+-                              C4012078
0C62 01 4C000D43  SKA2 BSC  L SKER2                                C4012079
0C64 0  710E      SKA3 MDX    1 14                                 C4012080
0C65 0  70E9           MDX    SKA1                                 C4012081
                  *                                               C4012082
0C66 00 650001DF  SKA7 LDX   L1 KEYIN      SET IXING               C4012083
0C68 01 66000DEA       LDX   L2 SWB1                               C4012084
0C6A 0  6305      SK6  LDX    3 5                                  C4012085
0C6B 0  C101      SK5  LD     1 1          GET ENTRY               C4012086
0C6C 00 F400043D       EOR   L TERM                                C4012087
0C6E 01 4C180C82       BSC   L BUILD,+-     BRANCH IF TERM          C4012088
0C70 0  C100           LD    1 0            GET ENTRY               C4012089
0C71 01 4C180CFD       BSC   L DEC1,+-      BRANCH IF SPACE         C4012090
0C73 01 4F800D48       BSC   I3 CNVRT-1     GO CONVERT          SRC C4012091
0C75 01 4F800D50  SK16 BSC   I3 CK-1        GO CK DATA          SRC C4012092
0C77 0  D200      SK1A STO    2 0          SAVE DATA               C4012093
0C78 0  7201           MDX    2 1          INCR IX 2               C4012094
0C79 0  73FF           MDX    3 -1         DECR IX 3               C4012095
0C7A 0  70F0           MDX    SK5          LOOP                    C4012096
0C7B 01 74010D5A       MDX   L WDCT,1      INCR WD CT              C4012097
0C7D 0  70EC           MDX    SK6          LOOP                    C4012098
0C7E 00 44800132  SKER1 BSI  I SER         PRINT ERROR         SRC C4012099
0C80 1  0D5F           DC     SKE00                                C4012100
0C81 0  0230      S0560 DC     560          CONSTANT                C4012101
0C82 01 66000DEA  BUILD LDX  L2 SWB1       SET IXING               C4012102
0C84 01 65000DEA  SK7  LDX   L1 SWB1                               C4012103
0C86 0  C200      SK8  LD     2 0                                  C4012104
0C87 0  F201           EOR    2 1          BUILD DDEF              C4012105
0C88 0  F202           EOR    2 2                                  C4012106
0C89 0  D100           STO    1 0                                  C4012107
0C8A 01 74010D5B       MDX   L WDCT1,1     INCR WD CT              C4012108
0C8C 0  C203           LD     2 3          BUILD AC MOD            C4012109
0C8D 0  100B           SLA    11                                   C4012110
0C8E 0  F204           EOR    2 4                                  C4012111
0C8F 0  D101           STO    1 1                                  C4012112
0C90 01 74010D5B       MDX   L WDCT1,1     INCR WD CT              C4012113
0C92 0  7102           MDX    1 2          IXCR IX 1               C4012114
0C93 0  7205           MDX    2 5          INCR IX 2               C4012115
0C94 01 74FF0D5A       MDX   L WDCT,-1     CK FOR DONE             C4012116
0C96 0  7061           MDX    SK9          BRANCH                  C4012117
0C97 0  690C      SKA  STX    1 SKD+1      SAVE IXING              C4012118
0C98 0  6A0D           STX    2 SKE+1                              C4012119
0C99 0  6B0E           STX    3 SKF+1                              C4012120
0C9A 01 65800C17       LDX   I1 SKI1       SET IXING               C4012121
0C9C 01 66800C18       LDX   I2 SKI2                               C4012122
0C9E 01 67800D58       LDX   I3 WDCT1                              C4012123
0CA0 00 44800133       BSI   I SECSU       SET CARD            SRC C4012124
0CA2 1  0DEA      SKB  DC     SWB1                                 C4012125
0CA3 00 65000000  SKD  LDX   L1 0          RESTORE IXING           C4012126
0CA5 00 66000000  SKE  LDX   L2 0                                  C4012127
0CA7 00 67000000  SKF  LDX   L3 0                                  C4012128
0CA9 0  1010           SLA    16                                   C4012129
0CAA 01 D4000D5B       STO   L WDCT1       CLEAR WD CT             C4012130
0CAC 01 74010C18       MDX   L SKI2,1      INCR CD NO              C4012131
0CAE 01 74000D5A       MDX   L WDCT,6      IS TOTAL WD CT = 0      C4012132
0CB0 0  7003           MDX    SK7          LOOP                    C4012133
0CB1 00 65000000       LDX   L1 0          SET IXING               C4012134
0CB3 0  6903      SM0  STX    1 SM+1                               C4012135
0CB4 0  C03F           LD     ENT3         SET NO TO CK            C4012136
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                  STO    ENT1                                   C4012137
0CB6 00 66000000  SM   LDX   L2 0                               C4012138
0CB6 0  7202           MDX    2 2                                  C4012139
                  *                                               C4012140
0CB9 0  C200      SM1A LD     2 0          GET A DDEF              C4012141
0CBA 00 F40004+2       EOR   L SRTRY+1     CK FOR AT PID           C4012142
0CBC 01 4C180CE2       BSC   L SM3A,+-     GO ADJ IX 1             C4012143
0CBE 0  C100           LD    1 0           GET DDEF                C4012144
0CBF 00 F400043D       EOR   L TERM                                C4012145
0CC1 01 4C180CE4       BSC   L SM4A,+-     EXIT IF ZERO            C4012146
0CC3 0  C100           LD    1 0                                   C4012147
0CC4 0  F200           EOR    2 0          COMPARE                 C4012148
0CC5 01 4C180D49       BSC   L SKER4,+-    BR IF ERROR             C4012149
0CC7 0  7202           MDX    2 2          INCR IX                 C4012150
0CC8 01 74010CF2       MDX   L ENT1,1      INCR TOTAL              C4012151
0CCA 01 C4000CF2       LD    L ENT1        CK FOR DONE             C4012152
0CCC 01 F4000CF5       EOR   L K0040                               C4012153
0CCE 01 4C180CD1       BSC   L SM2A,+-     BRANCH IF ALL           C4012154
0CD0 0  70E8           MDX    SM1A         LOOP                    C4012155
0CD1 0  7102      SM2A MDX    1 2          INCR I  1               C4012156
0CD2 0  C021           LD     ENT3         GET TOTAL               C4012157
0CD3 0  8022           A      K0001        ADD 1                   C4012158
0CD4 0  D01F           STO    ENT3         SAVE                    C4012159
0CD5 01 74010CF3       MDX   L ENT1,1      INCR CK TOTAL           C4012160
0CD7 01 C4000CF3       LD    L ENT2        GET CK TOTAL            C4012161
0CD9 0  F01D           EOR    K0039        CK FOR DONE             C4012162
0CDA 01 4C180CE4       BSC   L SM4A,+-     BRANCH IF DONE          C4012163
0CDC 0  C100           LD    1 0           GET ENTRY               C4012164
0CDD 00 F4000442       EOR   L SRTRY+1     CK FOR AT PID           C4012165
0CDF 01 4C180CEA       BSC   L SM5A,+-     BRANCH IF AT PID        C4012166
0CE1 0  70D1           MDX    SM0          LOOP                    C4012167
                  *                                               C4012168
0CE2 0  7203      SM3A MDX    2 3          SET IX TO DDEF          C4012169
0CE3 0  7005           MDX    SM1A                                 C4012170
                  *                                               C4012171
0CE4 0  1010      SM4A SLA      16         CLEAR ALL NECESSARY     C4012172
0CE5 0  D00C           STO    ENT1                                 C4012173
0CE6 0  D00C           STO    ENT2                                 C4012174
0CE7 0  D00C           STO    ENT3                                 C4012175
                  *                                               C4012176
0CE8 00 4C00013A       BSC   L S2          EXIT                    C4012177
                  *                                               C4012178
0CEA 0  7103      SM5A MDX    1 3          ADJ IX 1                C4012179
0CEB 0  70C7           MDX    SM0          LOOP                    C4012180
0CEC 0  0000      TEMP DC     0            CONSTANTS               C4012181
0CED 0  0003      K0003 DC    3                                    C4012182
0CEE 0  0442      CNST DC     SRTRY+1                              C4012183
0CEF 0  0002      K0002 DC    2                                    C4012184
0CF0 0  0000      SN2  DC     0                                    C4012185
0CF1 0  0583      ADRS DC     SRTRY+322                            C4012186
                  *                                               C4012187
0CF2 0  0000      ENT1 DC     0            CONSTANTS               C4012188
0CF3 0  0000      ENT2 DC     0                                    C4012189
0CF4 0  0000      ENT3 DC     0                                    C4012190
0CF5 0  0028      K0040 DC    40                                   C4012191
0CF6 0  0001      K0001 DC    1                                    C4012192
0CF7 0  0027      K0039 DC    39                                   C4012193
0CF8 0  C062      SK9  LD     WDCT1        GET CD WD CT            C4012194
0CF9 0  B063           CMP    S000C        COMPARE WITH 12         C4012195
0CFA 0  7048           MDX    SKER2        ERROR                   C4012196
0CFB 0  708A           MDX    SKB          LOOP                    C4012197
0CFC 0  709A           MDX    SKA          GO SET CD               C4012198
0CFD 0  7101      DEC1 MDX    1 1          INCR IX 1               C4012199
0CFE 01 4C000C6B       BSC   L SK5         LOOP                    C4012200
0D00 0  C100      KYHEX LD    1 0          GET WD 1                C4012201
0D01 00 D40001DF       STO   L KEYIN       SAVE                    C4012202
0D03 0  C101           LD    1 1          GET WD 2                C4012203
0D04 00 D40001E0       STO   L KEYIN+1     SAVE                    C4012204
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0D06 00 C400043D        LD   L  TERM      GET TERM                    C4012205
0D08 00 D40001E1        STO  L  KEYIN+2   SET                         C4012206
0D0A 00 44300137        BSI  I  PHKYB     CONVERT TO HEX       SRC    C4012207
0D0C 0  0002            DC      2                                      C4012208
0D0D 0  0437            DC      ZERO                                   C4012209
0D0E 0  7103            MDX  1  3         INCR IX 1                   C4012210
0D0F 01 4C000C75        BSC  L  SKI6                                   C4012211
0D11 0  C100      KYHX1 LD   1  0         GET WD                      C4012212
0D12 00 D40001DF        STO  L  KEYIN     SAVE                        C4012213
0D14 00 C400043D        LD   L  TERM      GET TERM                    C4012214
0D16 00 D40001E0        STO  L  KEYIN+1   SET                         C4012215
0D18 00 44800137        BSI  I  PHKYB     CONVERT TO HEX       SRC    C4012216
0D1A 0  0001            DC      1                                      C4012217
0D1B 0  0437            DC      ZERO                                   C4012218
0D1C 0  7102            MDX  1  2         INCR IX 1                   C4012219
0D1D 01 4C000C75        BSC  L  SKI6                                   C4012220
0D1F 0  C100      KYDC2 LD   1  0         GET WD 1                    C4012221
0D20 00 D40001DF        STO  L  KEYIN     SAVE                        C4012222
0D22 0  C101            LD   1  1         GET WD 2                    C4012223
0D23 00 D40001E0        STO  L  KEYIN+1   SAVE                        C4012224
0D25 00 C400043D        LD   L  TERM      GET TERM                    C4012225
0D27 00 D40001E1        STO  L  KEYIN+2   SET                         C4012226
0D29 00 44800136        BSI  I  PDKYB     CONVERT TO DEC       SRC    C4012227
0D2B 0  0002            DC      2                                      C4012228
0D2C 0  0437            DC      ZERO                                   C4012229
0D2D 0  7103            MDX  1  3         INCR IX 1                   C4012230
0D2E 01 4C000C75        BSC  L  SKI6                                   C4012231
0D30 00 C400013E  LSFF  LD   L  BINRY     GET WD                      C4012232
0D32 0  B02B            CMP     SOOFF     CMPR WITH FF                C4012233
0D33 0  7012            MDX     SKER3     ERROR                       C4012234
0D34 0  1000            NOP     0                                     C4012235
0D35 01 4C000C77        BSC  L  SKIA                                   C4012236
0D37 00 44800131  CH    BSI  I  SCH       CK CH NO             SRC    C4012237
0D39 01 4C000C77        BSC  L  SKIA                                   C4012238
0D3B 00 44800130  LSW   BSI  I  SILSW     CK ILSW BIT          SRC    C4012239
0D3D 01 4C000C77        BSC  L  SKIA                                   C4012240
0D3F 00 4480012F  IL    BSI  I  SIL       CK INT LVL           SRC    C4012241
0D41 01 4C000C77        BSC  L  SKIA                                   C4012242
0D43 00 44800132  SKER2 BSI  I  SER       PRINT ERROR          SRC    C4012243
0D45 1  0D5F            DC      SKE00                                  C4012244
0D46 00 44800132  SKER3 BSI  I  SER       PRINT ERROR          SRC    C4012245
0D48 1  0D75            DC      SKE02                                  C4012246
0D49 00 44800132  SKER4 BSI  I  SER       IDENTICAL DDEFS      SRC    C4012247
0D4B 1  0D8C            DC      SKE03                                  C4012248
0D4C 1  0D00      CNVRT DC      KYHEX     CONVERT TABLE               C4012249
0D4D 1  0D1F            DC      KYDC2                                  C4012250
0D4E 1  0D11            DC      KYHX1                                  C4012251
0D4F 1  0D1F            DC      KYDC2                                  C4012252
0D50 1  0D1F            DC      KYDC2                                  C4012253
0D51 1  0D56      CK    DC      AC        CK TBL                      C4012254
0D52 1  0D30            DC      LSFF                                   C4012255
0D53 1  0D37            DC      CH                                     C4012256
0D54 1  0D3B            DC      LSW                                    C4012257
0D55 1  0D3F            DC      IL                                     C4012258
0D56 00 C400013E  AC    LD   L  BINRY     GET ENTRY                   C4012259
0D58 01 4C000C77        BSC  L  SKIA                                   C4012260
0D5A 0  0000      WDCT  DC      0         TOTAL WD CT                 C4012261
0D5B 0  0000      WDCT1 DC      0         CARD WD CT                  C4012262
0D5C 0  0005      S0005 DC      5         CONSTANTS                   C4012263
0D5D 0  000C      S000C DC      /000C                                 C4012264
0D5E 0  001F      SOOFF DC      31                                    C4012265
                  *                                                   C4012266
0D5F    0012      SKE00 EBC     .E010  PID 01-CD 02.                  C4012267
0D68    0012            EBC     .  IMPROPER NUMBER .                  C4012268
0D71    0006            EBC     .OF WDS.                              C4012269
0D74 0  FFFF            DC      /FFFF                                 C4012270
                  *                                                   C4012271
0D75    0012      SKE02 EBC     .E00F  PID 01-CD 02.                  C4012272
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0D7E    0012            EBC     .  AREA CODE WAS TO.                  C4012273
0D87    0007            EBC     .O LARGE.                             C4012274
0D88 0  FFFF            DC      /FFFF                                 C4012275
                  *                                                   C4012276
0D8C    0012      SKE03 EBC     .E006  PID 01-CD 02.                  C4012277
0D95    0012            EBC     .  2 OR MORE ENTR'E.                  C4012278
0D9E    000F            EBC     .S ARE IDENTICAL.                     C4012279
0DA6 0  FFFF            DC      /FFFF                                 C4012280
                  *                                                   C4012281
0DA7    0012      SM1   EBC     .C014  PID 01-CD 02.                  C4012282
0DB0    0012            EBC     .  ENTER DEVICE INF.                  C4012283
0DB9    0012            EBC     .O IN THE FOLLOWING.                  C4012284
0DC2    0012            EBC     . FORMAT  1-40 DEVI.                  C4012285
0DCB    0012            EBC     .CES-SPACE BETWEEN .                  C4012286
0DD4    0012            EBC     .ENTRIES, IL ILSW C.                  C4012287
0DDD    0012            EBC     .H AC MOD,$DD DD H .                  C4012288
0DE6    0005            EBC     .DD HH.                               C4012289
0DE9 0  FFFF            DC      /FFFF                                 C4012290
                  *                                                   C4012291
0DEA 0  0000      SWB1  DC      0           ENTRY STORAGE             C4012292
0DEB    0154            BSS     340                                   C4012293
0F3F 00 4C000138  END1  BSC  L  END0                                  C4012294
0F42    0F3F            END     END1                  C401229 C4012304
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CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
AC	0D56	0D51
ADRS	0CF1	0C35
BGNR	0438	0C17
BINRY	013E	0C17,0D30,0D56
BUILD	0C82	0C6E
CH	0D37	0D53
CK	0D51	0C75
CKYN	012D	0C17
CNST	0CEE	0C26
CNVRT	0D4C	0C73
DEC1	0CFD	0C71
END0	0138	0C17,0F3F
END1	0F3F	0F41
ENT1	0CF2	0CB5,0CC8,0CCA,0CE5
ENT2	0CF3	0CD5,0CD7,0CE6
ENT3	0CF4	0C84,0CD2,0CD4,0CE7
ERR	0439	0C17
IL	0D3F	0D55
KEY	012C	0C17,0C44
KEYIN	01DF	0C17,0C48,0C4D,0C66,0D01,0D04,0D08,0D12,0D16,0D20, 0D23,0D27
KYDC2	0D1F	0D4D,004F,0D50
KYHEX	0D00	0D4C
KYHX1	0D11	0D4E
K0001	0CF6	0CD3
K0002	0CEF	0C38
K0003	0CED	0C24
K0039	0CF7	0CD9
K0040	0CF5	0CCC
LGRGP	043F	0C17
LSFF	0D30	0D52
LSW	0D3B	0D54
LWC	043E	0C17
MTRM	0438	0C17
PDKYB	0136	0C17,0D29
PHKYB	0137	0C17,0D0A,0D18
SCH	0131	0C17,0D37
SECSU	0133	0C17,0CA0
SER	0132	0C17,0C7E,0D43,0D46,0D49
SIL	012F	0C17,0D3F
SILSW	0130	0C17,0D3B
SKA	0C97	0CFC
SKA1	0C4F	0C65
SKA2	0C62	0C51,0C54,0C57,0C5A
SKA3	0C64	0C5C
SKA7	0C66	0C60
SKB	0C86	0CFB
SKD	0CA3	0C97
SKE	0CA5	0C98
SKER1	0C7E	0C4B
SKER2	0D43	0C62,0CFA
SKER3	0D46	0D33
SKER4	0D49	0CC5
SKE00	0D5F	0C80,0D45
SKE02	0D75	0D48
SKE03	0D8C	0D4B
SKF	0CA7	0C99
SKIA	0C77	0D35,0D39,0D3D,0D41,0D58
SKINU	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C9A
SKI2	0C16	0C3D,0C9C,0CAC
SKI3	0C19	0C43
SKI4	0C1A	
SKI6	0C75	0D0F,0D1D,0D2E

SK5	0C6B	0C7A,0CFE
SK6	0C6A	0C7D
SK7	0C84	0CB0
SK8	0CA2	
SK9	0CF8	0C96
SM	0C86	0CB3
SM0	0CB3	0C28,0CE1,0CE8
SM1	0DA7	0C46
SM1A	0CB9	0CD0,0CE3
SM2A	0CD1	0CCE
SM3A	0CE2	0CBC
SM4A	0CE4	0CC1,0CDA
SM5A	0CEA	0CDF
SN0	0C2C	0C2A
SN1	0C2E	0C39
SN2	0CF0	0C33,0C37
SRTRY	0441	0CBA,0CDD,0CEE,0CF1
SSUER	012E	0C17,0C1E
STBF	0440	0C17,0C1A,0C22
SW81	0DEA	0C68,0C82,0C84,0CA2
S00FF	0D5E	0D32
S000C	0D5D	0CF9
S0005	0D5C	
S0560	0C81	0C4A
S2	013A	0C17,0CE8
TEMP	0CEC	0C1C,0C20
TERM	043D	0C17,0C2E,0C5E,0C6C,0CBF,0D06,0D14,0D25
TRFX	043C	0C17
WCC	043A	0C17
WDCT	0D5A	0C3F,0C78,0C94,0CAE
WDCT1	0D5B	0C41,0C8A,0C90,0C9E,0CAA,0CF8
ZERO	0437	0C17,0D0D,0D18,0D2C

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0000                    ORG     *+3095
012C                KEY EQU     300
012D                CKYN EQU    KEY+1
012E                SSUER EQU   CKYN+1
012F                SIL EQU     SSUER+1
0130                SILSW EQU   SIL+1
0131                SCH EQU     SILSW+1
0132                SER EQU     SCH+1
0133                SECSU EQU   SER+1
0134                SKIN1 EQU   SECSU+1
0135                SKIN0 EQU   SKIN1+1
0136                PDKYB EQU   SKIN0+1
0137                PHKYB EQU   PDKYB+1
0138                ENDO EQU    PHKYB+1
013A                S2 EQU      ENDO+2
013E                BINRY EQU   S2+4
01DF                KEYIN EQU   BINRY+161
0437                ZERO EQU    KEYIN+600
0438                BGNR EQU    ZERO+1
0439                ERR EQU     BGNR+1
043A                WCC EQU     ERR+1
043B                MTRM EQU    WCC+1
043C                TRFX EQU    MTRM+1
043D                TERM EQU    TRFX+1
043E                LWC EQU     TERM+1
043F                LGROP EQU   LWC+1
0440                STBF EQU    LGROP+1
0441                SRTRY EQU   STBF+1
0C17 0  0001        SKI1 DC     /0001
0C18 0  FFFF        SKI2 DC     /FFFF
0C19 0  0000        SKI3 DC     /0000
0C1A 0  0000        SKI4 DC     /0000
0C1B 00 4C000138    END1 BSC  L ENDO
0C1E    0C1B            END     END1
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C4013001
C4013002
C4013003
C4013004
C4013005
C4013006
C4013007
C4013008
C4013009
C4013010
C4013011
C4013012
C4013013
C4013014
C4013015
C4013016
C4013017
C4013018
C4013019
C4013020
C4013021
C4013022
C4013023
C4013024
C4013025
C4013026
C4013027
C4013028
C4013029
C4013030
C4013031
C4013032
C4013033
C401303 C4013043

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0138	0C17, 0C18
END1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

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0000                    ORG     *+3095                                  C4040001
012C                KEY . EQU   300                                     C4040002
012D                CKYN  EQU   KEY+1                                   C4040003
012E                SSUER EQU   CKYN+1                                  C4040004
012F                SIL   EQU   SSUER+1                                 C4040005
0130                SILSW EQU   SIL+1                                   C4040006
0131                SCH   EQU   SILSW+1                                 C4040007
0132                SER   EQU   SCH+1                                   C4040008
0133                SECSU EQU   SER+1                                   C4040009
0134                SKIN1 EQU   SECSU+1                                 C4040010
0135                SKIN0 EQU   SKIN1+1                                 C4040011
0136                PDKYB EQU   SKIN0+1                                 C4040012
0137                PHKYB EQU   PDKYB+1                                 C4040013
0138                END0  EQU   PHKYB+1                                 C4040014
013A                S2    EQU   END0+2                                  C4040015
013E                BINRY EQU   S2+4                                    C4040016
01DF                KEYIN EQU   BINRY+161                               C4040017
0437                ZERO  EQU   KEYIN+600                               C4040018
0438                BGNR  EQU   ZERO+1                                  C4040019
0439                ERR   EQU   BGNR+1                                  C4040020
043A                WCC   EQU   ERR+1                                   C4040021
043B                MTRM  EQU   WCC+1                                   C4040022
043C                TRFX  EQU   MTRM+1                                  C4040023
043D                TERM  EQU   TRFX+1                                  C4040024
043E                LWC   EQU   TERM+1                                  C4040025
043F                LGROP EQU   LWC+1                                   C4040026
0440                STBF  EQU   LGROP+1                                 C4040027
0441                SRTRY EQU   STBF+1                                  C4040028
0C17 0  0004        SKI1  DC    /0004       PID                         C4040029
0C18 0  0000        SKI2  DC    /0000       CD NO                       C4040030
0C19 0  0001        SKI3  DC    /0001       NO ENTRIES                  C4040031
0C1A 00 4480012E    SKI4  BSI I SSUER       SET ERROR RETURN      SRC   C4040032
0C1C 00 4480012C          BSI I KEY         ENTER IL              SRC   C4040033
0C1E 1  0C3E              DC    SM1                                       C4040034
0C1F 0  8120              DC    /8120                                     C4040035
0C20 00 4480012F          BSI I SIL         CK INT LVL            SRC   C4040036
0C22 0  0018              STO   SWB1        SAVE                        C4040037
                *                                                       C4040038
0C23 00 4480012E          BSI I SSUER       SET ERROR RETURN      SRC   C4040039
0C25 00 4480012C          BSI I KEY         ENTER ILSW            SRC   C4040040
0C27 1  0C60              DC    SM2                                       C4040041
0C28 0  8120              DC    /8120                                     C4040042
0C29 00 44800130          BSI I SILSW       CK ILSW BIT           SRC   C4040043
0C2B 0  D010              STO   SWB2                                      C4040044
                *                                                       C4040045
0C2C 0  C00E              LD    SWB1        BUILD DDEF                  C4040046
0C2D 0  F00E              EOR   SWB2                                      C4040047
0C2E 0  F00E              EOR   SWB3                                      C4040048
0C2F 0  D00B              STO   SWB1        SAVE                        C4040049
                *                                                       C4040050
0C30 01 65800C17          LDX   I1 SKI1     SET IXING                   C4040051
0C32 01 66800C18          LDX   I2 SKI2                                 C4040052
0C34 01 67800C19          LDX   I3 SKI3                                 C4040053
0C36 00 44800133          BSI I SECSU       SET CARD              SRC   C4040054
0C38 1  0C3B              DC    SWB1                                      C4040055
0C39 00 4C00013A          BSC L S2          EXIT                        C4040056
0C3B 0  0000        SWB1  DC    0           ENTRY STORAGE               C4040057
0C3C 0  0000        SWB2  DC    0                                       C4040058
0C3D 0  000F        SWB3  DC    /000F       CONSTANT                    C4040059
                *                                                       C4040060
0C3E    0012        SM1   EBC   .C001  PID 04-CD 00.                    C4040061
0C47    0012              EBC   .  ENTER 2 DIGIT DE.                    C4040062
0C50    0012              EBC   .CIMAL INTRPT LVL F.                    C4040063
0C59    000C              EBC   .OR 1054-1055.                          C4040064
0C5F 0  FFFF              DC    /FFFF                                     C4040065
                *                                                       C4040066
0C60    0011        SM2   EBC   .C002 PID 04-CD 00.                     C4040067
0C69    0012              EBC   .  ENTER 2 DIGIT DE.                    C4040068
```



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0C72    0012              EBC   .CIMAL ILSW BIT FOR.                    C4040069
0C7B    000A              EBC   . 1054-1055.                            C4040070
0C80 0  FFFF              DC    /FFFF                                     C4040071
0C81 00 4C000138    END1  BSC L ENDO                                      C4040072
0C84    0C81              END   END1                          C404007     C4040082
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0138	0C17,0C81
END1	0C81	0C83
ERR	0439	0C17
KEY	012C	0C17,0C1C,0C25
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17,0C36
SER	0132	0C17
SIL	012F	0C17,0C20
SILSW	0130	0C17,0C29
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C30
SKI2	0C18	0C32
SKI3	0C19	0C34
SKI4	0C1A	
SM1	0C3E	0C1E
SM2	0C60	0C27
SRTRY	0441	
SSUER	012E	0C17,0C1A,0C23
STBF	0440	0C17
SWB1	0C3B	0C22,0C2C,0C2F,0C38
SWB2	0C3C	0C28,0C2D
SWB3	0C3D	0C2E
S2	013A	0C17,0C39
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17


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0000                    ORG     *+3095                  C4041001
012C                KEY EQU     300                     C4041002
012D                CKYN EQU    KEY+1                   C4041003
012E                SSUER EQU   CKYN+1                  C4041004
012F                SIL EQU     SSUER+1                 C4041005
0130                SILSW EQU   SIL+1                   C4041006
0131                SCH EQU     SILSW+1                 C4041007
0132                SER EQU     SCH+1                   C4041008
0133                SECSU EQU   SER+1                   C4041009
0134                SKIN1 EQU   SECSU+1                 C4041010
0135                SKIN0 EQU   SKIN1+1                 C4041011
0136                PDKYB EQU   SKIN0+1                 C4041012
0137                PHKYB EQU   PDKYB+1                 C4041013
0138                ENDO EQU    PHKYB+1                 C4041014
013A                S2 EQU      ENDO+2                  C4041015
013E                BINRY EQU   S2+4                    C4041016
01DF                KEYIN EQU   BINRY+161               C4041017
0437                ZERO EQU    KEYIN+600               C4041018
0438                BGNR EQU    ZERO+1                  C4041019
0439                ERR EQU     BGNR+1                  C4041020
043A                WCC EQU     ERR+1                   C4041021
043B                MTRM EQU    WCC+1                   C4041022
043C                TRFX EQU    MTRM+1                  C4041023
043D                TERM EQU    TRFX+1                  C4041024
043E                LWC EQU     TERM+1                  C4041025
043F                LGROP EQU   LWC+1                   C4041026
0440                STBF EQU    LGROP+1                 C4041027
0441                SRTRY EQU   STBF+1                  C4041028
0C17 0  0004        SKI1 DC     /0004                   C4041029
0C18 0  FFFF        SKI2 DC     /FFFF                   C4041030
0C19 0  0000        SKI3 DC     0                       C4041031
0C1A 0  0000        SKI4 DC     0                       C4041032
0C1B 00 4C000138    END1 BSC  L ENDO                    C4041033
0C1E    0C1B            END     END1            C4041C3 C4041043
```

CROSS REFERENCE LISTING

```
SYMBOL  VALUE   REFERENCES
BGNR    0438    0C17
BINRY   013E    0C17
CKYN    012D    0C17
ENDO    0138    0C17,0C1B
END1    0C1B    0C1D
ERR     0439    0C17
KEY     012C    0C17
KEYIN   01DF    0C17
LGROP   043F    0C17
LWC     043E    0C17
MTRM    043B    0C17
PDKYB   0136    0C17
PHKYB   0137    0C17
SCH     0131    0C17
SECSU   0133    0C17
SER     0132    0C17
SIL     012F    0C17
SILSW   0130    0C17
SKINO   0135    0C17
SKIN1   0134    0C17
SKI1    0C17
SKI2    0C18
SKI3    0C19
SKI4    0C1A
SRTRY   0441
SSUER   012E    0C17
STBF    0440    0C17
S2      013A    0C17
TERM    043D    0C17
TRFX    043C    0C17
WCC     043A    0C17
ZERO    0437    0C17
```



```
0000                           ORG       *+3095                                     C4050001
012C                   KEY     EQU       300                                        C4050002
012D                   CKYN    EQU       KEY+1                                      C4050003
012E                   SSUER   EQU       CKYN+1                                     C4050004
012F                   SIL     EQU       SSUER+1                                    C4050005
0130                   SILSW   EQU       SIL+1                                      C4050006
0131                   SCH     EQU       SILSW+1                                    C4050007
0132                   SER     EQU       SCH+1                                      C4050008
0133                   SECSU   EQU       SER+1                                      C4050009
0134                   SKIN1   EQU       SECSU+1                                    C4050010
0135                   SKINO   EQU       SKIN1+1                                    C4050011
0136                   PDKYB   EQU       SKINO+1                                    C4050012
0137                   PHKYB   EQU       PDKYB+1                                    C4050013
0138                   ENDO    EQU       PHKYB+1                                    C4050014
013A                   S2      EQU       ENDO+2                                     C4050015
013E                   BINRY   EQU       S2+4                                       C4050016
01DF                   KEYIN   EQU       BINRY+161                                  C4050017
0437                   ZERO    EQU       KEYIN+600                                  C4050018
0438                   BGNR    EQU       ZERO+1                                     C4050019
0439                   ERR     EQU       BGNR+1                                     C4050020
043A                   WCC     EQU       ERR+1                                      C4050021
043B                   MTRM    EQU       WCC+1                                      C4050022
043C                   TRFX    EQU       MTRM+1                                     C4050023
043D                   TERM    EQU       TRFX+1                                     C4050024
043E                   LWC     EQU       TERM+1                                     C4050025
043F                   LGROP   EQU       LWC+1                                      C4050026
0440                   STBF    EQU       LGROP+1                                    C4050027
0441                   SRTRY   EQU       STBF+1                                     C4050028
0C17 0  0005           SKI1    DC        /0005     PID                              C4050029
0C18 0  0000           SKI2    DC        0         CD NO                            C4050030
0C19 0  0001           SKI3    DC        /0001     NO ENTRIES                       C4050031
0C1A 00 4480012E       SKI4    BSI   I   SSUER     SET ERROR RETURN           SRC   C4050032
0C1C 00 4480012C               BSI   I   KEY       ENTER IL 1ST 1627          SRC   C4050033
0C1E 1  0C43                   DC        SM1                                        C4050034
0C1F 0  8120                   DC        /8120                                      C4050035
0C20 00 4480012F               BSI   I   SIL       CK INT LVL                 SRC   C4050036
0C22 0  D01D                   STO       SWB1                                       C4050037
                       *                                                            C4050038
0C23 00 4480012E               BSI   I   SSUER     SET ERROR RETURN           SRC   C4050039
0C25 00 4480012C               BSI   I   KEY       ILSW BIT 1ST 1627          SRC   C4050040
0C27 1  0C63                   DC        SM2                                        C4050041
0C28 0  8120                   DC        /8120                                      C4050042
0C29 00 44800130               BSI   I   SILSW     CK ILSW BIT                SRC   C4050043
0C2B 0  D015                   STO       SWB2      SAVE                             C4050044
0C2C 01 C4000C40               LD    L   SWB1      BUILD DDEF                       C4050045
0C2E 01 F4000C41               EOR   L   SWB2                                       C4050046
0C30 01 F4000C3F               EOR   L   K000F                                      C4050047
0C32 01 D4000C40               STO   L   SWB1      SAVE                             C4050048
                       *                                                            C4050049
0C34 01 65800C17       SK3     LDX   I1  SKI1      SET IXING                        C4050050
0C36 01 66800C18               LDX   I2  SKI2                                       C4050051
0C38 01 67800C19               LDX   I3  SKI3                                       C4050052
0C3A 00 44800133               BSI   I   SECSU     SET CARD                   SRC   C4050053
0C3C 1  0C40                   DC        SWB1                                       C4050054
0C3D 00 4C00013A               BSC   L   S2                                         C4050055
                       *                                                            C4050056
0C3F 0  000F           K000F   DC        /000F                                      C4050057
0C40 0  0000           SWB1    DC        0         ENTRY STORAGE                    C4050058
0C41 0  0000           SWB2    DC        0                                          C4050059
0C42 0  0000           SWB3    DC        0                                          C4050060
                       *                                                            C4050061
0C43    0012           SM1     EBC       .C001  PID 05-CD 00.                       C4050062
0C4C    0012                   EBC       .  ENTER 2 DIGIT DE.                       C4050063
0C55    0012                   EBC       .CIMAL INTRPT LVL F.                       C4050064
0C5E    0007                   EBC       .OR 1627.                                  C4050065
0C62 0  FFFF                   DC        /FFFF                                      C4050066
                       *                                                            C4050067
0C63    0012           SM2     EBC       .C002  PID 05-CD 00.                       C4050068
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0C6C    0012            EBC     . ENTER 2 DIGIT DE.          C4050069
0C75    0012            EBC     .CIMAL ILSW BIT FOR.         C4050070
0C7E    0005            EBC     . 1627.                      C4050071
0C81 0  FFFF            DC      /FFFF                        C4050072
                *                                            C4050073
0C82 00 4C000138 END1   BSC  L  ENDO                         C4050074
0C84    0C92            END     END1                 C405007 C4050084
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0138	0C17, 0C82
END1	0C82	0C84
ERR	0439	0C17
KEY	012C	0C17, 0C1C, 0C25
KEYIN	01DF	0C17
KOOOF	0C3F	0C30
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17, 0C3A
SER	0132	0C17
SIL	012F	0C17, 0C20
SILSW	0130	0C17, 0C29
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C34
SKI2	0C18	0C36
SKI3	0C19	0C38
SKI4	0C1A	
SK3	0C34	
SM1	0C43	0C1E
SM2	0C63	0C27
SRTRY	0441	
SSUER	012E	0C17, 0C1A, 0C23
STBF	0440	0C17
SWB1	0C40	0C22, 0C2C, 0C32, 0C3C
SWB2	0C41	0C28, 0C2E
SWB3	0C42	
S2	013A	0C17, 0C3D
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

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0000                    ORG    **3095                C4051001
012C                KEY EQU    300                   C4051002
012D                CKYN EQU   KEY+1                 C4051003
012E                SSUER EQU  CKYN+1                C4051004
012F                SIL EQU    SSUER+1               C4051005
0130                SILSW EQU  SIL+1                 C4051006
0131                SCH EQU    SILSW+1               C4051007
0132                SER EQU    SCH+1                 C4051008
0133                SECSU EQU  SER+1                 C4051009
0134                SKIN1 EQU  SECSU+1               C4051010
0135                SKINO EQU  SKIN1+1               C4051011
0136                PDKYB EQU  SKINO+1               C4051012
0137                PHKYB EQU  PDKYB+1               C4051013
0138                END0 EQU   PHKYB+1               C4051014
013A                S2 EQU     END0+2                C4051015
013E                BINRY EQU  S2+4                  C4051016
010F                KEYIN EQU  BINRY+161             C4051017
0437                ZERO EQU   KEYIN+600             C4051018
0438                BGNR EQU   ZERO+1                C4051019
0439                ERR EQU    BGNR+1                C4051020
043A                WCC EQU    ERR+1                 C4051021
043B                MTRM EQU   WCC+1                 C4051022
043C                TRFX EQU   MTRM+1                C4051023
043D                TERM EQU   TRFX+1                C4051024
043E                LWC EQU    TERM+1                C4051025
043F                LGROP EQU  LWC+1                 C4051026
0440                STBF EQU   LGROP+1               C4051027
0441                SRTRY EQU  STBF+1                C4051028
0C17 0  0005        SKI1 DC    /0005                 C4051029
0C18 0  FFFF        SKI2 DC    /FFFF                 C4051030
0C19 0  0000        SKI3 DC    0                     C4051031
0C1A 0  0000        SKI4 DC    0                     C4051032
0C18 00 4C000138    END1 BSC L ENDO                  C4051033
0C1E    0C1B            END    END1          C405103 C4051043
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
EGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
END0	0138	0C17, 0C18
END1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	010F	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

```
0000                    ORG     **+3095                          C4060001
012C                KEY EQU     300                              C4060002
012D                CKYN EQU    KEY+1                            C4060003
012E                SSUER EQU   CKYN+1                           C4060004
012F                SIL EQU     SSUER+1                          C4060005
0130                SILSW EQU   SIL+1                            C4060006
0131                SCH EQU     SILSW+1                          C4060007
0132                SER EQU     SCH+1                            C4060008
0133                SECSU EQU   SER+1                            C4060009
0134                SKIN1 EQU   SECSU+1                          C4060010
0135                SKIN0 EQU   SKIN1+1                          C4060011
0136                PDKYB EQU   SKIN0+1                          C4060012
0137                PHKYB EQU   PDKYB+1                          C4060013
0138                END0 EQU    PHKYB+1                          C4060014
013A                S2 EQU      END0+2                           C4060015
013E                BINRY EQU   S2+4                             C4060016
01DF                KEYIN EQU   BINRY+161                        C4060017
0437                ZERO EQU    KEYIN+600                        C4060018
0438                BGNR EQU    ZERO+1                           C4060019
0439                ERR EQU     BGNR+1                           C4060020
043A                WCC EQU     ERR+1                            C4060021
043B                MTRM EQU    WCC+1                            C4060022
043C                TRFX EQU    MTRM+1                           C4060023
043D                TERM EQU    TRFX+1                           C4060024
043E                LWC EQU     TERM+1                           C4060025
043F                LGROP EQU   LWC+1                            C4060026
0440                STBF EQU    LGROP+1                          C4060027
0441                SRTRY EQU   STBF+1                           C4060028
0C17 0  0006        SKI1 DC     /0006       PID                  C4060029
0C18 0  0000        SKI2 DC     /0000       CD NO                C4060030
0C19 0  000A        SKI3 DC     /000A       NO OF ENTRIES        C4060031
0C1A 0  630A        SKI4 LDX    3 10                             C4060032
0C1B 0  1610             SLA    16                               C4060033
0C1C 01 D7000CD0    SK9  STO    L3 SWB1-1   CLEAR DATA STORAGE   C4060034
0C1E 0  73FF             MDX    3 -1        DECR IX 3            C4060035
0C1F 0  70FC             MDX    SK9         LOOP                 C4060036
0C20 01 C4000CC8         LD     L KO001                          C4060037
0C22 01 D4000CCA         STO    L MONSW     SET SW               C4060038
0C24 00 4480012E         BSI    I SSUER     SET ERROR RETURN SRC C4060039
0C26 00 4480012C         BSI    I KEY       ENTER TOTAL TYPES SRC C4060040
0C28 1  0003             DC     SM1                              C4060041
0C29 0  8110             DC     /8110                            C4060042
                *                                                C4060043
0C2A 00 C400013E         LD     L BINRY     GET ENTRY            C4060044
0C2C 01 4C180CF6         BSC    L SKE01,+-  BR IF ZERO           C4060045
0C2E 01 B4000CCD         CMP    L KO008     CK FOR MAX           C4060046
0C30 0  703F             MDX    SKE02       ERROR                C4060047
0C31 0  1000             NOP    0                                C4060048
0C32 01 D4000CCF         STO    L TYCT      SAVE                 C4060049
0C34 01 D4000CD0         STO    L TYCT1                          C4060050
                *                                                C4060051
0C36 00 4480012E    SK2  BSI    I SSUER     SET ERROR RETURN SRC C4060052
0C38 00 4480012C         BSI    I KEY       IL FOR TYPE      SRC C4060053
0C3A 1  0D27             DC     SM2                              C4060054
0C3B 0  8120             DC     /8120                            C4060055
                *                                                C4060056
0C3C 00 4480012F         BSI    I SIL       CK IL            SRC C4060057
0C3E 01 D4000CC4         STO    L TEMP      SAVE                 C4060058
                *                                                C4060059
0C40 00 4480012E         BSI    I SSUER     SET ERROR RETURN SRC C4060060
0C42 00 4480012C         BSI    I KEY       ENTER ILSW       SRC C4060061
0C44 1  0C4A             DC     SM3                              C4060062
0C45 0  8120             DC     /8120                            C4060063
                *                                                C4060064
0C46 00 44800130         BSI    I SILSW     OK ILSW BIT      SRC C4060065
0C48 01 F4000CC4         EOR    L TEMP      BUILD DDEF           C4060066
0C4A 01 F4000CCE         EOR    L HOOOF                          C4060067
0C4C 0  0077             STO    TEMP                             C4060068
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                *                                                C4060069
0C4D 00 4480012E         BSI    I SSUER     SET ERROR RETURN SRC C4060070
0C4F 00 4480012C         BSI    I KEY       ENTER TYPE NO    SRC C4060071
0C51 1  0D75             DC     SM5                              C4060072
0C52 0  8110             DC     /8110                            C4060073
                *                                                C4060074
0C53 00 C400013E         LD     L BINRY     GET ENTRY            C4060075
0C55 01 4C180CF9         BSC    L SKE03,+-  BR IF ZERO           C4060076
0C57 0  B075             CMP    KO008       CK FOR MAX           C4060077
0C58 0  7068             MDX    SKE04       ERROR                C4060078
0C59 0  1000             NOP    0                                C4060079
0C5A 01 D4000C5D         STO    L S4+1                           C4060080
0C5C 00 67000000    S4   LDX    L3 0                             C4060081
0C5E 01 74000CCA         MDX    L MONSW,0   IS MON DV SET        C4060082
0C60 0  7002             MDX    T2                               C4060083
0C61 01 4C000C6C         BSC    L SK3                            C4060084
0C63 00 4480012E    T2   BSI    I SSUER     SET ERROR RETURN SRC C4060085
                *                                                C4060086
0C65 00 4480012C         BSI    I KEY       IS THIS MON DEV  SRC C4060087
0C67 1  0D93             DC     SM6                              C4060088
0C68 0  8000             DC     /8000                            C4060089
                *                                                C4060090
0C69 00 44800120         BSI    I CKYN      CK FOR Y OR N    SRC C4060091
0C6B 0  7007             MDX    SK4         ENTRY WAS Y          C4060092
                *                                                C4060093
0C6C 0  C057        SK3  LD     TEMP        GET DDEF             C4060094
0C6D 01 D7000CD1    SKA  STO    L3 SWB1                          C4060095
0C6F 0  7018             MDX    SK5                              C4060096
0C70 00 44800132    SKE02 BSI   I SER       MORE THAN 8 TYPES SRC C4060097
0C72 1  0DDE             DC     SE001                            C4060098
                *                                                C4060099
0C73 0  C050        SK4  LD     TEMP                             C4060100
0C74 0  D05C             STO    SWB1                             C4060101
0C75 0  1010             SLA    16                               C4060102
0C76 01 D7000CD1         STO    L3 SWB1                          C4060103
0C78 01 D4000CCA         STO    L MONSW     CLEAR MON SW         C4060104
0C7A 01 C7000CD1         LD     L3 SWB1     GET ENTRY            C4060105
0C7C 0  4820             BSC    Z           SKIP IF ZERO         C4060106
0C7D 0  700D             MDX    SK5         BRANCH               C4060107
0C7E 0  6302             LDX    3 2         SET IX               C4060108
0C7F 01 C4000C5D         LD     L S4+1      GET ID               C4060109
0C81 0  F046             EOR    K0001       CK FOR 1             C4060110
0C82 01 4C180C99         BSC    L SK5A,+-   BRANCH IF 1          C4060111
0C84 01 C4000C5D         LD     L S4+1      GET ID               C4060112
0C86 01 F4000CCC         EOR    L K0005     CK FOR 5             C4060113
0C88 01 4C200CA2         BSC    L SK7,Z     BRANCH IF NOT 5      C4060114
0C8A 0  700E             MDX    SK5A        BRANCH               C4060115
0C8B 0  6300        SK5  LDX    3 0                              C4060116
0C8C 01 C4000C5D         LD     L S4+1      GET NUMBER           C4060117
0C8E 01 F4000CC8         EOR    L K0001     IS IT 1              C4060118
0C90 01 4C180C99         BSC    L SK5A,+-   YES                  C4060119
0C92 0  6301             LDX    3 1                              C4060120
0C93 01 C4000C5D         LD     L S4+1      GET NUMBER           C4060121
0C95 01 F4000CCC         EOR    L K0005     IS IT 5              C4060122
0C97 01 4C200CA2         BSC    L SK7,Z     NO                   C4060123
0C99 00 4480012E    SK5A BSI    I SSUER     SET ERROR RETURN SRC C4060124
0C9B 00 4480012C         BSI    I KEY       IS IT 1816       SRC C4060125
0C9D 1  0DBD             DC     SM7                              C4060126
0C9E 0  8000             DC     /8000                            C4060127
                *                                                C4060128
0C9F 00 44800120         BSI    I CKYN      CK FOR Y OR N    SRC C4060129
0CA1 0  7004             MDX    SK6         ENTRY WAS Y          C4060130
                *                                                C4060131
0CA2 01 74FF0CCF    SK7  MDX    L TYCT,-1   DECR TYPE CT          C4060132
0CA4 0  7091             MDX    SK2         LOOP                 C4060133
0CA5 0  7035             MDX    SK8         EXIT                 C4060134
0CA6 01 C7000CC5    SK6  LD     L3 TBL      SET 1816 IND         C4060135
0CA8 0  F031             EOR    SWB10                            C4060136
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0CA9 0  D030            STO     SWB10
0CAA 0  73FF            MDX   3 -1              DECR IX 3
0CA8 0  7001            MDX     SKS0            BRANCH
0CAC 0  70F5            MDX     SK7
0CAD 01 C4000C5D  SKSC  LD    L S4+1            GET ID
0CAF 0  F018            EOR     K0001           IS IT 1
0CB0 01 4C180CB4        BSC   L SKS1,+-         YES
0CB2 0  6301            LDX   3 1               SET IX
0CB3 0  70F2            MDX     SK6
0CB4 0  6300      SKS1  LDX   3 0               SET IX
0CB5 0  70FU            MDX     SK6
                *
0CB6 01 65800C17  SKB   LDX   I1 SKI1           SET IXING
0CB8 01 66800C18        LDX   I2 SKI2
0CBA 01 67800C19        LDX   I3 SKI3
                *
0CBC 00 44800133        BSI   I SECSU           SET CARD        SRC
0CBE 1  0CD1            DC      SWB1
0CBF 00 4C000134        BSC   L S2              EXIT
0CC1 00 44800132  SKE04 BSI   I SER             FLD GREATER 8   SRC
0CC3 1  0DDE            DC      SE001
                *
0CC4 0  0000      TEMP  DC      0               CONSTANTS
0CC5 0  4000      TBL   DC      /4000
0CC6 0  0400            DC      /0400
0CC7 0  8000            DC      /8000
0CC8 0  0001      K0001 DC      1
0CC9 1  0CDA      KLMT  DC      SWB10
0CCA 0  0000      MONSW DC      0
0CCB 0  0400            DC      /0400
0CCC 0  0005      K0005 DC      5
0CCD 0  0008      K0008 DC      8
0CCE 0  000F      H000F DC      /000F
0CCF 0  0000      TYCT  DC      0
0CD0 0  0000      TYCT1 DC      9
0CD1 0  0000      SWB1  DC      0               DATA STORAGE
0CD2 0  0000      SWB2  DC      0
0CD3 0  0000      SWB3  DC      0
0CD4 0  0000      SWB4  DC      0
0CD5 0  0000      SWB5  DC      0
0CD6 0  0000      SWB6  DC      0
0CD7 0  0000      SWB7  DC      0
0CD8 0  0000      SWB8  DC      0
0CD9 0  0000      SWB9  DC      0
0CDA 0  0000      SWB10 DC      0
                *
0CDB 01 67800CD0  SK8   LDX   I3 TYCT1
0CDD 00 6500FFF8        LDX   L1 -8
0CDF 01 66000CD2        LDX   L2 SWB2
0CE1 0  6A01            STX     2 SKX+1
0CE2 00 66000000  SKX   LDX   L2 0              CK DDEFS
0CE4 01 C5000CD9  SKX1  LD    L1 SWB1+8
0CE6 01 4C180CEB        BSC   L SKA1,+-
0CE8 0  F200            EOR     2 0
0CE9 01 4C180CFC        BSC   L SKE05,+-
0CEB 0  7201      SKA1  MDX     2 1
0CEC 0  6AD7            STX     2 TEMP
0CED 0  C0DB            LD      KLMT
0CEE 0  F0D5            EOR     TEMP
0CEF 01 4C200CE4        BSC   L SKX1,Z
0CF1 01 74010CE3        MDX   L SKX+1,1
0CF3 0  7101            MDX     1 1
0CF4 0  70ED            MDX     SKX
0CF5 0  70C0            MDX     SKB
                *
0CF6 00 44800132  SKE01 BSI   I SER             ZERO TYPES      SRC
0CF8 1  0DDE            DC      SE001
0CF9 00 44800132  SKE03 BSI   I SER             FLD ZERC        SRC
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0CFB 1  0DDE            DC      SE001
0CFC 01 65000C1A  SKE05 LDX   L1 SKI4
0CFE 00 6D000441        STX   L1 SRTRY
0D00 00 44800132        BSI   I SER             2 DDEFS ALIKE   SRC
0D02 1  0DF5            DC      SE005
                *
0D03    0012    SM1     EBC     .C004  PID 06-CD 00.
0D0C    0012            EBC     .  ENTER NUMBER OF .
0D15    0012            EBC     .TYPEWRITERS ON SYS.
0D1E    0010            EBC     .TEM-1-8, 1 DIGIT.
0D26 0  FFFF            DC      /FFFF
                *
0D27    0012    SM2     EBC     .C001  PID 06-CD 00.
0D30    0012            EBC     .  ENTER 2 DIGIT DE.
0D39    0012            EBC     .CIMAL INTR LVL FOR.
0D42    000D            EBC     . A TYPEWRITER.
0D49 0  FFFF            DC      /FFFF
                *
0D4A    0012    SM3     EBC     .C002  PID 06-CD 0..
0D53    0012            EBC     .  ENTER 2 DIGIT DE.
0D5C    0012            EBC     .CIMAL ILSW BIT FOR.
0D65    0012            EBC     . TYPEWRITER ON ABO.
0D6E    000B            EBC     .VE INTR LVL.
0D74 0  FFFF            DC      /FFFF
                *
0D75    0012    SM5     EBC     .C037  PID 06-CD 00.
0D7E    0012            EBC     .  ENTER 1 DIGIT TY.
0D87    0012            EBC     .PEWRITER ID NUMBER.
0D90    0004            EBC     .-1-8.
0D92 0  FFFF            DC      /FFFF
                *
0D93    0012    SM6     EBC     .C036  PID 06-CD 00.
0D9C    0012            EBC     .  IS THE ABOVE ID .
0DA5    0012            EBC     .NUMBER FOR DIAG MO.
0DAE    0012            EBC     .N OUTPUT DEVICE-TY.
0DB7    0009            EBC     .PE Y OR N.
0DBC 0  FFFF            DC      /FFFF
                *
0DBD    0012    SM7     EBC     .C036  PID 06-CD 00.
0DC6    0012            EBC     .  IS THE ABOVE ID .
0DCF    0012            EBC     .NUMBER FOR 1816-TY.
0DD8    0009            EBC     .PE Y OR N.
0DDD 0  FFFF            DC      /FFFF
                *
0DDE    0012    SE001   EBC     .E007  PID 06-CD 00.
0DE7    0012            EBC     .  ENTRY TOO LARGE .
0DF0    0008            EBC     . OR 0000.
0DF4 0  FFFF            DC      /FFFF
                *
0DF5    0012    SE005   EBC     .E006  PID 06-CD 00.
0DFE    0012            EBC     .  2 OR MORE ENTRIE.
0E07    000F            EBC     .S ARE IDENTICAL.
0E0F 0  FFFF            DC      /FFFF
                *
0E10 00 4C000138  END1  BSC   L ENDO
0E12    0E10            END     END1
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C4060269
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CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17, 0C2A, 0C53
CKYN	012D	0C17, 0C69, 0C9F
END0	0138	0C17, 0E10
END1	0E10	0E12
ERR	0439	0C17
HOOUF	0CCE	0C4A
KEY	012C	0C17, 0C2a, 0C38, 0C42, 0C4F, 0C65, 0C98
KEYIN	010F	0C17
KLMT	0CC9	0CED
K0001	0CC8	0C20, 0C81, 0C8E, 0CAF
K0005	0CCC	0C86, 0C95
K0008	0CCD	0C2E, 0C57
LGROP	043F	0C17
LWC	043E	0C17
MONSW	0CCA	0C22, 0C5E, 0C78
MTRM	043B	0C17
PUKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17, 0C8C
SER	0132	0C17, 0C70, 0CC1, 0CF6, 0CF9, 0D00
SE001	0DDE	0C72, 0CC3, 0CF8, 0CFB
SE005	0DF5	0D02
SIL	012F	0C17, 0C3C
SILSW	0130	0C17, 0C46
SKA	0C6D	
SKA1	0CE8	0CE6
SKB	0CB6	0CF5
SKE01	0CF6	0C2C
SKE02	0C70	0C30
SKE03	0CF9	0C55
SKE04	0CC1	0C58
SKE05	0CFC	0CE9
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0CB6
SKI2	0C18	0CB8
SKI3	0C19	0CBA
SKI4	0C1A	0CFC
SKS0	0CAD	0CAB
SKS1	0CB4	0CB0
SKX	0CE2	0CE1, 0CF1, 0CF4
SKX1	0CE4	0CEF
SK2	0C36	0CA4
SK3	0C6C	0C61
SK4	0C73	0C6B
SK5	0C8B	0C6F, 0C7D
SK5A	0C99	0C82, 0C8A, 0C90
SK6	0CA6	0CA1, 0CB3, 0CB5
SK7	0CA2	0C88, 0C97, 0CAC
SK8	0CDB	0CA5
SK9	0C1C	0C1F
SM1	0DU3	0C28
SM2	0D27	0C3A
SM3	0D4A	0C44
SM5	0D75	0C51
SM6	0D93	0C67
SM7	0D3D	0C9D
SRTRY	0441	0CFE
SSUER	012E	0C17, 0C24, 0C36, 0C40, 0C4D, 0C63, 0C99
STBF	0440	0C17
SWB1	0CD1	0C1C, 0C6D, 0C74, 0C76, 0C7A, 0CBE, 0CE4
SWB10	0CDA	0CA8, 0CA9, 0CC9
SWB2	0CD2	0CDF
SWB3	0CD3	
SWB4	0CD4	
SWB5	0CD5	
SWB6	0CD6	
SWB7	0CD7	
SWB8	0CD8	
SWB9	0CD9	
S2	013A	0C17, 0CBF
S4	0C5C	0C5A, 0C7F, 0C84, 0C8C, 0C93, 0CAD
TBL	0CC5	0CA6
TEMP	0CC4	0C3E, 0C48, 0C4C, 0C6C, 0C73, 0CEC, 0CEE
TERM	043D	0C17
TRFX	043C	0C17
TYCT	0CCF	0C32, 0CA2
TYCT1	0CD0	0C34, 0CD8
T2	0C63	0C60
WCC	043A	0C17
ZERO	0437	0C17

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0000                        ORG     *+3095
012C                KEY     EQU     300
012D                CKYN    EQU     KEY+1
012E                SSUER   EQU     CKYN+1
012F                SIL     EQU     SSUER+1
0130                SILSW   EQU     SIL+1
0131                SCH     EQU     SILSW+1
0132                SER     EQU     SCH+1
0133                SECSU   EQU     SER+1
0134                SKIN1   EQU     SECSU+1
0135                SKINO   EQU     SKIN1+1
0136                PDKYB   EQU     SKINO+1
0137                PHKYB   EQU     PDKYB+1
0138                ENDO    EQU     PHKYB+1
013A                S2      EQU     ENDO+2
013E                BINRY   EQU     S2+4
01DF                KEYIN   EQU     BINRY+161
0437                ZERO    EQU     KEYIN+600
0438                BGNR    EQU     ZERO+1
0439                ERR     EQU     BGNR+1
043A                WCC     EQU     ERR+1
043B                MTRM    EQU     WCC+1
043C                TRFX    EQU     MTRM+1
043D                TERM    EQU     TRFX+1
043E                LWC     EQU     TERM+1
043F                LGROP   EQU     LWC+1
0440                STBF    EQU     LGROP+1
0441                SRTRY   EQU     STBF+1
0C17 0  0006        SKI1    DC      /0006
0C18 0  FFFF        SKI2    DC      /FFFF
0C19 0  0000        SKI3    DC      0
0C1A 0  0000        SKI4    DC      0
0C1B 00 4C000138    END1    BSC  L  ENDO
0C1E    0C1B                END     END1
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                    C4061001
                    C4061002
                    C4061003
                    C4061004
                    C4061005
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                    C4061020
                    C4061021
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                    C4061024
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                    C4061028
                    C4061029
                    C4061030
                    C4061031
                    C4061032
                    C4061033
C406103             C4061043
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CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0138	0C17, 0C1B
END1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

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0000                    ORG     *+3095                                  C4070001
012C                KEY EQU     300                                     C4070002
012D                CKYN EQU    KEY+1                                   C4070003
012E                SSUER EQU   CKYN+1                                  C4070004
012F                SIL EQU     SSUER+1                                 C4070005
0130                SILSW EQU   SIL+1                                   C4070006
0131                SCH EQU     SILSW+1                                 C4070007
0132                SER EQU     SCH+1                                   C4070008
0133                SECSU EQU   SER+1                                   C4070009
0134                SKIN1 EQU   SECSU+1                                 C4070010
0135                SKIN0 EQU   SKIN1+1                                 C4070011
0136                PDKYB EQU   SKIN0+1                                 C4070012
0137                PHKYB EQU   PDKYB+1                                 C4070013
0138                ENDO EQU    PHKYB+1                                 C4070014
013A                S2 EQU      ENDO+2                                  C4070015
013E                BINRY EQU   S2+4                                    C4070016
01DF                KEYIN EQU   BINRY+161                               C4070017
0437                ZERO EQU    KEYIN+600                               C4070018
0438                BGNR EQU    ZERO+1                                  C4070019
0439                ERR EQU     BGNR+1                                  C4070020
043A                WCC EQU     ERR+1                                   C4070021
043B                MTRM EQU    WCC+1                                   C4070022
043C                TRFX EQU    MTRM+1                                  C4070023
043D                TERM EQU    TRFX+1                                  C4070024
043E                LWC EQU     TERM+1                                  C4070025
043F                LGROP EQU   LWC+1                                   C4070026
0440                STBF EQU    LGROP+1                                 C4070027
0441                SRTRY EQU   STBF+1                                  C4070028
0C17 0  0007        SKI1 DC     /0007       PID                         C4070029
0C18 0  0000        SKI2 DC     /0000       CD NO                       C4070030
0C19 0  0003        SKI3 DC     /0003       NO ENTRIES                  C4070031
0C1A 00 4480012E    SKI4 BSI  I SSUER       SET ERROR RETURN      SRC   C4070032
0C1C 00 4480012C         BSI  I KEY         ENTER IL              SRC   C4070033
0C1E 1  0C89             DC     SM1                                      C4070034
0C1F 0  8120             DC     /8120                                    C4070035
                *                                                       C4070036
0C20 00 4480012F         BSI  I SIL         CK INT LVL            SRC   C4070037
0C22 01 D4000C84         STO  L SWB1        SAVE                        C4070038
                *                                                       C4070039
0C24 00 4480012E    SK1A BSI  I SSUER       SET ERROR RETURN      SRC   C4070040
0C26 00 4480012C         BSI  I KEY         ENTER ILSW            SRC   C4070041
0C28 1  0CAB             DC     SM2                                      C4070042
0C29 0  8120             DC     /8120                                    C4070043
                *                                                       C4070044
0C2A 00 44800130         BSI  I SILSW       CK ILSW BIT           SRC   C4070045
0C2C 01 D4000C85         STO  L SWB2        SAVE                        C4070046
                *                                                       C4070047
0C2E 00 4480012E         BSI  I SSUER       SET ERROR RETURN      SRC   C4070048
0C30 00 4480012C         BSI  I KEY         ENTER CHANNEL         SRC   C4070049
0C32 1  0CCC             DC     SM3                                      C4070050
0C33 0  8110             DC     /8110                                    C4070051
                *                                                       C4070052
0C34 00 44800131         BSI  I SCH         CK CHANNEL            SRC   C4070053
0C36 01 D4000C86         STO  L SWB3        SAVE                        C4070054
                *                                                       C4070055
0C38 00 4480012E         BSI  I SSUER       SET ERROR RETURN      SRC   C4070056
0C3A 00 4480012C         BSI  I KEY         IS DR 0 A 9 TRK       SRC   C4070057
0C3C 1  0CEA             DC     SM4                                      C4070058
0C3D 0  8000             DC     /8000                                    C4070059
                *                                                       C4070060
0C3E 00 4480012D         BSI  I CKYN        CK FOR Y OR N         SRC   C4070061
0C40 0  7005             MDX    SK1E        ENTRY WAS Y                 C4070062
                *                                                       C4070063
                *                   DRIVE IS 7 TRACK                    C4070064
                *                                                       C4070065
0C41 01 C4000C82    SK1B LD   L TR7         SET DR 0 = 7 TRK            C4070066
0C43 01 D4000C87         STO  L SWB4        SAVE                        C4070067
0C45 0  7004             MDX    SK1C                                     C4070068
```



```
                *                                                       C4070069
                *                   DRIVE IS 9 TRACK                    C4070070
                *                                                       C4070071
0C46 01 C4000C83    SK1E LD   L TR9         SET DR 0 = 9 TRK            C4070072
0C48 01 D4000C87         STO  L SWB4        SAVE                        C4070073
                *                                                       C4070074
0C4A 00 4480012E    SK1C BSI  I SSUER       SET ERROR RETURN      SRC   C4070075
0C4C 00 4480012C         BSI  I KEY         IS DR 1 AVAIL         SRC   C4070076
0C4E 1  0D09             DC     SM5                                      C4070077
0C4F 0  8000             DC     /8000                                    C4070078
                *                                                       C4070079
0C50 00 4480012D         BSI  I CKYN        CK FOR Y OR N         SRC   C4070080
0C52 0  7001             MDX    SK15        ENTRY WAS Y                 C4070081
0C53 0  7013             MDX    SK1F        ENTRY WAS N                 C4070082
                *                                                       C4070083
0C54 00 4480012E    SK15 BSI  I SSUER       SET ERROR RETURN      SRC   C4070084
0C56 00 4480012C         BSI  I KEY         IS DR 1 9 TRK         SRC   C4070085
0C58 1  0D28             DC     SM5                                      C4070086
0C59 0  8000             DC     /8000                                    C4070087
                *                                                       C4070088
0C5A 00 4480012D         BSI  I CKYN        CK FOR Y OR N         SRC   C4070089
0C5C 0  7005             MDX    SK20        ENTRY WAS Y                 C4070090
                *                                                       C4070091
                *                   DRIVE 1 IS 7 TRACK                  C4070092
                *                                                       C4070093
0C5D 01 C4000C82    SK18 LD   L TR7         SET DR 1 = 7 TRK            C4070094
0C5F 01 D4000C88         STO  L SWB5        SAVE                        C4070095
0C61 0  7009             MDX    SK21                                     C4070096
                *                                                       C4070097
                *                   DRIVE 1 IS 9 TRACK                  C4070098
                *                                                       C4070099
0C62 01 C4000C83    SK20 LD   L TR9         SET DR 1 = 9 TRK            C4070100
0C64 01 D4000C88         STO  L SWB5        SAVE                        C4070101
0C66 0  7004             MDX    SK21                                     C4070102
0C67 00 C400043D    SK1F LD   L TERM        SET DR 1 NOT AVAIL          C4070103
0C69 01 D4000C88         STO  L SWB5        SAVE                        C4070104
0C6B 01 65000C84    SK21 LDX  L1 SWB1       BUILD DDEF                  C4070105
0C6D 0  C100             LD   1 0                                        C4070106
0C6E 0  F101             EOR  1 1                                        C4070107
0C6F 0  F102             EOR  1 2                                        C4070108
0C70 0  D100             STO  1 0           SAVE                        C4070109
                *                                                       C4070110
0C71 01 C4000C87         LD   L SWB4        SET DR 0-NO TRKS            C4070111
0C73 0  D101             STO  1 1                                        C4070112
                *                                                       C4070113
0C74 01 C4000C88         LD   L SWB5        SET DR 1-NO TRKS            C4070114
0C76 0  D102             STO  1 2                                        C4070115
                *                                                       C4070116
0C77 01 66800C18         LDX  I2 SKI2       SET IXING                   C4070117
0C79 01 65800C17         LDX  I1 SKI1                                    C4070118
0C7B 01 67800C19         LDX  I3 SKI3                                    C4070119
                *                                                       C4070120
0C7D 00 44800133         BSI  I SECSU       SET CARD              SRC   C4070121
0C7F 1  0C84             DC     SWB1                                     C4070122
0C80 00 4C00013A         BSC  L S2          EXIT                        C4070123
                *                                                       C4070124
                *                                                       C4070125
0C82 0  0001        TR7  DC     /0001       CONSTANTS                   C4070126
0C83 0  0000        TR9  DC     /0000                                   C4070127
0C84 0  0000        SWB1 DC     0           ENTRY STORAGE               C4070128
0C85 0  0000        SWB2 DC     0                                       C4070129
0C86 0  0000        SWB3 DC     0                                       C4070130
0C87 0  0000        SWB4 DC     0                                       C4070131
0C88 0  0000        SWB5 DC     0                                       C4070132
                *                                                       C4070133
0C89    0012        SM1  EBC    .C001  PID 07-CD 00.                    C4070134
0C92    0012             EBC    .  ENTER 2 DIGIT DE.                    C4070135
0C98    0012             EBC    .CIMAL INTRPT LVL F.                    C4070136
```

```
0CA4    000B            EBC     .OR MAG TAPE.
0CAA 0  FFFF            DC      /FFFF
                *
0CAB    0012    SM2     EBC     .C002  PID 07-CD 00.
0CB4    0012            EBC     .  ENTER 2 DIGIT DE.
0CBD    0012            EBC     .CIMAL ILSW BIT FOR.
0CC6    0009            EBC     . MAG TAPE.
0CCB 0  FFFF            DC      /FFFF
                *
0CCC    0012    SM3     EBC     .C003  PID 07-CD 00.
0CD5    0012            EBC     .  ENTER 1 DIGIT DE.
0CDE    0012            EBC     .CIMAL CH FOR MAG T.
0CE7    0003            EBC     .APE.
0CE9 0  FFFF            DC      /FFFF
                *
0CEA    0012    SM4     EBC     .C013  PID 07-CD 00.
0CF3    0012            EBC     .  IS TAPE DR 0 A 9.
0CFC    0012            EBC     . TRACK DRIVE-TYPE .
0D05    0006            EBC     .Y OR N.
0D08 0  FFFF            DC      /FFFF
                *
0D09    0012    SM5     EBC     .C005  PID 07-CD 00.
0D12    0012            EBC     .  DOES THIS SYSTEM.
0D1B    0012            EBC     . HAVE 2 DRS-TYPE Y.
0D24    0005            EBC     . OR N.
0D27 0  FFFF            DC      /FFFF
                *
0D28    0012    SM6     EBC     .C013  PID 07-CD 00.
0D31    0012            EBC     .  IS DR 1 A 9 TRK .
0D3A    0012            EBC     .DRIVE-TYPE Y OR N .
0D43 0  FFFF            DC      /FFFF
                *
0D44 00 4C000138 END1   BSC  L  ENDO
0D46    0D44            END     END1
```

```
        C4070137
        C4070138
        C4070139
        C4070140
        C4070141
        C4070142
        C4070143
        C4070144
        C4070145
        C4070146
        C4070147
        C4070148
        C4070149
        C4070150
        C4070151
        C4070152
        C4070153
        C4070154
        C4070155
        C4070156
        C4070157
        C4070158
        C4070159
        C4070160
        C4070161
        C4070162
        C4070163
        C4070164
        C4070165
        C4070166
        C4070167
        C4070168
        C4070169
C407016 C4070179
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17,0C3E,0C50,0C5A
ENDO	0138	0C17,0D44
END1	0D44	0D46
ERR	0439	0C17
KEY	012C	0C17,0C1C,0C26,0C30,0C3A,0C4C,0C56
KEYIN	01DF	0C17
LGRGP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17,0C34
SECSU	0133	0C17,0C7D
SER	0132	0C17
SIL	012F	0C17,0C20
SILSW	0130	0C17,0C2A
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C79
SKI2	0C18	0C77
SKI3	0C19	0C78
SKI4	0C1A	
SKI5	0C54	0C52
SKI8	0C5D	
SKIA	0C24	
SKIB	0C41	
SKIC	0C4A	0C45
SKIE	0C46	0C40
SKIF	0C67	0C53
SK20	0C62	0C5C
SK21	0C6B	0C61,0C66
SM1	0C89	0C1E
SM2	0CAB	0C28
SM3	0CCC	0C32
SM4	0CEA	0C3C
SM5	0D09	0C4E
SM6	0D28	0C58
SRTRY	0441	
SSUER	012E	0C17,0C1A,0C24,0C2E,0C38,0C4A,0C54
STBF	0440	0C17
SWB1	0C84	0C22,0C68,0C7F
SWB2	0C85	0C2C
SWB3	0C86	0C36
SWB4	0C87	0C43,0C48,0C71
SWB5	0C88	0C5F,0C64,0C69,0C74
S2	013A	0C17,0C80
TERM	043D	0C17,0C67
TRFX	043C	0C17
TR7	0C82	0C41,0C5D
TR9	0C83	0C46,0C62
WCC	043A	0C17
ZERO	0437	0C17

```
0000
012C
012D
012E
012F
0130
0131
0132
0133
0134
0135
0136
0137
0138
013A
013E
01DF
0437
0438
0439
043A
0438
043C
043D
043E
043F
0440
0441
0C17 0  0007
0C18 0  FFFF
0C19 0  0000
0C1A 0  0000
0C18 00 4C000138
0C1E    0C18

                ORG     *+3095
KEY     EQU     300
CKYN    EQU     KEY+1
SSUER   EQU     CKYN+1
SIL     EQU     SSUER+1
SILSW   EQU     SIL+1
SCH     EQU     SILSW+1
SER     EQU     SCH+1
SECSU   EQU     SER+1
SKIN1   EQU     SECSU+1
SKIN0   EQU     SKIN1+1
PDKYB   EQU     SKIN0+1
PHKYB   EQU     PDKYB+1
ENDO    EQU     PHKYB+1
S2      EQU     ENDO+2
BINRY   EQU     S2+4
KEYIN   EQU     BINRY+161
ZERO    EQU     KEYIN+600
BGNR    EQU     ZERO+
ERR     EQU     BGNR+
WCC     EQU     ERR+1
MTRM    EQU     WCC+1
TRFX    EQU     MTRM+1
TERM    EQU     TRFX+1
LWC     EQU     TERM+1
LGROP   EQU     LWC+1
STBF    EQU     LGROP+1
SRTRY   EQU     STBF+1
SKI1    DC      /0007
SKI2    DC      /FFFF
SKI3    DC      /0000
SKI4    DC      /0000
END1    BSC  L  ENDO
        END     END1
```

```
C4071001
C4071002
C4071003
C4071004
C4071005
C4071006
C4071007
C4071008
C4071009
C4071010
C4071011
C4071012
C4071013
C4071014
C4071015
C4071016
C4071017
C4071018
C4071019
C4071020
C4071021
C4071022
C4071023
C4071024
C4071025
C4071026
C4071027
C4071028
C4071029
C4071030
C4071031
C4071032
C4071033
C407103 C4071043
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0138	0C17, 0C1B
END1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

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0000                          ORG      *+3095
012C                    KEY   EQU      300                                  C4080001
012D                    CKYN  EQU      KEY+1                                C4080002
012E                    SSUER EQU      CKYN+1                               C4080003
012F                    SIL   EQU      SSUER+1                              C4080004
0130                    SILSW EQU      SIL+1                                C4080005
0131                    SCH   EQU      SILSW+1                              C4080006
0132                    SER   EQU      SCH+1                                C4080007
0133                    SECSU EQU      SER+1                                C4080008
0134                    SKIN1 EQU      SECSU+1                              C4080009
0135                    SKINO EQU      SKIN1+1                              C4080010
0136                    PDKYB EQU      SKINO+1                              C4080011
0137                    PHKYB EQU      PDKYB+1                              C4080012
0138                    ENDO  EQU      PHKYB+1                              C4080013
013A                    S2    EQU      ENDO+2                               C4080014
013E                    BINRY EQU      S2+4                                 C4080015
01DF                    KEYIN EQU      BINRY+161                            C4080016
0437                    ZERO  EQU      KEYIN+600                            C4080017
0438                    BGNR  EQU      ZERO+1                               C4080018
0439                    ERR   EQU      BGNR+1                               C4080019
043A                    WCC   EQU      ERR+1                                C4080020
043B                    MTRM  EQU      WCC+1                                C4080021
043C                    TRFX  EQU      MTRM+1                               C4080022
043D                    TERM  EQU      TRFX+1                               C4080023
043E                    LWC   EQU      TERM+1                               C4080024
043F                    LGROP EQU      LWC+1                                C4080025
0440                    STBF  EQU      LGROP+1                              C4080026
0441                    SRTRY EQU      STBF+1                               C4080027
0C17 0  0008            SKI1  DC       /0008      PID                       C4080028
0C18 0  0000            SKI2  DC       /0000      CD NO                     C4080029
0C19 0  0008            SKI3  DC       /0008      NO ENTRIES                C4080030
0C1A 00 4480012E        SKI4  BSI   I  SSUER      SET ERROR RETURN     SRC  C4080031
0C1C 00 4480012C              BSI   I  KEY        ENTER NO DEVICES     SRC  C4080032
0C1E 1  0E91                  DC       SM10                                 C4080033
0C1F 0  8110                  DC       /8110                                C4080034
                        *                                                   C4080035
0C20 00 C400013E              LD    L  BINRY      GET ENTRY                 C4080036
0C22 01 4C180CE6              BSC   L  SKE05,+-   BRANCH IF ZERO            C4080037
0C24 01 B4000CD5              CMP   L  K0003      CK MAX                    C4080038
0C26 0  7027                  MDX      SKE06      BRANCH IF TOO GREAT       C4080039
0C27 0  1000                  NOP      0                                    C4080040
0C28 01 D4000CD6              STO   L  NODEV      SAVE ENTRY                C4080041
0C2A 0  6303                  LDX    3 3                                    C4080042
0C2B 01 65000F2D              LDX   L1 SWB1                                 C4080043
0C2D 0  6203            SK00  LDX    2 3                                    C4080044
0C2E 01 6D000CC7        SK0   STX   L1 SKA1+1     SAVE IXING                C4080045
0C30 01 6E000CC9              STX   L2 SKA2+1     *                         C4080046
0C32 01 6F000CCB              STX   L3 SKA3+1     *                         C4080047
0C34 01 C4000CCE              LD    L  ERRET      SET ERROR RETURN          C4080048
0C36 00 D4000441              STO   L  SRTRY      *                         C4080049
0C38 01 C6000F1D              LD    L2 TBL-1      GET FORM                  C4080050
0C3A 0  D009                  STO      SK2        SET                       C4080051
0C3B 01 C7000F29              LD    L3 TBL3-1     GET TBL ADRS              C4080052
0C3D 0  D001                  STO      SK21+1     SET                       C4080053
0C3E 00 C6000000        SK21  LD    L2 0          GET MSG ADRS              C4080054
0C40 0  D002                  STO      SK1        SET                       C4080055
0C41 00 4480012C              BSI   I  KEY        PRINT                SRC  C4080056
0C43 1  0D71            SK1   DC       SM1                                  C4080057
0C44 0  8120            SK2   DC       /8120                                C4080058
0C45 01 4E800CE8              BSC   I2 CK-1       CHECK DATA           SRC  C4080059
0C47 0  D100            SK20  STO    1 0          SAVE                      C4080060
0C48 0  7101                  MDX    1 1          INCR IX 1                 C4080061
0C49 0  72FF                  MDX    2 -1         DECR IX 2                 C4080062
0C4A 0  70E3                  MDX      SK0        LOOP                      C4080063
0C4B 0  73FF            SK5   MDX    3 -1         DECR IX 3                 C4080064
0C4C 0  7004                  MDX      SK4        CHECK FOR NEXT DR         C4080065
0C4D 0  7006                  MDX      SK6        ALL DRS COMPLETE          C4080066
0C4E 00 44800132        SKE06 BSI   I  SFR        NO DRIVE GREATER 3   SRC  C4080067
                                                                            C4080068
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0C50 1  0D54                  DC       SE007
0C51 01 74FF0CD6        SK4   MDX   L  NODEV,-1   DECR NO OF DVICES         C4080069
0C53 0  70D9                  MDX      SK00       LOOP                      C4080070
0C54 01 65000F2D        SK6   LDX   L1 SWB1       SET IXING                 C4080071
0C56 01 67000F2D              LDX   L3 SWB1                                 C4080072
0C58 0  6203                  LDX    2 3                                    C4080073
0C59 0  C100            SK7   LD     1 0          BUILD DDEFS               C4080074
0C5A 0  F101                  EOR    1 1                                    C4080075
0C5B 0  F102                  EOR    1 2                                    C4080076
0C5C 0  D300                  STO    3 0          SAVE                      C4080077
0C5D 0  7103                  MDX    1 3          INCR IX 1                 C4080078
0C5E 0  7301                  MDX    3 1          INCR IX 3                 C4080079
0C5F 0  72FF                  MDX    2 -1         DECR IX 2                 C4080080
0C60 0  70F6                  MDX      SK7        LOOP                      C4080081
0C61 00 4480012E              BSI   I  SSUER      SET ERROR RETURN     SRC  C4080082
0C63 00 4480012C              BSI   I  KEY        ADRS CHANGE WANTED   SRC  C4080083
0C65 1  0E82                  DC       SM12                                 C4080084
0C66 0  8000                  DC       /8000                                C4080085
0C67 00 4480012D              BSI   I  CKYN       CHECK FOR Y OR N     SRC  C4080086
0C69 0  7001                  MDX      SK10       ENTRY WAS Y               C4080087
0C6A 0  7049                  MDX      OUT        ENTRY WAS N               C4080088
0C6B 00 4480012E        SK10  BSI   I  SSUER      SET ERROR RETURN     SRC  C4080089
0C6D 00 4480012C              BSI   I  KEY        ENTER 3 DIGIT ADRS   SRC  C4080090
0C6F 1  0ED4                  DC       SM13                                 C4080091
0C70 0  8050                  DC       /8050                                C4080092
0C71 00 C40001DE              LD    L  KEYIN-1    GET WD CT                 C4080093
0C73 0  B058                  CMP      K0056      CK FOR MAX                C4080094
0C74 0  7062                  MDX      SKE00                                C4080095
0C75 0  1000                  NOP      0                                    C4080096
0C76 00 658001DE              LDX   I1 KEYIN-1    SET IXING                 C4080097
0C78 00 660001DF              LDX   L2 KEYIN                                C4080098
                        *                                                   C4080099
0C7A 0  C200            SK14  LD     2 0          GET ENTRY                 C4080100
0C7B 00 D40001DF              STO   L  KEYIN      MOVE                      C4080101
0C7D 00 C400043D              LD    L  TERM       GET TERM                  C4080102
0C7F 00 D40001E0              STO   L  KEYIN+1    SET                       C4080103
0C81 00 44800136              BSI   I  PDKYB      CONVERT DATA         SRC  C4080104
0C83 0  0001                  DC       1                                    C4080105
0C84 0  0437                  DC       ZERO                                 C4080106
0C85 00 C400013E              LD    L  BINRY      GET DATA                  C4080107
0C87 01 4C180CDD              BSC   L  SKE02,+-   ERROR                     C4080108
0C89 0  B046                  CMP      K0008      CK FOR MAX                C4080109
0C8A 0  704F                  MDX      SKE01      ERROR                     C4080110
0C8B 0  1000                  NOP      0                                    C4080111
0C8C 0  D020                  STO      SK13+2                               C4080112
0C8D 0  C202                  LD     2 2          GET ENTRY                 C4080113
0C8E 00 D40001DF              STO   L  KEYIN      MOVE DATA                 C4080114
0C90 0  C203                  LD     2 3                                    C4080115
0C91 00 D40001E0              STO   L  KEYIN+1                              C4080116
0C93 0  C204                  LD     2 4                                    C4080117
0C94 00 D40001E1              STO   L  KEYIN+2                              C4080118
                        *                                                   C4080119
0C96 00 C400043D              LD    L  TERM       GET TERM                  C4080120
0C98 00 D40001E2              STO   L  KEYIN+3    SET                       C4080121
0C9A 00 44800136              BSI   I  PDKYB      CONVERT ENTRIES      SRC  C4080122
0C9C 0  0003                  DC       3                                    C4080123
0C9D 0  0437                  DC       ZERO                                 C4080124
0C9E 00 C400013E              LD    L  BINRY      GET DATA                  C4080125
0CA0 0  B031                  CMP      K0089      CK FOR OK                 C4080126
0CA1 0  7002                  MDX      SK11       CONTINUE CKING            C4080127
0CA2 0  1000                  NOP      0                                    C4080128
0CA3 0  7007                  MDX      SK13       ENTRY OK                  C4080129
0CA4 0  B02E            SK11  CMP      K0111      CK ADRS                   C4080130
0CA5 0  7002                  MDX      SK12       CONTINUE CKING            C4080131
0CA6 0  703C                  MDX      SKE04      ERROR                     C4080132
0CA7 0  7003                  MDX      SK13       ENTRY OK                  C4080133
0CA8 0  B02B            SK12  CMP      K0202                                C4080134
0CA9 0  7036                  MDX      SKE03      ERROR                     C4080135
                                                                            C4080136
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```
0CAA 0  1000          NOP    0
0CAB 0  1003    SK13  SLA    3          MUL BY 8                    C4080137
0CAC 00 67000000      LDX  L3 0                                     C4080138
0CAE 01 D7000F37      STO  L3 SWB11                                 C4080139
0CB0 0  7301          MDX    3 1                                    C4080140
0CB1 0  7206          MDX    2 6                                    C4080141
0CB2 0  71FA          MDX    1 -6                                   C4080142
0CB3 0  70C6          MDX    SK14                                   C4080143
0CB4 0  6108    OUT   LDX    1 8         SET IXING                  C4080144
0CB5 01 C5000F37 SK15 LD   L1 SWB11                                 C4080145
0CB7 01 D5000F2F      STO  L1 SWB3                                  C4080146
0CB9 0  71FF          MDX    1 -1        DECR IX 1                  C4080147
0CBA 0  70FA          MDX    SK15                                   C4080148
0CBB 01 65800C17      LDX  I1 SKI1       SET IXING                  C4080149
0CBD 01 66800C18      LDX  I2 SKI2                                  C4080150
0CBF 01 67800C19      LDX  I3 SKI3                                  C4080151
0CC1 00 44800133      BSI  I  SECSU      SET UP CARD          SRC   C4080152
0CC3 1  0F2D          DC      SWB1                                  C4080153
0CC4 00 4C00013A      BSC  L  S2         EXIT                       C4080154
0CC6 00 65000000 SKA1 LDX  L1 0          RESTORE IXING              C4080155
0CC8 00 66000000 SKA2 LDX  L2 0          *                          C4080156
0CCA 00 67000000 SKA3 LDX  L3 0          *                          C4080157
0CCC 01 4C000C2E      BSC  L  SK0        ERROR RE-ENTRY             C4080158
0CCE 1  0CC6    ERRET DC      SKA1       ERROR RETURN               C4080159
0CCF 0  0031    K0056 DC      49         CONSTANTS                  C4080160
0CD0 0  0008    K0008 DC      8                                     C4080161
0CD1 0  0657    K0657 DC      /0657                                 C4080162
0CD2 0  0059    K0089 DC      89                                    C4080163
0CD3 0  006F    K0111 DC      111                                   C4080164
0CD4 0  00CA    K0202 DC      202                                   C4080165
0CD5 0  0003    K0003 DC      3                                     C4080166
0CD6 0  0000    NODEV DC      0                                     C4080167
0CD7 00 44800132 SKE00 BSI I  SER        TOO MANY ADRSS       SRC   C4080168
0CD9 1  0CF8          DC      SE001                                 C4080169
0CDA 00 44800132 SKE01 BSI I  SER        FIELD TOO GREAT      SRC   C4080170
0CDC 1  0CF8          DC      SE001                                 C4080171
0CDD 00 44800132 SKE02 BSI I  SER        FLD WAS ZERO         SRC   C4080172
0CDF 1  0CF8          DC      SE001                                 C4080173
0CE0 00 44800132 SKE03 BSI I  SER        ADRS TOO GREAT       SRC   C4080174
0CE2 1  0D0F          DC      SE004                                 C4080175
0CE3 00 44800132 SKE04 BSI I  SER        ILLEGAL ADRS         SRC   C4080176
0CE5 1  0D23          DC      SE005                                 C4080177
0CE6 00 44800132 SKE05 BSI I  SER        NUMBER DRS = 0       SRC   C4080178
0CE8 1  0D3C          DC      SE006                                 C4080179
0CE9 1  0CFC    CK    DC      CH                                    C4080180
0CEA 1  0CF0          DC      ILSW                                  C4080181
0CEB 1  0CF4          DC      IL                                    C4080182
0CEC 00 44800131 CH   BSI I   3CH        CK CHANNEL           SRC   C4080183
0CEE 01 4C000C47      BSC  L  SK20                                  C4080184
0CF0 00 44800130 ILSW BSI I   SILSW      CK ILSW BIT          SRC   C4080185
0CF2 01 4C000C47      BSC  L  SK20                                  C4080186
0CF4 00 4480012F IL   BSI I   SIL        CK INTR LVL          SRC   C4080187
0CF6 01 4C000C47      BSC  L  SK20                                  C4080188
                      *                                             C4080189
0CF8    0012  SE001 EBC     .E007  PID 08-CD 00.                    C4080190
0D01    0012        EBC     .  ENTRY TOO LARGE .                    C4080191
0D0A    0007        EBC     .OR 0000.                               C4080192
0D0E 0  FFFF        DC      /FFFF                                   C4080193
                      *                                             C4080194
0D0F    0012  SE004 EBC     .E00A  PID 08-CD 00.                    C4080195
0D18    0012        EBC     .  ADRS IS TOO GREA.                    C4080196
0D21    0001        EBC     .T.                                     C4080197
0D22 0  FFFF        DC      /FFFF                                   C4080198
                      *                                             C4080199
0D23    0012  SE005 EBC     .E008  PID 08-CD 00.                    C4080200
0D2C    0012        EBC     .  ADRS WAS BETWEEN.                    C4080201
0D35    000B        EBC     . 90 AND 110.                           C4080202
0D38 0  FFFF        DC      /FFFF                                   C4080203
                                                                    C4080204
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                      *                                             C4080205
0D3C    0012  SE006 EBC     .E00B  PID 08-CD 00.                    C4080206
0D45    0012        EBC     .  NUMBER OF DEVICE.                    C4080207
0D4E    000A        EBC     .S WAS 0000.                            C4080208
0D53 0  FFFF        DC      /FFFF                                   C4080209
                      *                                             C4080210
0D54    0012  SE007 EBC     .E009  PID 08-CD 00.                    C4080211
0D5D    0012        EBC     .  NUMBER OF DEVICE.                    C4080212
0D66    0012        EBC     .S WAS GREATER THAN.                    C4080213
0D6F    0002        EBC     . 3.                                    C4080214
0D70 0  FFFF        DC      /FFFF                                   C4080215
                      *                                             C4080216
0D71    0012  SM1   EBC     .C001  PID 08-CD 00.                    C4080217
0D7A    0012        EBC     .  ENTER 2 DIGIT DE.                    C4080218
0D83    0012        EBC     .CIMAL INTR LVL FOR.                    C4080219
0D8C    0009        EBC     . 1ST 2310.                             C4080220
0D91 0  FFFF        DC      /FFFF                                   C4080221
                      *                                             C4080222
0D92    0012  SM2   EBC     .C002  PID 08-CD 00.                    C4080223
0D9B    0012        EBC     .  ENTER 2 DIGIT DE.                    C4080224
0DA4    0012        EBC     .CIMAL ILSW BIT FOR.                    C4080225
0DAD    0009        EBC     . 1ST 2310.                             C4080226
0DB2 0  FFFF        DC      /FFFF                                   C4080227
                      *                                             C4080228
0DB3    0012  SM3   EBC     .C003  PID 08-CD 00.                    C4080229
0DBC    0012        EBC     .  ENTER 1 DIGIT DE.                    C4080230
0DC5    0012        EBC     .CIMAL CH FOR 1ST 2.                    C4080231
0DCE    0003        EBC     .310.                                   C4080232
0DD0 0  FFFF        DC      /FFFF                                   C4080233
                      *                                             C4080234
0DD1    0012  SM4   EBC     .C001  PID 08-CD 00.                    C4080235
0DDA    0012        EBC     .  ENTER 2 DIGIT DE.                    C4080236
0DE3    0012        EBC     .CIMAL INTR LVL FOR.                    C4080237
0DEC    0009        EBC     . 2ND 2310.                             C4080238
0DF1 0  FFFF        DC      /FFFF                                   C4080239
                      *                                             C4080240
0DF2    0012  SM5   EBC     .C002  PID 08-CD 00.                    C4080241
0DFB    0012        EBC     .  ENTER 2 DIGIT DE.                    C4080242
0E04    0012        EBC     .CIMAL ILSW BIT FOR.                    C4080243
0E0D    0009        EBC     . 2ND 2310.                             C4080244
0E12 0  FFFF        DC      /FFFF                                   C4080245
                      *                                             C4080246
0E13    0012  SM6   EBC     .C003  PID 08-CD 00.                    C4080247
0E1C    0012        EBC     .  ENTER 1 DIGIT DE.                    C4080248
0E25    0012        EBC     .CIMAL CH FOR 2ND 2.                    C4080249
0E2E    0003        EBC     .310.                                   C4080250
0E30 0  FFFF        DC      /FFFF                                   C4080251
                      *                                             C4080252
0E31    0012  SM7   EBC     .C001  PID 08-CD 00.                    C4080253
0E3A    0012        EBC     .  ENTER 2 DIGIT DE.                    C4080254
0E43    0012        EBC     .CIMAL INTR LVL FOR.                    C4080255
0E4C    0009        EBC     . 3RD 2310.                             C4080256
0E51 0  FFFF        DC      /FFFF                                   C4080257
                      *                                             C4080258
0E52    0012  SM8   EBC     .C002  PID 08-CD 00.                    C4080259
0E5B    0012        EBC     .  ENTER 2 DIGIT DE.                    C4080260
0E64    0012        EBC     .CIMAL ILSW BIT FOR.                    C4080261
0E6D    0009        EBC     . 3RD 2310.                             C4080262
0E72 0  FFFF        DC      /FFFF                                   C4080263
                      *                                             C4080264
0E73    0012  SM9   EBC     .C003  PID 08-CD 00.                    C4080265
0E7C    0012        EBC     .  ENTER 1 DIGIT DE.                    C4080266
0E85    0012        EBC     .CIMAL CH FOR 3RD 2.                    C4080267
0E8E    0003        EBC     .310.                                   C4080268
0E90 0  FFFF        DC      /FFFF                                   C4080269
                      *                                             C4080270
0E91    0012  SM10  EBC     .C004  PID 08-CD 00.                    C4080271
0E9A    0012        EBC     .  ENTER NUMBER OF .                    C4080272
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CPIO-DIAG MON SKELETONS   SKELETON ID-08C4-08-0

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0EA3    0012              EBC      .2310S ON SYSTEM-FR.                         C4080273
0EAC    0009              EBC      .OM 1 TO 3.                                  C4080274
0EB1 0  FFFF              DC       /FFFF                                        C4080275
                   *                                                            C4080276
0EB2    0012       SM12   EBC      .C006  PID 08-CD 00.                         C4080277
0EB8    0012              EBC      .  ARE ADRS REFEREN.                         C4080278
0EC4    0012              EBC      .CE CHANGES DESIRED.                         C4080279
0ECD    000C              EBC      .-TYPE Y OR N.                               C4080280
0ED3 0  FFFF              DC       /FFFF                                        C4080281
                   *                                                            C4080282
0ED4    0012       SM13   EBC      .C007  PID 08-CD 00.                         C4080283
0EDD    0012              EBC      .  ENTER 1 DIGIT DE.                         C4080284
0EE6    0012              EBC      .CIMAL FLD NUMBER T.                         C4080285
0EEF    0012              EBC      .O BE CHANGED FOLLO.                         C4080286
0EF8    0012              EBC      .WED$BY 3 DIGIT DEC.                         C4080287
0F01    0012              EBC      .IMAL ADRS DESIRED-.                         C4080288
0F0A    0012              EBC      .1-8 ENTRIES IN FOL.                         C4080289
0F13    0012              EBC      .LOWING FORMAT$D CD.                         C4080290
0F1C    0002              EBC      .D..                                         C4080291
0F1D 0  FFFF              DC       /FFFF                                        C4080292
                   *                                                            C4080293
0F1E 0  8110       TBL    DC       /8110                                        C4080294
0F1F 0  8120              DC       /8120                                        C4080295
0F20 0  8120              DC       /8120                                        C4080296
                   *                                                            C4080297
0F21 1  0DB3       TBL1   DC       SM3                                          C4080298
0F22 1  0D92              DC       SM2                                          C4080299
0F23 1  0D71              DC       SM1                                          C4080300
                   *                                                            C4080301
0F24 1  0E13       TBL4   DC       SM6                                          C4080302
0F25 1  0DF2              DC       SM5                                          C4080303
0F26 1  0DD1              DC       SM4                                          C4080304
                   *                                                            C4080305
0F27 1  0E73       TBL5   DC       SM9                                          C4080306
0F28 1  0E52              DC       SM8                                          C4080307
0F29 1  0E31              DC       SM7                                          C4080308
                   *                                                            C4080309
                   *                                                            C4080310
0F2A 1  0F26       TBL3   DC       TBL5-1                                       C4080311
0F2B 1  0F23              DC       TBL4-1                                       C4080312
0F2C 1  0F20              DC       TBL1-1                                       C4080313
                   *                                                            C4080314
0F2D 0  0000       SWB1   DC       0                                            C4080315
0F2E 0  0000       SWB2   DC       0                                            C4080316
0F2F 0  0000       SWB3   DC       0                                            C4080317
0F30 0  0000       SWB4   DC       0                                            C4080318
0F31 0  0000       SWB5   DC       0                                            C4080319
0F32 0  0000       SWB6   DC       0                                            C4080320
0F33 0  0000       SWB7   DC       0                                            C4080321
0F34 0  0000       SWB8   DC       0                                            C4080322
0F35 0  0000       SWB9   DC       0                                            C4080323
0F36 0  0000       SWB10  DC       0                                            C4080324
0F37 0  0000       SWB11  DC       0                                            C4080325
0F38 0  0000       SWB12  DC       /0000                                        C4080326
0F39 0  0008       SWB13  DC       /0008                                        C4080327
0F3A 0  0010       SWB14  DC       /0010                                        C4080328
0F3B 0  0018       SWB15  DC       /0018                                        C4080329
0F3C 0  0638       SWB16  DC       /0638                                        C4080330
0F3D 0  0640       SWB17  DC       /0640                                        C4080331
0F3E 0  0648       SWB18  DC       /0648                                        C4080332
0F3F 0  0650       SWB19  DC       /0650                                        C4080333
0F40 00 4C000138   END1   BSC   L  ENDO                                         C4080334
0F42    0F40              END      END1                              C408033 C4080344
```

CPIC-DIAG MON SKELETONS   SKELETON ID-08C4-08-0

CROSS REFERENCE LISTING

```
SYMBOL   VALUE    REFERENCES
BGNR     0436     0C17
BINRY    013E     0C17,0C20,0C85,0C9E
CH       0CEC     0CE9
CK       0CE9     0C45
CKYN     012D     0C17,0C67
ENDO     0138     0C17,0F40
END1     0F40     0F42
ERR      0439     0C17
ERRET    0CCE     0C34
IL       0CF4     0CEB
ILSW     0CF0     0CEA
KEY      012C     0C17,0C1C,0C41,0C63,0C6D
KEYIN    01DF     0C17,0C71,0C76,0C78,0C7B,0C7F,0C8E,0C91,0C94,0C98
K0003    0CD5     0C24
K0008    0CD0     0C89
K0056    0CCF     0C73
K0089    0CD2     0CA0
K0111    0CD3     0CA4
K0202    0CD4     0CA8
K0657    0CD1
LGROP    043F     0C17
LWC      043E     0C17
MTRM     043B     0C17
NODEV    0CD6     0C28,0C51
OUT      0CB4     0C6A
PDKYB    0136     0C17,0C81,0C9A
PHKYB    0137     0C17
SCH      0131     0C17,0CEC
SECSU    0133     0C17,0CC1
SER      0132     0C17,0C4E,0CD7,0CDA,0CDD,0CE0,0CE3,0CE6
SE001    0CF8     0CD9,0CDC,0CDF
SE004    0D0F     0CE2
SE005    0D23     0CE5
SE006    0D3C     0CE8
SE007    0D54     0C50
SIL      012F     0C17,0CF4
SILSW    0130     0C17,0CF0
SKA1     0CC6     0C2E,0CCE
SKA2     0CC8     0C30
SKA3     0CCA     0C32
SKE00    0CD7     0C74
SKE01    0CDA     0C8A
SKE02    0CDD     0C87
SKE03    0CE0     0CA9
SKE04    0CE3     0CA6
SKE05    0CE6     0C22
SKE06    0C4E     0C26
SKIN0    0135     0C17
SKIN1    0134     0C17
SKI1     0C17     0CBB
SKI2     0C18     0CBD
SKI3     0C19     0CBF
SKI4     0C1A
SK0      0C2E     0C4A,0CCC
SK00     0C2D     0C53
SK1      0C43     0C40
SK10     0C6B     0C69
SK11     0CA4     0CA1
SK12     0CA8     0CA5
SK13     0CAB     0C8C,0CA3,0CA7
SK14     0C7A     0CB3
SK15     0CB5     0CBA
SK2      0C44     0C3A
SK20     0C47     0CEE,0CF2,0CF6
SK21     0C3E     0C3D
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SK4	0C51	0C4C
SK5	0C4B	
SK6	0C54	0C4D
SK7	0C59	0C60
SM1	0D71	0C43,0F23
SM10	0E91	0C1E
SM12	0E82	0C65
SM13	0ED4	0C6F
SM2	0D92	0F22
SM3	0DB3	0F21
SM4	0DD1	0F26
SM5	0DF2	0F25
SM6	0E13	0F24
SM7	0E31	0F29
SM8	0E52	0F28
SM9	0E73	0F27
SRTRY	0441	0C36
SSUER	012E	0C17,0C1A,0C61,0C68
STBF	0440	0C17
SWB1	0F2D	0C2B,0C54,0C56,0CC3
SWB10	0F36	
SWB11	0F37	0CAE,0CB5
SWB12	0F38	
SWB13	0F39	
SWB14	0F3A	
SWB15	0F3B	
SWB16	0F3C	
SWB17	0F3D	
SWB18	0F3E	
SWB19	0F3F	
SWB2	0F2E	
SWB3	0F2F	0CB7
SWB4	0F30	
SWB5	0F31	
SWB6	0F32	
SWB7	0F33	
SWB8	0F34	
SWB9	0F35	
S2	013A	0C17,0CC4
TBL	0F1E	0C38
TBL1	0F21	0F2C
TBL3	0F2A	0C3B
TBL4	0F24	0F2B
TBL5	0F27	0F2A
TERM	043D	0C17,0C7D,0C96
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17,0C84,0C9D


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0000                ORG    *+3095
012C          KEY   EQU    300
012D          CKYN  EQU    KEY+1
012E          SSUER EQU    CKYN+1
012F          SIL   EQU    SSUER+1
0130          SILSW EQU    SIL+1
0131          SCH   EQU    SILSW+1
0132          SER   EQU    SCH+1
0133          SECSU EQU    SER+1
0134          SKIN1 EQU    SECSU+1
0135          SKIN0 EQU    SKIN1+1
0136          PDKYB EQU    SKIN0+1
0137          PHKYB EQU    PDKYB+1
0138          END0  EQU    PHKYB+1
013A          S2    EQU    END0+2
013E          BINRY EQU    S2+4
01DF          KEYIN EQU    BINRY+161
0437          ZERO  EQU    KEYIN+600
0438          BGNR  EQU    ZERO+1
0439          ERR   EQU    BGNR+1
043A          WCC   EQU    ERR+1
043B          MTRM  EQU    WCC+1
043C          TRFX  EQU    MTRM+1
043D          TERM  EQU    TRFX+1
043E          LWC   EQU    TERM+1
043F          LGROP EQU    LWC+1
0440          STBF  EQU    LGROP+1
0441          SRTRY EQU    STBF+1
0C17 0  0008  SKI1  DC     /0008
0C18 0  FFFF  SKI2  DC     /FFFF
0C19 0  0000  SKI3  DC     0
0C1A 0  0000  SKI4  DC     0
0C1B 00 4C000138 END1 BSC  L  END0
0C1E    0C1B        END    END1
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C4081001
C4081002
C4081003
C4081004
C4081005
C4081006
C4081007
C4081008
C4081009
C4081010
C4081011
C4081012
C4081013
C4081014
C4081015
C4081016
C4081017
C4081018
C4081019
C4081020
C4081021
C4081022
C4081023
C4081024
C4081025
C4081026
C4081027
C4081028
C4081029
C4081030
C4081031
C4081032
C4081033
C408103 C4081043

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0138	0C17, 0C1B
END1	0C16	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17


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0000                ORG     *+3095                          C4090001
012C        KEY     EQU     300                             C4090002
012D        CKYN    EQU     KEY+1                           C4090003
012E        SSUER   EQU     CKYN+1                          C4090004
012F        SIL     EQU     SSUER+1                         C4090005
0130        SILSW   EQU     SIL+1                           C4090006
0131        SCH     EQU     SILSW+1                         C4090007
0132        SER     EQU     SCH+1                           C4090008
0133        SECSU   EQU     SER+1                           C4090009
0134        SKIN1   EQU     SECSU+1                         C4090010
0135        SKINO   EQU     SKIN1+1                         C4090011
0136        PDKYB   EQU     SKINO+1                         C4090012
0137        PHKYB   EQU     PDKYB+1                         C4090013
0138        ENDO    EQU     PHKYB+1                         C4090014
013A        S2      EQU     ENDO+2                          C4090015
013E        BINRY   EQU     S2+4                            C4090016
01DF        KEYIN   EQU     BINRY+161                       C4090017
0437        ZERO    EQU     KEYIN+600                       C4090018
0438        BGNR    EQU     ZERO+1                          C4090019
0439        ERR     EQU     BGNR+1                          C4090020
043A        WCC     EQU     ERR+1                           C4090021
043B        MTRM    EQU     WCC+1                           C4090022
043C        TRFX    EQU     MTRM+1                          C4090073
043D        TERM    EQU     TRFX+1                          C4090024
043E        LWC     EQU     TERM+1                          C4090025
043F        LGROP   EQU     LWC+1                           C4090026
0440        STBF    EQU     LGROP+1                         C4090027
0441        SRTRY   EQU     STBF+1                          C4090028
0C17 0  0009        SKI1    DC      /0009                   C4090029
0C18 0  0000        SKI2    DC      /0000   CD NO           C4090030
0C19 0  0008        SKI3    DC      /0008   NO ENTRIES      C4090031
0C1A 00 4480012E    SKI4    BSI  I  SSUER  SET ERROR RETURN SRC C4090032
0C1C 00 4480012C            BSI  I  KEY    ENTER NO DEVICES SRC C4090033
0C1E 1  0E91                DC      SM10                    C4090034
0C1F 0  8110                DC      /8110                   C4090035
*                                                           C4090036
0C20 00 C400013E            LD   L  BINRY  GET ENTRY        C4090037
0C22 01 4C180CE6            BSC  L  SKE05,+-  BRANCH IF ZERO C4090038
0C24 01 B4000CD5            CMP  L  K0003  CK MAX           C4090039
0C26 0  7027                MDX     SKE06  BRANCH IF TOO GREAT C4090040
0C27 0  1000                NOP     0                       C4090041
0C28 01 D4000CD6            STO  L  NODEV  SAVE ENTRY       C4090042
0C2A 0  6303                LDX  3  3                       C4090043
0C2B 01 65000F2D            LDX  L1 SW81                    C4090044
0C2D 0  6203        SK00    LDX  2  3                       C4090045
0C2E 01 6D000CC7    SK0     STX  L1 SKA1+1  SAVE IXING      C4090046
0C30 01 6E000CC9            STX  L2 SKA2+1  *               C4090047
0C32 01 6F000CCB            STX  L3 SKA3+1  *               C4090048
0C34 01 C4000CCE            LD   L  ERRET  SET ERROR RETURN C4090049
0C36 00 D4000441            STO  L  SRTRY  *                C4090050
0C38 01 C6000F1D            LD   L2 TBL-1  GET FORM         C4090051
0C3A 0  D009                STO     SK2    SET              C4090052
0C3B 01 C7000F29            LD   L3 TBL3-1  GET TBL ADRS    C4090053
0C3D 0  D001                STO     SK21+1  SET             C4090054
0C3E 00 C6000000    SK21    LD   L2 0      GET MSG ADRS     C4090055
0C40 0  D002                STO     SK1    SET              C4090056
0C41 00 4480012C            BSI  I  KEY    PRINT            SRC C4090057
0C43 1  0D71        SK1     DC      SM1                     C4090058
0C44 0  8120        SK2     DC      /8120                   C4090059
0C45 01 4E800CE8            BSC  I2 CK-1   CHECK DATA       SRC C4090060
0C47 0  D100        SK20    STO  1  0      SAVE             C4090061
0C48 0  7101                MDX  1  1      INCR IX 1        C4090062
0C49 0  72FF                MDX  2  -1     DECR IX 2        C4090063
0C4A 0  70E3                MDX     SK0    LOOP             C4090064
0C4B 0  73FF        SK5     MDX  3  -1     DECR IX 3        C4090065
0C4C 0  7004                MDX     SK4    CHECK FOR NEXT DR C4090066
0C4D 0  7006                MDX     SK6    ALL DRS COMPLETE C4090067
0C4E 00 44800132    SKE06   BSI  I  SER    BRANCH IF ERROR  SRC C4090068
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CPIO-DIAG MON SKELETONS SKELETON ID-08C4-09-0

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0C50 1  0D54              DC        SE007                                 C4090069
0C51 01 74FF0CD6    SK4   MDX   L   NODEV,-1     DECR NO OF DVICES        C4090070
0C53 0  70D9              MDX       SK00         LOOP                     C4090071
0C54 01 65000F2D    SK6   LDX   L1  SWB1         SET IXING                C4090072
0C56 01 67000F2D          LDX   L3  SWB1                                  C4090073
0C56 0  6203              LDX    2  3                                     C4090074
0C59 0  C100        SK7   LD     1  0            BUILD DDEFS              C4090075
0C5A 0  F101              EOR    1  1                                     C4090076
0C5B 0  F102              EOR    1  2                                     C4090077
0C5C 0  D300              STO    3  0            SAVE                     C4090078
0C5D 0  7103              MDX    1  3            INCR IX 1                C4090079
0C5E 0  7301              MDX    3  1            INCR IX 3                C4090080
0C5F 0  72FF              MDX    2  -1           DECR IX 2                C4090081
0C60 0  70F8              MDX       SK7          LOOP                     C4090082
0C61 00 4480012E          BSI   I   SSUER        SET ERROR RETURN     SRC C4090083
0C63 00 4480012C          BSI   I   KEY          ADRS CHANGE WANTED   SRC C4090084
0C65 1  0EB2              DC        SM12                                  C4090085
0C66 0  8000              DC        /8000                                 C4090086
0C67 00 4480012D          BSI   I   CKYN         CHECK FOR Y OR N     SRC C4090087
0C69 0  7001              MDX       SK10         ENTRY WAS Y              C4090088
0C6A 0  7049              MDX       OUT          ENTRY WAS N              C4090089
                    *                                                     C4090090
0C6B 00 4480012E    SK10  BSI   I   SSUER        SET ERROR RETURN     SRC C4090091
0C6D 00 4480012C          BSI   I   KEY          ENTER 3 DIGIT ADRS   SRC C4090092
0C6F 1  0ED4              DC        SM13                                  C4090093
0C70 0  8050              DC        /8050                                 C4090094
0C71 00 C40001DE          LD    L   KEYIN-1      GET WD CT                C4090095
0C73 0  B05B              CMP       K0056        CK FOR MAX               C4090096
0C74 0  7062              MDX       SKE00                                 C4090097
0C75 0  1000              NOP       0                                     C4090098
0C76 00 658001DE          LDX   I1  KEYIN-1      SET IXING                C4090099
0C78 00 660001DF          LDX   L2  KEYIN                                 C4090100
                    *                                                     C4090101
0C7A 0  C200        SK14  LD     2  0            GET ENTRY                C4090102
0C7B 00 D40001DF          STO   L   KEYIN        MOVE                     C4090103
0C7D 00 C400043D          LD    L   TERM         GET TERM                 C4090104
0C7F 00 D40001E0          STO   L   KEYIN+1      SET                      C4090105
0C81 00 44800136          BSI   I   PDKYB        CONVERT DATA         SRC C4090106
0C83 0  0001              DC        1                                     C4090107
0C84 0  0437              DC        ZERO                                  C4090108
0C85 00 C400013E          LD    L   BINRY        GET DATA                 C4090109
0C87 01 4C180CDD          BSC   L   SKE02,+-     BR IF ZERO               C4090110
0C89 0  B046              CMP       K0008        CK FOR MAX               C4090111
0C8A 0  704F              MDX       SKE01        ERROR                    C4090112
0C8B 0  1000              NOP       0                                     C4090113
0C8C 0  D020              STO       SK13+2                                C4090114
                    *                                                     C4090115
0C8D 0  C202              LD     2  2            GET ENTRY                C4090116
0C8E 00 D40001DF          STO   L   KEYIN        MOVE DATA                C4090117
0C90 0  C203              LD     2  3                                     C4090118
0C91 00 D40001E0          STO   L   KEYIN+1                               C4090119
0C93 0  C204              LD     2  4                                     C4090120
0C94 00 D40001E1          STO   L   KEYIN+2                               C4090121
                    *                                                     C4090122
0C96 00 C400043D          LD    L   TERM         GET TERM                 C4090123
0C98 00 D40001E2          STO   L   KEYIN+3      SET                      C4090124
0C9A 00 44800136          BSI   I   PDKYB        CONVERT ENTRIES      SRC C4090125
0C9C 0  0003              DC        3                                     C4090126
0C9D 0  0437              DC        ZERO                                  C4090127
0C9E 00 C400013E          LD    L   BINRY        GET DATA                 C4090128
0CA0 0  B031              CMP       K0089        CK FOR OK                C4090129
0CA1 0  7002              MDX       SK11         CONTINUE CKING           C4090130
0CA2 0  1000              NOP       0                                     C4090131
0CA3 0  7007              MDX       SK13         ENTRY OK                 C4090132
0CA4 0  B02F        SK11  CMP       K0111        CK ADRS                  C4090133
0CA5 0  7002              MDX       SK12         CONTINUE CKING           C4090134
0CA6 0  703C              MDX       SKE04        ERROR                    C4090135
0CA7 0  7003              MDX       SK13         ENTRY OK                 C4090136
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0CA8 0  B02A        SK12  CMP       K0202                                 C4090137
0CA9 0  7036              MDX       SKE03        ERROR                    C4090138
0CAA 0  1000              NOP       0                                     C4090139
0CAB 0  1003        SK13  SLA       3            MUL BY 8                 C4090140
0CAC 00 67000000          LDX   L3  0                                     C4090141
0CAE 01 D7000F37          STO   L3  SWB11                                 C4090142
0CB0 0  7301              MDX    3  1                                     C4090143
0CB1 0  7206              MDX    2  6                                     C4090144
0CB2 0  71FA              MDX    1  -6                                    C4090145
0CB3 0  70C6              MDX       SK14                                  C4090146
0CB4 0  6108        OUT   LDX    1  8            SET IXING                C4090147
0CB5 01 C5000F37    SK15  LD    L1  SWB11                                 C4090148
0CB7 01 D5000F2F          STO   L1  SWB3                                  C4090149
0CB9 0  71FF              MDX    1  -1           DECR IX 1                C4090150
0CBA 0  70FA              MDX       SK15                                  C4090151
0CBB 01 65800C17          LDX   I1  SKI1         SET IXING                C4090152
0CBD 01 66800C18          LDX   I2  SKI2                                  C4090153
0CBF 01 67800C19          LDX   I3  SKI3                                  C4090154
0CC1 00 44800133          BSI   I   SECSU        SET UP CARD          SRC C4090155
0CC3 1  0F2D              DC        SWB1                                  C4090156
0CC4 00 4C00013A          BSC   L   S2           EXIT                     C4090157
0CC6 00 65000000    SKA1  LDX   L1  0            RESTORE IXING            C4090158
0CC8 00 66000000    SKA2  LDX   L2  0            *                        C4090159
0CCA 00 67000000    SKA3  LDX   L3  0            *                        C4090160
0CCC 01 4C000C2E          BSC   L   SK0          ERROR RE-ENTRY           C4090161
0CCE 1  0CC6        ERRET DC        SKA1         ERROR RETURN             C4090162
0CCF 0  0031        K0056 DC        49           CONSTANTS                C4090163
0CD0 0  0008        K0008 DC        8                                     C4090164
0CD1 0  0657        K0657 DC        /0657                                 C4090165
0CD2 0  0059        K0089 DC        89                                    C4090166
0CD3 0  00CA        K0202 DC        202                                   C4090167
0CD4 0  006F        K0111 DC        111                                   C4090168
0CD5 0  0003        K0003 DC        3                                     C4090169
0CD6 0  0000        NODEV DC        0                                     C4090170
0CD7 00 44800132    SKE00 BSI   I   SER          TOO MANY ADRSS       SRC C4090171
0CD9 1  0CF8              DC        SE001                                 C4090172
0CDA 00 44800132    SKE01 BSI   I   SER          FIELD TCO GREAT      SRC C4090173
0CDC 1  0CF8              DC        SE001                                 C4090174
0CDD 00 44800132    SKE02 BSI   I   SER          FLD WAS ZERO         SRC C4090175
0CDF 1  0CF8              DC        SE001                                 C4090176
0CE0 00 44800132    SKE03 BSI   I   SER          ADRS TCO GREAT       SRC C4090177
0CE2 1  0D0F              DC        SE004                                 C4090178
0CE3 00 44800132    SKE04 BSI   I   SER          ILLEGAL ADRS         SRC C4090179
0CE5 1  0D23              DC        SE005                                 C4090180
0CE6 00 44800132    SKE05 BSI   I   SER          NO DR = 0            SRC C4090181
0CE8 1  0D3C              DC        SE006                                 C4090182
0CE9 1  0CEC        CK    DC        CH                                    C4090183
0CEA 1  0CF0              DC        ILSW                                  C4090184
0CEB 1  0CF4              DC        IL                                    C4090185
0CEC 00 44800131    CH    BSI   I   SCH          CK CHANNEL           SRC C4090186
0CEE 01 4C000C47          BSC   L   SK20                                  C4090187
0CF0 00 44800130    ILSW  BSI   I   SILSW        CK ILSW BIT          SRC C4090188
0CF2 01 4C000C47          BSC   L   SK20                                  C4090189
0CF4 00 4480012F    IL    BSI   I   SIL          CK INTR LVL          SRC C4090190
0CF6 01 4C000C47          BSC   L   SK20                                  C4090191
                    *                                                     C4090192
0CF8    0012        SE001 EBC       .E007  PID 09-CD 00.                  C4090193
0D01    0012              EBC       .  ENTRY TOO LARGE .                  C4090194
0D0A    0007              EBC       .OR 0C00.                             C4090195
0D0E 0  FFFF              DC        /FFFF                                 C4090196
                    *                                                     C4090197
0D0F    0012        SE004 EBC       .E00A  PID 09-CD 00.                  C40901 98
0D18    0012              EBC       .  ADRS IS TOO GREA.                  C4090199
0D21    0001              EBC       .T.                                   C4090200
0D22 0  FFFF              DC        /FFFF                                 C4090201
                    *                                                     C4090202
0D23    0012        SE005 EBC       .E008  PID 09-CD 00.                  C4090203
0D2C    0012              EBC       .  ADRS WAS BETWEEN.                  C4090204
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0D35    000B            EBC     . 90 AND 110.                   C4090205
0D38 0  FFFF            DC      /FFFF                           C4090206
                *                                               C4090207
0D3C    0012    SE006   EBC     .E008  PID 09-CD 00.            C4090208
0D45    0012            EBC     .  NUMBER OF DEVICE.            C4090209
0D4E    000A            EBC     .S WAS 0000.                    C4090210
0D53 0  FFFF            DC      /FFFF                           C4090211
                *                                               C4090212
0D54    0012    SE007   EBC     .E009  PID 09-CD 00.            C4090213
0D5D    0012            EBC     .  NUMBER OF DEVICE.            C4090214
0D66    0012            EBC     .S WAS GREATER THAN.            C4090215
0D6F    0002            EBC     . 3.                            C4090216
0D70 0  FFFF            DC      /FFFF                           C4090217
                *                                               C4090218
0D71    0012    SM1     EBC     .C001  PID 09-CD 00.            C4090219
0D7A    0012            EBC     .  ENTER 2 DIGIT DE.            C4090220
0D83    0012            EBC     .CIMAL INTR LVL FOR.            C4090221
0D8C    0009            EBC     . 1ST 2310.                     C4090222
0D91 0  FFFF            DC      /FFFF                           C4090223
                *                                               C4090224
0D92    0012    SM2     EBC     .C002  PID 09-CD 00.            C4090225
0D9B    0012            EBC     .  ENTER 2 DIGIT DE.            C4090226
0DA4    0012            EBC     .CIMAL ILSW BIT FOR.            C4090227
0DAD    0009            EBC     . 1ST 2310.                     C4090228
0DB2 0  FFFF            DC      /FFFF                           C4090229
                *                                               C4090230
0DB3    0012    SM3     EBC     .C003  PID 09-CD 00.            C4090231
0DBC    0012            EBC     .  ENTER 1 DIGIT DE.            C4090232
0DC5    0012            EBC     .CIMAL CH FOR 1ST 2.            C4090233
0DCE    0003            EBC     .310.                           C4090234
0DD0 0  FFFF            DC      /FFFF                           C4090235
                *                                               C4090236
0DD1    0012    SM4     EBC     .C001  PID 09-CD 00.            C4090237
0DDA    0012            EBC     .  ENTER 2 DIGIT DE.            C4090238
0DE3    0012            EBC     .CIMAL INTR LVL FOR.            C4090239
0DEC    0009            EBC     . 2ND 2310.                     C4090240
0DF1 0  FFFF            DC      /FFFF                           C4090241
                *                                               C4090242
0DF2    0012    SM5     EBC     .C002  PID 09-CD 00.            C4090243
0DFB    0012            EBC     .  ENTER 2 DIGIT DE.            C4090244
0E04    0012            EBC     .CIMAL ILSW BIT FOR.            C4090245
0E0D    0009            EBC     . 2ND 2310.                     C4090246
0E12 0  FFFF            DC      /FFFF                           C4090247
                *                                               C4090248
0E13    0012    SM6     EBC     .C003  PID 09-CD 00.            C4090249
0E1C    0012            EBC     .  ENTER 1 DIGIT DE.            C4090250
0E25    0012            EBC     .CIMAL CH FOR 2ND 2.            C4090251
0E2E    0003            EBC     .310.                           C4090252
0E30 0  FFFF            DC      /FFFF                           C4090253
                *                                               C4090254
0E31    0012    SM7     EBC     .C001  PID 09-CD 00.            C4090255
0E3A    0012            EBC     .  ENTER 2 DIGIT DE.            C4090256
0E43    0012            EBC     .CIMAL INTR LVL FOR.            C4090257
0E4C    0009            EBC     . 3RD 2310.                     C4090258
0E51 0  FFFF            DC      /FFFF                           C4090259
                *                                               C4090260
0E52    0012    SM8     EBC     .C002  PID 09-CD 00.            C4090261
0E5B    0012            EBC     .  ENTER 2 DIGIT DE.            C4090262
0E64    0012            EBC     .CIMAL ILSW BIT FOR.            C4090263
0E6D    0009            EBC     . 3RD 2310.                     C4090264
0E72 0  FFFF            DC      /FFFF                           C4090265
                *                                               C4090266
0E73    0012    SM9     EBC     .C003  PID 09-CD 00.            C4090267
0E7C    0012            EBC     .  ENTER 1 DIGIT DE.            C4090268
0E85    0012            EBC     .CIMAL CH FOR 3RD 2.            C4090269
0E8E    0003            EBC     .310.                           C4090270
0E90 0  FFFF            DC      /FFFF                           C4090271
                *                                               C4090272
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0E91    0012    SM10    EBC     .C004  PID 09-CD 00.            C4090273
0E9A    0012            EBC     .  ENTER NUMBER OF .            C4090274
0EA3    0012            EBC     .2310S ON SYSTEM-FR.            C4090275
0EAC    0009            EBC     .OM 1 TO 3.                     C4090276
0EB1 0  FFFF            DC      /FFFF                           C4090277
                *                                               C4090278
0EB2    0012    SM12    EBC     .C006  PID 09-CD 00.            C4090279
0EBB    0012            EBC     .  ARE ADRS REFEREN.            C4090280
0EC4    0012            EBC     .CE CHANGES DESIRED.            C4090281
0ECD    000C            EBC     .-TYPE Y OR N.                  C4090282
0ED3 0  FFFF            DC      /FFFF                           C4090283
                *                                               C4090284
0ED4    0012    SM13    EBC     .C007  PID 09-CD 00.            C4090285
0EDD    0012            EBC     .  ENTER 1 DIGIT DE.            C4090286
0EE6    0012            EBC     .CIMAL FLD NUMBER T.            C4090287
0EEF    0012            EBC     .O BE CHANGED FCLLO.            C4090288
0EF8    0012            EBC     .WED$BY 3 DIGIT DEC.            C4090289
0F01    0012            EBC     .IMAL ADRS DESIRED-.            C4090290
0F0A    0012            EBC     .1-8 ENTRIES IN FCL.            C4090291
0F13    0012            EBC     .LOWING FORMAT$D CD.            C4090292
0F1C    0002            EBC     .D,.                            C4090293
0F1D 0  FFFF            DC      /FFFF                           C4090294
                *                                               C4090295
0F1E 0  8110    TBL     DC      /8110                           C4090296
0F1F 0  8120            DC      /8120                           C4090297
0F20 0  8120            DC      /8120                           C4090298
                *                                               C4090299
0F21 1  0DB3    TBL1    DC      SM3                             C4090300
0F22 1  0D92            DC      SM2                             C4090301
0F23 1  0D71            DC      SM1                             C4090302
                *                                               C4090303
0F24 1  0E13    TBL4    DC      SM6                             C4090304
0F25 1  0DF2            DC      SM5                             C4090305
0F26 1  0DD1            DC      SM4                             C4090306
                *                                               C4090307
0F27 1  0E73    TBL5    DC      SM9                             C4090308
0F28 1  0E52            DC      SM8                             C4090309
0F29 1  0E31            DC      SM7                             C4090310
                *                                               C4090311
                *                                               C4090312
0F2A 1  0F26    TBL3    DC      TBL5-1                          C4090313
0F2B 1  0F23            DC      TBL4-1                          C4090314
0F2C 1  0F20            DC      TBL1-1                          C4090315
                *                                               C4090316
0F2D 0  0000    SWB1    DC      0                               C4090317
0F2E 0  0000    SWB2    DC      0                               C4090318
0F2F 0  0000    SWB3    DC      0                               C4090319
0F30 0  0000    SWB4    DC      0                               C4090320
0F31 0  0000    SWB5    DC      0                               C4090321
0F32 0  0000    SWB6    DC      0                               C4090322
0F33 0  0000    SWB7    DC      0                               C4090323
0F34 0  0000    SWB8    DC      0                               C4090324
0F35 0  0000    SWB9    DC      0                               C4090325
0F36 0  0000    SWB10   DC      0                               C4090326
0F37 0  0000    SWB11   DC      0                               C4090327
0F38 0  0000    SWB12   DC      /0000                           C4090328
0F39 0  0008    SWB13   DC      /0008                           C4090329
0F3A 0  0010    SWB14   DC      /0010                           C4090330
0F3B 0  0018    SWB15   DC      /0018                           C4090331
0F3C 0  0638    SWB16   DC      /0638                           C4090332
0F3D 0  0640    SWB17   DC      /0640                           C4090333
0F3E 0  0648    SWB18   DC      /0648                           C4090334
0F3F 0  0650    SWB19   DC      /0650                           C4090335
0F40 00 4C000138 END1   BSC  L  END0                            C4090336
0F42    0F40            END     END1                    C409033 C4090346
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CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17, 0C20, 0C85, 0C9E
CH	0CEC	0CE9
CK	0CE9	0C45
CKYN	012D	0C17, 0C67
END0	0138	0C17, 0F40
END1	0F40	0F42
ERR	0439	0C17
ERRET	0CCE	0C34
IL	0CF4	0CEB
ILSW	0CF0	0CEA
KEY	012C	0C17, 0C1C, 0C41, 0C63, 0C6D
KEYIN	01DF	0C17, 0C71, 0C76, 0C78, 0C7B, 0C7F, 0C8E, 0C91, 0C94, 0C98
K0003	0CD5	0C24
K0008	0CD0	0C89
K0056	0CCF	0C73
K0089	0CD2	0CA0
K0111	0CD4	0CA4
K0202	0CD3	0CA8
K0657	0CD1	
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
NODEV	0CD6	0C28, 0C51
OUT	0CB4	0C6A
PDKYB	0136	0C17, 0C81, 0C9A
PHKYB	0137	0C17
SCH	0131	0C17, 0CEC
SECSU	0133	0C17, 0CC1
SER	0132	0C17, 0C4E, 0CD7, 0CDA, 0CDD, 0CE0, 0CE3, 0CE6
SE001	0CF8	0CD9, 0CDC, 0CDF
SE004	0D0F	0CE2
SE005	0D23	0CE5
SE006	0D3C	0CE8
SE007	0D54	0C50
SIL	012F	0C17, 0CF4
SILSW	0130	0C17, 0CF0
SKA1	0CC6	0C2E, 0CCE
SKA2	0CC8	0C30
SKA3	0CCA	0C32
SKE00	0CD7	0C74
SKE01	0CDA	0C8A
SKE02	0CDD	0C87
SKE03	0CE0	0CA9
SKE04	0CE3	0CA6
SKE05	0CE6	0C22
SKE06	0C4E	0C26
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0CBB
SKI2	0C18	0CBD
SKI3	0C19	0CBF
SKI4	0C1A	
SK0	0C2E	0C4A, 0CCC
SK00	0C2D	0C53
SK1	0C43	0C40
SK10	0C6B	0C69
SK11	0CA4	0CA1
SK12	0CA8	0CA5
SK13	0CAB	0C8C, 0CA3, 0CA7
SK14	0C7A	0CB3
SK15	0C85	0CBA
SK2	0C44	0C3A
SK20	0C47	0CEE, 0CF2, 0CF6
SK21	0C3E	0C3D

SK4	0C51	0C4C
SK5	0C4B	
SK6	0C54	0C4D
SK7	0C59	0C60
SM1	0D71	0C43, 0F23
SM10	0E91	0C1E
SM12	0EB2	0C65
SM13	0ED4	0C6F
SM2	0D92	0F22
SM3	0DB3	0F21
SM4	0DD1	0F26
SM5	0DF2	0F25
SM6	0E13	0F24
SM7	0E31	0F29
SM8	0E52	0F28
SM9	0E73	0F27
SRTRY	0441	0C36
SSUER	012E	0C17, 0C1A, 0C61, 0C6B
STBF	0440	0C17
SWB1	0F2D	0C28, 0C54, 0C56, 0CC3
SWB10	0F36	
SWB11	0F37	0CAE, 0C85
SWB12	0F38	
SWB13	0F39	
SWB14	0F3A	
SWB15	0F3B	
SWB16	0F3C	
SWB17	0F3D	
SWB18	0F3E	
SWB19	0F3F	
SWB2	0F2E	
SWB3	0F2F	0C87
SWB4	0F30	
SWB5	0F31	
SWB6	0F32	
SWB7	0F33	
SWB8	0F34	
SWB9	0F35	
S2	013A	0C17, 0CC4
TBL	0F1E	0C38
TBL1	0F21	0F2C
TBL3	0F2A	0C3B
TBL4	0F24	0F2B
TBL5	0F27	0F2A
TERM	043D	0C17, 0C7D, 0C96
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17, 0C84, 0C9D

```
0000                    ORG     **+3095
012C                KEY EQU     300
012D                CKYN EQU    KEY+1
012E                SSUER EQU   CKYN+1
012F                SIL EQU     SSUER+1
0130                SILSW EQU   SIL+1
0131                SCH EQU     SILSW+1
0132                SER EQU     SCH+1
0133                SECSU EQU   SER+1
0134                SKIN1 EQU   SECSU+1
0135                SKIN0 EQU   SKIN1+1
0136                PDKYB EQU   SKIN0+1
0137                PHKYB EQU   PDKYB+1
0138                END0 EQU    PHKYB+1
013A                S2 EQU      END0+2
013E                BINRY EQU   S2+4
01DF                KEYIN EQU   BINRY+161
0437                ZERO EQU    KEYIN+600
0438                BGNR EQU    ZERO+1
0439                ERR EQU     BGNR+1
043A                WCC EQU     ERR+1
043B                MTRM EQU    WCC+1
043C                TRFX EQU    MTRM+1
043D                TERM EQU    TRFX+1
043E                LWC EQU     TERM+1
043F                LGROP EQU   LWC+1
0440                STBF EQU    LGROP+1
0441                SRTRY EQU   STBF+1
0C17 0  0009        SKI1 DC     /0009
0C18 0  FFFF        SKI2 DC     /FFFF
0C19 0  0000        SKI3 DC     0
0C1A 0  0000        SKI4 DC     0
0C1B 00 4C000138    END1 BSC  L ENDO
0C1E    0C1B            END     END1
```

C4091001
C4091002
C4091003
C4091004
C4091005
C4091006
C4091007
C4091008
C4091009
C4091010
C4091011
C4091012
C4091013
C4091014
C4091015
C4091016
C4091017
C4091018
C4091019
C4091020
C4091021
C4091022
C4091023
C4091024
C4091025
C4091026
C4091027
C4091028
C4091029
C4091030
C4091031
C4091032
C4091033
C4091034 C4091043

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
END0	0138	0C17, 0C1B
END1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

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0000                    ORG     *+3095                                  C40A0001
012C            KEY     EQU     300                                     C40A0002
012D            CKYN    EQU     KEY+1                                   C40A0003
012E            SSUER   EQU     CKYN+1                                  C40A0004
012F            SIL     EQU     SSUER+1                                 C40A0005
0130            SILSW   EQU     SIL+1                                   C40A0006
0131            SCH     EQU     SILSW+1                                 C40A0007
0132            SER     EQU     SCH+1                                   C40A0008
0133            SECSU   EQU     SER+1                                   C40A0009
0134            SKIN1   EQU     SECSU+1                                 C40A0010
0135            SKIN0   EQU     SKIN1+1                                 C40A0011
0136            PDKYB   EQU     SKIN0+1                                 C40A0012
0137            PHKYB   EQU     PDKYB+1                                 C40A0013
0138            END0    EQU     PHKYB+1                                 C40A0014
013A            S2      EQU     END0+2                                  C40A0015
013E            BINRY   EQU     S2+4                                    C40A0016
01DF            KEYIN   EQU     BINRY+161                               C40A0017
0437            ZERO    EQU     KEYIN+600                               C40A0018
0438            BGNR    EQU     ZERO+1                                  C40A0019
0439            ERR     EQU     BGNR+1                                  C40A0020
043A            WCC     EQU     ERR+1                                   C40A0021
043B            MTRM    EQU     WCC+1                                   C40A0022
043C            TRFX    EQU     MTRM+1                                  C4CA0023
043D            TERM    EQU     TRFX+1                                  C40A0024
043E            LWC     EQU     TERM+1                                  C40A0025
043F            LGROP   EQU     LWC+1                                   C40A0026
0440            STBF    EQU     LGROP+1                                 C40A0027
0441            SRTRY   EQU     STBF+1                                  C40A0028
0C17 0  000A    SKI1    DC      /000A           PID                     C40A0029
0C18 0  0000    SKI2    DC      /0000           CD NO                   C40A0030
0C19 0  0003    SKI3    DC      /0003           NO ENTRIES              C40A0031
0C1A 00 4480012E SKI4   BSI  I  SSUER          SET ERROR RETURN    SRC C40A0032
0C1C 00 4480012C        BSI  I  KEY             ENTER IL 1ST 1443   SRC C40A0033
0C1E 1  0C5F            DC      SM1                                     C40A0034
0C1F 0  8120            DC      /8120                                   C40A0035
*                                                                       C40A0036
0C20 00 4480012F        BSI  I  SIL             CK INT LVL          SRC C40A0037
0C22 01 D4000C5C        STO  L  SWB1            SAVE                    C40A0038
*                                                                       C40A0039
0C24 00 4480012E        BSI  I  SSUER           SET ERROR RETURN    SRC C40A0040
0C26 00 4480012C        BSI  I  KEY             ENTER ILSW 1ST 1443 SRC C40A0041
0C28 1  0C7F            DC      SM2                                     C40A0042
0C29 0  8120            DC      /8120                                   C40A0043
*                                                                       C40A0044
0C2A 00 44800130        BSI  I  SILSW           CK ILSW BIT         SRC C40A0045
0C2C 01 F4000C5C        EOR  L  SWB1            BUILD DDEF              C40A0046
0C2E 01 D4000C5C        STO  L  SWB1            SAVE                    C40A0047
*                                                                       C40A0048
0C30 00 4480012E        BSI  I  SSUER           SET ERROR RETURN    SRC C40A0049
0C32 00 4480012C        BSI  I  KEY             ENTER CH 1ST 1443   SRC C40A0050
0C34 1  0C9E            DC      SM3                                     C40A0051
0C35 0  8110            DC      /8110                                   C40A0052
*                                                                       C40A0053
0C36 00 44800131        BSI  I  SCH             CK CH NO            SRC C40A0054
0C38 01 F4000C5C        EOR  L  SWB1            BUILD DDEF              C40A0055
0C3A 01 D4000C5C        STO  L  SWB1            SAVE                    C40A0056
*                                                                       C40A0057
0C3C 00 4480012E        BSI  I  SSUER           SET ERROR RETURN    SRC C40A0058
0C3E 00 4480012C        BSI  I  KEY             DOES 1ST HAVE 120   SRC C40A0059
0C40 1  0CBD            DC      SM4                                     C40A0060
0C41 0  8000            DC      /8000                                   C40A0061
*                                                                       C40A0062
0C42 00 4480012D        BSI  I  CKYN            CK FOR Y OR N       SRC C40A0063
0C44 0  7001            MDX     SK1             ENTRY WAS Y             C40A0064
0C45 0  7003            MDX     SK2             ENTRY WAS N             C40A0065
*                                                                       C40A0066
0C46 0  C005    SK1     LD      K0078           GET 78                  C40A0067
0C47 0  D016            STO     SWB3            SET                     C40A0068
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0C48 0  7005            MDX     SK3                                     C40A0069
*                                                                       C40A0070
0C49 0  C003    SK2     LD      K0090           GET 90                  C40A0071
0C4A 0  D013            STO     SWB3            SET                     C40A0072
0C4B 0  7002            MDX     SK3                                     C40A0073
*                                                                       C40A0074
0C4C 0  0078    K0078   DC      /0078           CONSTANTS               C40A0075
0C4D 0  0090    K0090   DC      /0090                                   C40A0076
0C4E 00 C400043D SK3    LD   L  TERM            GET FFFF                C40A0077
0C50 0  D00C            STO     SWB2            SET                     C40A0078
0C51 01 65800C17 SK7    LDX  I1 SKI1            SET IXING               C40A0079
0C53 01 66800C18        LDX  I2 SKI2                                    C40A0080
0C55 01 67800C19        LDX  I3 SKI3                                    C40A0081
0C57 00 44800133        BSI  I  SECSU           SET CARD            SRC C40A0082
0C59 1  0C5C            DC      SWB1                                    C40A0083
0C5A 00 4C000013A       BSC  L  S2              EXIT                    C40A0084
*                                                                       C40A0085
0C5C 0  0000    SWB1    DC      0               ENTRY STORAGE           C40A0086
0C5D 0  0000    SWB2    DC      0                                       C40A0087
0C5E 0  0000    SWB3    DC      0                                       C40A0088
*                                                                       C40A0089
0C5F    0012    SM1     EBC     .C001  PID 0A-CD 00.                    C40A0090
0C68    0012            EBC     .  ENTER 2 DIGIT DE.                    C40A0091
0C71    0012            EBC     .CIMAL INTRPT LVL F.                    C40A0092
0C7A    0007            EBC     .OR 1443.                               C40A0093
0C7E 0  FFFF            DC      /FFFF                                   C40A0094
*                                                                       C40A0095
0C7F    0012    SM2     EBC     .C002  PID 0A-CD 00.                    C40A0096
0C88    0012            EBC     .  ENTER 2 DIGIT DE.                    C40A0097
0C91    0012            EBC     .CIMAL ILSW BIT FOR.                    C40A0098
0C9A    0005            EBC     . 1443.                                 C40A0099
0C9D 0  FFFF            DC      /FFFF                                   C40A0100
*                                                                       C40A0101
0C9E    0012    SM3     EBC     .C003  PID 0A-CD 00.                    C40A0102
0CA7    0012            EBC     .  ENTER 1 DIGIT DE.                    C40A0103
0CB0    0012            EBC     .CIMAL CH NUMBER FO.                    C40A0104
0CB9    0006            EBC     .R 1443.                                C40A0105
0CBC 0  FFFF            DC      /FFFF                                   C40A0106
*                                                                       C40A0107
0CBD    0012    SM4     EBC     .C038  PID 0A-CD 00.                    C40A0108
0CC6    0012            EBC     .  DOES 1443 HAVE 1.                    C40A0109
0CCF    0012            EBC     .20 PRINT POSITIONS.                    C40A0110
0CD8    000C            EBC     .-TYPE Y OR N.                          C40A0111
0CDE 0  FFFF            DC      /FFFF                                   C40A0112
*                                                                       C40A0113
0CDF 00 4C000138 END1   BSC  L  END0                                    C40A0114
0CE2    0CDF            END     END1                            C40A011 C40A0124
```

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EC NO. 415233

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17, 0C42
ENDO	0138	0C17, 0CDF
END1	0CDF	0CE1
ERR	0439	0C17
KEY	012C	0C17, 0C1C, 0C26, 0C32, 0C3E
KEYIN	01DF	0C17
K0078	0C4C	0C46
K0090	0C4D	0C49
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17, 0C36
SECSU	0133	0C17, 0C57
SER	0132	0C17
SIL	012F	0C17, 0C20
SILSW	0130	0C17, 0C2A
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C51
SKI2	0C18	0C53
SKI3	0C19	0C55
SKI4	0C1A	
SK1	0C46	0C44
SK2	0C49	0C45
SK3	0C4E	0C48, 0C48
SK7	0C51	
SM1	0C5F	0C1E
SM2	0C7F	0C28
SM3	0C9E	0C34
SM4	0CBD	0C40
SRTRY	0441	
SSUER	012E	0C17, 0C1A, 0C24, 0C30, 0C3C
STBF	0440	0C17
SWB1	0C5C	0C22, 0C2C, 0C2E, 0C38, 0C3A, 0C59
SWB2	0C5D	0C50
SWB3	0C5E	0C47, 0C4A
S2	013A	0C17, 0C5A
TERM	043D	0C17, 0C4E
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17


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0000                    ORG     *+3095
012C                KEY EQU     300
012D                CKYN EQU    KEY+1
012E                SSUER EQU   CKYN+1
012F                SIL EQU     SSUER+1
0130                SILSW EQU   SIL+1
0131                SCH EQU     SILSW+1
0132                SER EQU     SCH+1
0133                SECSU EQU   SER+1
0134                SKIN1 EQU   SECSU+1
0135                SKINO EQU   SKIN1+1
0136                PDKYB EQU   SKINO+1
0137                PHKYB EQU   PDKYB+1
0138                ENDO EQU    PHKYB+1
013A                S2 EQU      ENDO+2
013E                BINRY EQU   S2+4
01DF                KEYIN EQU   BINRY+161
0437                ZERO EQU    KEYIN+600
0438                BGNR EQU    ZERO+1
0439                ERR EQU     BGNR+1
043A                WCC EQU     ERR+1
043B                MTRM EQU    WCC+1
043C                TRFX EQU    MTRM+1
043D                TERM EQU    TRFX+1
043E                LWC EQU     TERM+1
043F                LGROP EQU   LWC+1
0440                STBF EQU    LGROP+1
0441                SRTRY EQU   STBF+1
0C17 0  000A        SKI1 DC     /000A
0C18 0  FFFF        SKI2 DC     /FFFF
0C19 0  0000        SKI3 DC     0
0C1A 0  0000        SKI4 DC     0
0C1B 00 4C000138    END1 BSC  L ENDO
0C1E    0C1B                    END     END1
```

```
C40A1001
C40A1002
C40A1003
C40A1004
C40A1005
C40A1006
C40A1007
C40A1008
C40A1009
C40A1010
C40A1011
C40A1012
C40A1013
C40A1014
C40A1015
C40A1016
C40A1017
C40A1018
C40A1019
C40A1020
C40A1021
C40A1022
C4CA1023
C40A1024
C40A1025
C40A1026
C40A1027
C40A1028
C40A1029
C40A1030
C40A1031
C40A1032
C40A1033
C40A103  C40A1043
```

CPIO-DIAG MON SKELETONS   SKELETON ID-08C4-0A-1

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0138	0C17,0C1B
END1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

CPIO-DIAG MON SKELETONS   SKELETON ID-08C4-0B-0

```
0000                  ORG     *+3095                                   C40B0001
012C            KEY   EQU     300                                      C40B0002
012D            CKYN  EQU     KEY+1                                    C40B0003
012E            SSUER EQU     CKYN+1                                   C40B0004
012F            SIL   EQU     SSUER+1                                  C40B0005
0130            SILSW EQU     SIL+1                                    C40B0006
0131            SCH   EQU     SILSW+1                                  C40B0007
0132            SER   EQU     SCH+1                                    C40B0008
0133            SECSU EQU     SER+1                                    C40B0009
0134            SKIN1 EQU     SECSU+1                                  C40B0010
0135            SKINO EQU     SKIN1+1                                  C40B0011
0136            PDKYB EQU     SKINO+1                                  C40B0012
0137            PHKYB EQU     PDKYB+1                                  C40B0013
0138            ENDO  EQU     PHKYB+1                                  C40B0014
013A            S2    EQU     ENDO+2                                   C40B0015
013E            BINRY EQU     S2+4                                     C40B0016
01DF            KEYIN EQU     BINRY+161                                C40B0017
0437            ZERO  EQU     KEYIN+600                                C40B0018
0438            BGNR  EQU     ZERO+1                                   C40B0019
0439            ERR   EQU     BGNR+1                                   C40B0020
043A            WCC   EQU     ERR+1                                    C40B0021
043B            MTRM  EQU     WCC+1                                    C40B0022
043C            TRFX  EQU     MTRM+1                                   C40B0023
043D            TERM  EQU     TRFX+1                                   C40B0024
043E            LWC   EQU     TERM+1                                   C40B0025
043F            LGROP EQU     LWC+1                                    C40B0026
0440            STBF  EQU     LGROP+1                                  C40B0027
0441            SRTRY EQU     STBF+1                                   C40B0028
0C17 0  000B    SKI1  DC      /000B     PID                            C40B0029
0C18 0  0000    SKI2  DC      /0000     CD NO                          C40B0030
0C19 0  0002    SKI3  DC      /0002     NO OF ENTRIES                  C40B0031
0C1A 00 4480012E SKI4 BSI   I SSUER     SET ERROR RETURN     SRC       C40B0032
0C1C 00 4480012C      BSI   I KEY       ENTER IL             SRC       C40B0033
0C1E 1  0D11          DC      SM1                                      C40B0034
0C1F 0  8120          DC      /8120                                    C40B0035
                *                                                      C40B0036
0C20 00 4480012F      BSI   I SIL       CK IL                SRC       C40B0037
0C22 01 D4000CB2      STO   L SWB1      SAVE                           C40B0038
                *                                                      C40B0039
0C24 00 4480012E      BSI   I SSUER     SET ERROR RETURN     SRC       C40B0040
0C26 00 4480012C      BSI   I KEY       ENTER ILSW           SRC       C40B0041
0C28 1  0D32          DC      SM2                                      C40B0042
0C29 0  8120          DC      /8120                                    C40B0043
                *                                                      C40B0044
0C2A 00 44800130      BSI   I SILSW     CK ILSW BIT          SRC       C40B0045
0C2C 01 F4000CB2      EOR   L SWB1      BUILD DDEF                     C40B0046
0C2E 01 D4000CB2      STO   L SWB1      SAVE                           C40B0047
                *                                                      C40B0048
0C30 00 4480012E      BSI   I SSUER     SET ERROR RETURN     SRC       C40B0049
0C32 00 4480012C      BSI   I KEY       ENTER CH             SRC       C40B0050
0C34 1  0D53          DC      SM3                                      C40B0051
0C35 0  8210          DC      /8210                                    C40B0052
                *                                                      C40B0053
0C36 00 44800131      BSI   I SCH       CK CHANNEL           SRC       C40B0054
0C38 0  F079          EOR     SWB1      BUILD DDEF                     C40B0055
0C39 0  D078          STO     SWB1      SAVE                           C40B0056
                *                                                      C40B0057
0C3A 00 4480012E      BSI   I SSUER     SET ERROR RETURN     SRC       C40B0058
0C3C 00 4480012C      BSI   I KEY       2 DRS ON SYS         SRC       C40B0059
0C3E 1  0D71          DC      SM4                                      C40B0060
0C3F 0  8000          DC      /8000                                    C40B0061
                *                                                      C40B0062
0C40 00 4480012D      BSI   I CKYN      CK FOR Y OR N        SRC       C40B0063
0C42 0  7003          MDX     SK1       ENTRY WAS Y                    C40B0064
                *                                                      C40B0065
0C43 0  C06A          LD      K0001     GET 1                          C40B0066
0C44 0  D06E          STO     SWB2      SET NOT AVAIL                  C40B0067
0C45 0  7002          MDX     SK2                                      C40B0068
```

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                       *                                                C40B0069
0C46 0  1010          SK1    SLA      16          SET AVAIL            C40B0070
0C47 0  D06B                 STO      SWB2                             C40B0071
                       *                                                C40B0072
0C48 01 65800C17      SK2    LDX  I1  SKI1        SET IXING            C40B0073
0C4A 01 66800C18             LDX  I2  SKI2                             C40B0074
0C4C 01 67800C19             LDX  I3  SKI3                             C40B0075
                       *                                                C40B0076
0C4E 00 44800133             BSI  I   SECSU       SET CARD         SRC C40B0077
0C50 1  0CB2                 DC       SWB1                             C40B0078
                       *                                                C40B0079
0C51 00 4480012E             BSI  I   SSUER       SET ERROR RETURN SRC C40B0080
0C53 00 4480012C             BSI  I   KEY         ARE WD CT CHGS DES SRC C40B0081
0C55 1  0D92                 DC       SM5                              C40B0082
0C56 0  8000                 DC       /8000                            C40B0083
                       *                                                C40B0084
0C57 00 4480012D             BSI  I   CKYN        CK FOR Y OR N    SRC C40B0085
0C59 0  700B                 MDX      SK4         ENTRY WAS Y          C40B0086
                       *                                                C40B0087
0C5A 01 65800C17      SK3    LDX  I1  SKI1        SET IXING            C40B0088
0C5C 01 66800CBC             LDX  I2  SKI5                             C40B0089
0C5E 01 67800CBD             LDX  I3  SKI6                             C40B0090
                       *                                                C40B0091
0C60 00 44800133             BSI  I   SECSU       SET CARD         SRC C40B0092
0C62 1  0CB4                 DC       SWB3                             C40B0093
                       *                                                C40B0094
0C63 00 4C00013A             BSC  L   S2          EXIT                 C40B0095
                       *                                                C40B0096
0C65 00 4480012E      SK4    BSI  I   SSUER       SET ERROR RETURN SRC C40B0097
0C67 00 4480012C             BSI  I   KEY         ENTER REC WD CT, SRC C40B0098
0C69 1  0DB2                 DC       SM6                              C40B0099
0C6A 0  8040                 DC       /8040                            C40B0100
                       *                                                C40B0101
0C6B 00 C40001DE             LD   L   KEYIN-1     GET WD CT            C40B0102
0C6D 0  8041                 CMP      K0056       CK FOR MAX           C40B0103
0C6E 0  704F                 MDX      SKE01       ERROR-TOO MANY       C40B0104
0C6F 0  1000                 NOP      0                                C40B0105
0C70 00 650001DF             LDX  L1  KEYIN       SET IX               C40B0106
0C72 0  C100          SK5    LD    1  0           GET ENTRY            C40B0107
0C73 00 D40001DF             STO  L   KEYIN       SET                  C40B0108
0C75 00 C400043D             LD   L   TERM        GET FFFF             C40B0109
0C77 00 D40001E0             STO  L   KEYIN+1     SET                  C40B0110
0C79 00 44800136             BSI  I   PDKYB       CONVERT          SRC C40B0111
0C7B 0  0001                 DC       1                                C40B0112
0C7C 0  0437                 DC       ZERO                             C40B0113
0C7D 00 C400013E             LD   L   BINRY       GET REC NO           C40B0114
0C7F 01 4C180CC7             BSC  L   SKE05,+-    ERROR                C40B0115
0C81 0  802F                 CMP      K0008       CK FOR MAX           C40B0116
0C82 0  7041                 MDX      SKE04       TOO GREAT            C40B0117
0C83 0  1000                 NOP      0                                C40B0118
0C84 0  D001                 STO      SK6+1       SET                  C40B0119
0C85 00 67000000      SK6    LDX  L3  0           IX 3 = ENTRY         C40B0120
0C87 0  7102                 MDX   1  2           INCR IX 1            C40B0121
0C88 00 74FE01DE             MDX  L   KEYIN-1,-2  DECR WD CT           C40B0122
0C8A 0  7003                 MDX      SK7                              C40B0123
0C8B 00 44800132             BSI  I   SER         TOO FEW ENTRIES  SRC C40B0124
0C8D 1  0CCA                 DC       SE001                            C40B0125
                       *                                                C40B0126
0C8E 0  C100          SK7    LD    1  0           SET ENTRIES          C40B0127
0C8F 00 D40001DF             STO  L   KEYIN                            C40B0128
0C91 0  C101                 LD    1  1                                C40B0129
0C92 00 D40001E0             STO  L   KEYIN+1                          C40B0130
0C94 0  C102                 LD    1  2                                C40B0131
0C95 00 D40001E1             STO  L   KEYIN+2                          C40B0132
0C97 0  C103                 LD    1  3                                C40B0133
0C98 00 D40001E2             STO  L   KEYIN+3                          C40B0134
0C9A 00 C400043D             LD   L   TERM                             C40B0135
0C9C 00 D40001E3             STO  L   KEYIN+4                          C40B0136
```



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                       *                                                C40B0137
0C9E 00 44800136             BSI  I   PDKYB       CONVERT          SRC C40B0138
0CA0 0  0004                 DC       4                                C40B0139
0CA1 0  0437                 DC       ZERO                             C40B0140
0CA2 00 C400013E             LD   L   BINRY       CK NUMBER            C40B0141
0CA4 0  800B                 CMP      K1000                            C40B0142
0CA5 0  701B                 MDX      SKE03       ERROR TOO GREAT      C40B0143
0CA6 0  1000                 NOP      0                                C40B0144
0CA7 01 D7000CB3             STO  L3  SWB2        SAVE ENTRY           C40B0145
0CA9 0  7105                 MDX   1  5           INCR IX 1            C4CB0146
0CAA 00 74FB01DE             MDX  L   KEYIN-1,-5  DECR WD CT           C40B0147
0CAC 0  70C5                 MDX      SK5         GET NEXT             C40B0148
0CAD 0  70AC                 MDX      SK3         COMPLETE             C40B0149
                       *                                                C40B0150
0CAE 0  0001          K0001  DC       1           CONSTANTS            C40B0151
0CAF 0  0038          K0056  DC       56                               C40B0152
0CB0 0  03E8          K1000  DC       1000                             C40B0153
0CB1 0  0008          K0008  DC       8                                C40B0154
                       *                                                C40B0155
0CB2 0  0000          SWB1   DC       0           DATA STORAGE         C40B0156
0CB3 0  0000          SWB2   DC       0                                C40B0157
0CB4 0  0000          SWB3   DC       0                                C40B0158
0CB5 0  0000                 DC       0                                C40B0159
0CB6 0  0000                 DC       0                                C40B0160
0CB7 0  0000                 DC       0                                C40B0161
0CB8 0  0000                 DC       0                                C40B0162
0CB9 0  0000                 DC       0                                C40B0163
0CBA 0  0000                 DC       0                                C40B0164
0CBB 0  0000                 DC       0                                C40B0165
                       *                                                C40B0166
0CBC 0  0001          SKI5   DC       /0001       CD ONE               C40B0167
0CBD 0  0008          SKI6   DC       /0008       NO OF ENTRIES        C40B0168
                       *                                                C40B0169
0CBE 00 44800132      SKE01  BSI  I   SER         TOO MANY WD CTS  SRC C40B0170
0CC0 1  0CCA                 DC       SE001                            C40B0171
                       *                                                C40B0172
0CC1 00 44800132      SKE03  BSI  I   SER         WD CT TOO GREAT  SRC C40B0173
0CC3 1  0CE0                 DC       SE003                            C40B0174
                       *                                                C40B0175
0CC4 00 44800132      SKE04  BSI  I   SER         REC TOO GREAT    SRC C40B0176
0CC6 1  0CFA                 DC       SE004                            C40B0177
                       *                                                C40B0178
0CC7 00 44800132      SKE05  BSI  I   SER         FLD WAS ZERO     SRC C40B0179
0CC9 1  0CFA                 DC       SE004                            C40B0180
                       *                                                C40B0181
0CCA    0012          SE001  EBC      .E010  PID 0B-CD 00.             C40B0182
0CD3    0012                 EBC      .  IMPROPER NUMBER .             C40B0183
0CDC    0006                 EBC      .OF WDS.                         C40B0184
0CDF 0  FFFF                 DC       /FFFF                            C40B0185
                       *                                                C40B0186
0CE0    0012          SE003  EBC      .E012  PID 0B-CD 00.             C40B0187
0CE9    0012                 EBC      .  TOO LARGE A WD C.             C40B0188
0CF2    000D                 EBC      .T-MAX IS 1000.                  C40B0189
0CF9 0  FFFF                 DC       /FFFF                            C40B0190
                       *                                                C40B0191
0CFA    0012          SE004  EBC      .E007  PID 0B-CD 00.             C40B0192
0D03    0012                 EBC      .  ENTRY TOO LARGE .             C40B0193
0D0C    0007                 EBC      .OR 0C00.                        C40B0194
0D10 0  FFFF                 DC       /FFFF                            C40B0195
                       *                                                C40B0196
0D11    0012          SM1    EBC      .C001  PID 0B-CD 00.             C40B0197
0D1A    0012                 EBC      .  ENTER 2 DIGIT DE.             C40B0198
0D23    0012                 EBC      .CIMAL INTR LVL FOR.             C40B0199
0D2C    0009                 EBC      . MAG TAPE.                      C40B0200
0D31 0  FFFF                 DC       /FFFF                            C40B0201
                       *                                                C40B0202
0D32    0012          SM2    EBC      .C002  PID 0B-CD 00.             C40B0203
0D3B    0012                 EBC      .  ENTER 2 DIGIT DE.             C40B0204
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0D44    0012            EBC     .CIMAL ILSW BIT FOR.
0D4D    0009            EBC     . MAG TAPE.
0D52 0  FFFF            DC      /FFFF
                *
0D53    0012    SM3     EBC     .C003  PID 08-CD 00.
0D5C    0012            EBC     .  ENTER 1 DIGIT DE.
0D65    0012            EBC     .CIMAL CH FOR MAG T.
0D6E    0003            EBC     .APE.
0D70 0  FFFF            DC      /FFFF
                *
0D71    0012    SM4     EBC     .C005  PID 08-CD 00.
0D7A    0012            EBC     .  DOES THIS SYSTEM.
0D83    0012            EBC     . HAVE 2 TAPE DRS-T.
0D8C    000A            EBC     .YPE Y OR N.
0D91 0  FFFF            DC      /FFFF
                *
0D92    0012    SM5     EBC     .C015  PID 08-CD 01.
0D98    0012            EBC     .  IS IT DESIRED TO.
0DA4    0012            EBC     . CHANGE WD CTS-TYP.
0DAD    0008            EBC     .E Y OR N.
0DB1 0  FFFF            DC      /FFFF
                *
0DB2    0012    SM6     EBC     .C016  PID 08-CD 01.
0DB8    0012            EBC     .  ENTER REC TO CHA.
0DC4    0012            EBC     .NGE AND WD CT DESI.
0DCD    0012            EBC     .RED, 1-8 ENTRIES I.
0DD6    0012            EBC     .N FOLLOWING FORMAT.
0DDF    0008            EBC     .$D DDDD,.
0DE3 0  FFFF            DC      /FFFF
0DE4 00 4C000138 END1   BSC  L  ENDO
0DE6    0DE4            END     END1
```

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C40B0205
C40B0206
C40B0207
C40B0208
C40B0209
C40B0210
C40B0211
C40B0212
C40B0213
C40B0214
C40B0215
C40B0216
C40B0217
C40B0218
C40B0219
C40B0220
C40B0221
C40B0222
C40B0223
C40B0224
C40B0225
C40B0226
C40B0227
C40B0228
C40B0229
C40B0230
C40B0231
C40B0232
C40B0233
C40B0234
C40B0023 C40B0244
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17,0C7D,0CA2
CKYN	012D	0C17 0C40,0C57
ENDO	0138	0C17,0DE4
END1	0DE4	0DE6
ERR	0439	0C17
KEY	012C	0C17,0C1C,0C26,0C32,0C3C,0C53,0C67
KEYIN	01DF	0C17,0C68,0C70,0C73,0C77,0C88,0C8F,0C92,0C95,0C98, 0C9C,0CAA
K0001	0CAE	0C43
K0008	0CB1	0C81
K0056	0CAF	0C6D
K1000	0CB0	0CA4
LGROP	043F	0C17
LWC	043E	0C17
MTRM	0438	0C17
PDKYB	0136	0C17,0C79,0C9E
PHKYB	0137	0C17
SCH	0131	0C17,0C36
SECSU	0133	0C17,0C4E,0C60
SER	0132	0C17,0C88,0CBE,0CC1,0CC4,0CC7
SE001	0CCA	0C8D,0CC0
SE003	0CE0	0CC3
SE004	0CFA	0CC6,0CC9
SIL	012F	0C17,0C20
SILSW	0130	0C17,0C2A
SKE01	0CBE	0C6E
SKE03	0CC1	0CA5
SKE04	0CC4	0C82
SKE05	0CC7	0C7F
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C48,0C5A
SKI2	0C18	0C4A
SKI3	0C19	0C4C
SKI4	0C1A	
SKI5	0CBC	0C5C
SKI6	0CBD	0C5E
SK1	0C46	0C42
SK2	0C48	0C45
SK3	0C5A	0CAD
SK4	0C65	0C59
SK5	0C72	0CAC
SK6	0C85	0C84
SK7	0C8E	0C8A
SM1	0D11	0C1E
SM2	0D32	0C28
SM3	0D53	0C34
SM4	0D71	0C3E
SM5	0D92	0C55
SM6	0DB2	0C69
SRTRY	0441	
SSUER	012E	0C17,0C1A,0C24,0C30,0C3A,0C51,0C65
STBF	0440	0C17
SWB1	0CB2	0C22,0C2C,0C2E,0C38,0C39,0C50
SWB2	0CB3	0C44,0C47,0CA7
SWB3	0CB4	0C62
S2	013A	0C17,0C63
TERM	043D	0C17,0C75,0C9A
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17,0C7C,0CA1

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0000                    ORG     *+3095
012C                KEY EQU     300
012D                CKYN EQU    KEY+1
012E                SSUER EQU   CKYN+1
012F                SIL EQU     SSUER+1
0130                SILSW EQU   SIL+1
0131                SCH EQU     SILSW+1
0132                SER EQU     SCH+1
0133                SECSU EQU   SER+1
0134                SKIN1 EQU   SECSU+1
0135                SKIN0 EQU   SKIN1+1
0136                PDKYB EQU   SKIN0+1
0137                PHKYB EQU   PDKYB+1
0138                ENDO EQU    PHKYB+1
013A                S2 EQU      ENDO+2
013E                BINRY EQU   S2+4
01DF                KEYIN EQU   BINRY+161
0437                ZERO EQU    KEYIN+600
0438                BGNR EQU    ZERO+1
0439                ERR EQU     BGNR+1
043A                WCC EQU     ERR+1
043B                MTRM EQU    WCC+1
043C                TRFX EQU    MTRM+1
043D                TERM EQU    TRFX+1
043E                LWC EQU     TERM+1
043F                LGROP EQU   LWC+1
0440                STBF EQU    LGROP+1
0441                SRTRY EQU   STBF+1
0C17 0  0008        SKI1 DC     /0008
0C18 0  FFFF        SKI2 DC     /FFFF
0C19 0  0000        SKI3 DC     0
0C1A 0  0000        SKI4 DC     0
0C1B 00 4C000138    END1 BSC  L ENDO
0C1E    0C1B            END     END1
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C40B1001
C40B1002
C40B1003
C40B1004
C40B1005
C40B1006
C40B1007
C40B1008
C40B1009
C40B1010
C40B1011
C40B1012
C40B1013
C40B1014
C40B1015
C40B1016
C40B1017
C40B1018
C40B1019
C40B1020
C40B1021
C40B1022
C40B1023
C40B1024
C40B1025
C40B1026
C40B1027
C40B1028
C40B1029
C40B1030
C40B1031
C40B1032
C40B1033
C40B103 C40B1043
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0136	0C17, 0C1B
END1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

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0000                    ORG     *+3095                  C40F0001
012C                KEY EQU     300                     C40F0002
012D                CKYN EQU    KEY+1                   C40F0003
012E                SSUER EQU   CKYN+1                  C40F0004
012F                SIL EQU     SSUER+1                 C40F0005
0130                SILSW EQU   SIL+1                   C40F0006
0131                SCH EQU     SILSW+1                 C40F0007
0132                SER EQU     SCH+1                   C40F0008
0133                SECSU EQU   SER+1                   C40F0009
0134                SKIN1 EQU   SECSU+1                 C40F0010
0135                SKINO EQU   SKIN1+1                 C40F0011
0136                PDKYB EQU   SKINO+1                 C40F0012
0137                PHKYB EQU   PDKYB+1                 C40F0013
0138                END0 EQU    PHKYB+1                 C40F0014
013A                S2 EQU      END0+2                  C40F0015
013E                BINRY EQU   S2+4                    C40F0016
01DF                KEYIN EQU   BINRY+161               C40F0017
0437                ZERO EQU    KEYIN+600               C40F0018
0438                BGNR EQU    ZERO+1                  C40F0019
0439                ERR EQU     BGNR+1                  C40F0020
043A                WCC EQU     ERR+1                   C40F0021
043B                MTRM EQU    WCC+1                   C40F0022
043C                TRFX EQU    MTRM+1                  C40F0023
043D                TERM EQU    TRFX+1                  C40F0024
043E                LWC EQU     TERM+1                  C40F0025
043F                LGROP EQU   LWC+1                   C40F0026
0440                STBF EQU    LGROP+1                 C40F0027
0441                SRTRY EQU   STBF+1                  C40F0028
0C17 0  000F        SKI1 DC     /000F       PID         C40F0029
0C18 0  0000        SKI2 DC     /0000       CD NO       C40F0030
0C19 0  0002        SKI3 DC     /0002       NO ENTRIES  C40F0031
0C1A 00 4480012E    SKI4 BSI  I SSUER       SET ERROR RETURN  SRC C40F0032
0C1C 00 4480012C         BSI  I KEY         ENTER IL 1ST      SRC C40F0033
0C1E 1  0C76             DC    SM1                              C40F0034
0C1F 0  8120             DC    /8120                            C40F0035
                    *                                           C40F0036
0C20 00 4480012F         BSI  I SIL         CHECK INT LVL     SRC C40F0037
0C22 01 D4000D56         STO  L SWB1        SAVE                  C40F0038
                    *                                           C40F0039
0C24 00 4480012E         BSI  I SSUER       SET ERROR RETURN  SRC C40F0040
0C26 00 4480012C         BSI  I KEY         ENTER ILSW 1ST    SRC C40F0041
0C28 1  0C97             DC    SM2                              C40F0042
0C29 0  8120             DC    /8120                            C40F0043
                    *                                           C40F0044
0C2A 00 44800130         BSI  I SILSW       CK ILSW BIT       SRC C40F0045
0C2C 01 F400OD56         EOR  L SWB1                             C40F0046
0C2E 01 D4000D56         STO  L SWB1        SAVE                 C40F0047
                    *                                           C40F0048
0C30 00 4480012E         BSI  I SSUER       SET ERROR RETURN  SRC C40F0049
0C32 00 4480012C         BSI  I KEY         ENTER CH 1ST      SRC C40F0050
0C34 1  0C88             DC    SM3                              C40F0051
0C35 0  8210             DC    /8210                            C40F0052
                    *                                           C40F0053
0C36 00 44800131         BSI  I SCH         CK CHANNEL        SRC C40F0054
0C38 01 F4000D56         EOR  L SWB1        BUILD DDEF            C40F0055
0C3A 01 D4000D56         STO  L SWB1        SAVE                  C40F0056
                    *                                           C40F0057
0C3C 00 4480012E         BSI  I SSUER       SET ERROR RETURN  SRC C40F0058
0C3E 00 4480012C         BSI  I KEY         IS 2ND ON SYSTEM  SRC C40F0059
0C40 1  0CD6             DC    SM4                              C40F0060
0C41 0  8000             DC    /8000                            C40F0061
                    *                                           C40F0062
0C42 00 4480012D         BSI  I CKYN        CK FOR Y OR N     SRC C40F0063
0C44 0  7001             MDX   SK1          ENTRY WAS Y           C40F0064
0C45 0  702D             MDX   SK2          ENTRY WAS N           C40F0065
                    *                                           C40F0066
0C46 00 4480012E    SK1  BSI  I SSUER       SET ERROR RETURN  SRC C40F0067
0C48 00 4480012C         BSI  I KEY         ENTER IL 2ND      SRC C40F0068
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0C4A 1  0CF6             DC    SM5                              C40F0069
0C4B 0  8120             DC    /8120                            C40F0070
                    *                                           C40F0071
0C4C 00 4480012F         BSI  I SIL         CK INT LVL        SRC C40F0072
0C4E 01 D4000D57         STO  L SWB2        SAVE                  C40F0073
                    *                                           C40F0074
0C50 00 4480012E         BSI  I SSUER       SET ERROR RETURN  SRC C40F0075
0C52 00 4480012C         BSI  I KEY         ENTER ILSW 2ND    SRC C40F0076
0C54 1  0D17             DC    SM6                              C40F0077
0C55 0  8120             DC    /8120                            C40F0078
                    *                                           C40F0079
0C56 00 44800130         BSI  I SILSW       CK ILSW BIT       SRC C40F0080
0C58 01 F400OD57         EOR  L SWB2        BUILD DDEF            C40F0081
0C5A 01 D4000D57         STO  L SWB2        SAVE                  C40F0082
                    *                                           C40F0083
0C5C 00 4480012E         BSI  I SSUER       SET ERROR RETURN  SRC C40F0084
0C5E 00 4480012C         BSI  I KEY         ENTER CH 2ND      SRC C40F0085
0C60 1  0D38             DC    SM7                              C40F0086
0C61 0  8210             DC    /8210                            C40F0087
                    *                                           C40F0088
0C62 00 44800131         BSI  I SCH         CK CHANNEL        SRC C40F0089
0C64 01 F4000D57         EOR  L SWB2        BUILD DDEF            C40F0090
0C66 01 D4000D57         STO  L SWB2        SAVE                  C40F0091
                    *                                           C40F0092
0C68 01 65800C17    SK3  LDX  I1 SKI1       SET IXING             C40F0093
0C6A 01 6680OC18         LDX  I2 SKI2                             C40F0094
0C6C 01 67800C19         LDX  I3 SKI3                             C40F0095
                    *                                           C40F0096
0C6E 00 44800133         BSI  I SECSU       SET CARD          SRC C40F0097
0C70 1  0D56             DC    SWB1                             C40F0098
                    *                                           C40F0099
0C71 00 4C00013A         BSC  L S2          EXIT                  C40F0100
                    *                                           C40F0101
0C73 01 74FF0C19    SK2  MDX  L SKI3,-1     DECR NO ENTRIES       C40F0102
0C75 0  70F2             MDX   SK3                                C40F0103
                    *                                           C40F0104
0C76     0012       SM1  EBC    .C001  PID OF-CD 00.             C40F0105
0C7F     0012            EBC    .  ENTER 2 DIGIT DE.             C40F0106
0C88     0012            EBC    .CIMAL INTR LVL FOR.             C40F0107
0C91     0009            EBC    . 1ST 1442.                      C40F0108
0C96 0   FFFF            DC     /FFFF                            C40F0109
                    *                                           C40F0110
0C97     0012       SM2  EBC    .C002  PID OF-CD 00.             C40F0111
0CA0     0012            EBC    .  ENTER 2 DIGIT DE.             C40F0112
0CA9     0012            EBC    .CIMAL ILSW BIT FOR.             C40F0113
0CB2     0009            EBC    . 1ST 1442.                      C40F0114
0CB7 0   FFFF            DC     /FFFF                            C40F0115
                    *                                           C40F0116
0CB8     0012       SM3  EBC    .C003  PID OF-CD 00.             C40F0117
0CC1     0012            EBC    .  ENTER 1 DIGIT DE.             C40F0118
0CCA     0012            EBC    .CIMAL CH FOR 1ST 1.             C40F0119
0CD3     0003            EBC    .442.                            C40F0120
0CD5 0   FFFF            DC     /FFFF                            C40F0121
                    *                                           C40F0122
0CD6     0012       SM4  EBC    .C005  PID OF-CD 00.             C40F0123
0CDF     0012            EBC    .  DOES THIS SYSTEM.             C40F0124
0CE8     0012            EBC    . HAVE 2 1442S-TYPE.             C40F0125
0CF1     0007            EBC    . Y OR N.                        C40F0126
0CF5 0   FFFF            DC     /FFFF                            C40F0127
                    *                                           C40F0128
0CF6     0012       SM5  EBC    .C001  PID OF-CD 00.             C40F0129
0CFF     0012            EBC    .  ENTER 2 DIGIT DE.             C40F0130
0D08     0012            EBC    .CIMAL INTR LVL FOR.             C40F0131
0D11     0009            EBC    . 2ND 1442.                      C40F0132
0D16 0   FFFF            DC     /FFFF                            C40F0133
                    *                                           C40F0134
0D17     0012       SM6  EBC    .C002  PID OF-CD 00.             C40F0135
0D20     0012            EBC    .  ENTER 2 DIGIT DE.             C40F0136
```

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0D29    0012            EBC     .CIMAL ILSW BIT FOR.            C40F0137
0D32    0009            EBC     . 2ND 1442.                     C40F0138
0D37 0  FFFF            DC      /FFFF                           C40F0139
                *                                               C40F0140
0D38    0012    SM7     EBC     .C003  PID OF-CD CO.            C40F0141
0D41    0012            EBC     .  ENTER 1 DIGIT DE.            C40F0142
0D4A    0012            EBC     .CIMAL CH FOR 2ND 1.            C40F0143
0D53    0003            EBC     .442.                           C40F0144
0D55 0  FFFF            DC      /FFFF                           C40F0145
                *                                               C40F0146
                *                                               C40F0147
0D56 0  0000    SWB1    DC      0           DDEF STORAGE        C40F0148
0D57 0  0000    SWB2    DC      0                               C40F0149
0D58 00 4C000138 END1   BSC  L  ENDO                            C40F0150
0D5A    0D58            END     END1                C40F015     C40F0160
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17,0C42
ENDO	0138	0C17,0D58
END1	0D58	0D5A
ERR	0439	0C17
KEY	012C	0C17,0C1C,0C26,0C32,0C3E,0C48,0C52,0C5E
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17,0C36,0C62
SECSU	0133	0C17,0C6E
SER	0132	0C17
SIL	012F	0C17,0C20,0C4C
SILSW	0130	0C17,0C2A,0C56
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C68
SKI2	0C18	0C6A
SKI3	0C19	0C6C,0C73
SKI4	0C1A	
SK1	0C46	0C44
SK2	0C73	0C45
SK3	0C68	0C75
SM1	0C76	0C1E
SM2	0C97	0C28
SM3	0C88	0C34
SM4	0CD6	0C40
SM5	0CF6	0C4A
SM6	0D17	0C54
SM7	0D38	0C60
SRTRY	0441	
SSUER	012E	0C17,0C1A,0C24,0C30,0C3C,0C46,0C50,0C5C
STBF	0440	0C17
SWB1	0D56	0C22,0C2C,0C2E,0C38,0C3A,0C70
SWB2	0D57	0C4E,0C58,0C5A,0C64,0C66
S2	013A	0C17,0C71
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

```
0000                    ORG     *+3095
012C                KEY EQU     300
012D                CKYN EQU    KEY+1
012E                SSUER EQU   CKYN+1
012F                SIL EQU     SSUER+1
0130                SILSW EQU   SIL+1
0131                SCH EQU     SILSW+1
0132                SER EQU     SCH+1
0133                SECSU EQU   SER+1
0134                SKIN1 EQU   SECSU+1
0135                SKINO EQU   SKIN1+1
0136                PDKYB EQU   SKINO+1
0137                PHKYB EQU   PDKYB+1
0138                ENDO EQU    PHKYB+1
013A                S2 EQU      ENDO+2
013E                BINRY EQU   S2+4
01DF                KEYIN EQU   BINRY+161
0437                ZERO EQU    KEYIN+600
0438                BGNR EQU    ZERO+1
0439                ERR EQU     BGNR+1
043A                WCC EQU     ERR+1
0438                MTRM EQU    WCC+1
043C                TRFX EQU    MTRM+1
043D                TERM EQU    TRFX+1
043E                LWC EQU     TERM+1
043F                LGROP EQU   LWC+1
0440                STBF EQU    LGROP+1
0441                SRTRY EQU   STBF+1
0C17 0  000F        SKI1 DC     /000F
0C18 0  FFFF        SKI2 DC     /FFFF
0C19 0  0000        SKI3 DC     0
0C1A 0  0000        SKI4 DC     0
0C1B 00 4C000138    END1 BSC  L ENDO
0C1E    0C1B                END     END1
```

```
C40F1001
C40F1002
C40F1003
C40F1004
C40F1005
C40F1006
C40F1007
C40F1008
C40F1009
C40F1010
C40F1011
C40F1012
C40F1013
C40F1014
C40F1015
C40F1016
C40F1017
C40F1018
C40F1019
C40F1020
C40F1021
C40F1022
C40F1023
C40F1024
C40F1025
C40F1026
C40F1027
C40F1028
C40F1029
C40F1030
C40F1031
C40F1032
C40F1033
C40F103 C40F1043
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0138	0C17, 0C1B
END1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	0438	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

```
0000                 ORG     *+3095                                      C4280001
012C          KEY    EQU     300                                         C4280002
012D          CKYN   EQU     KEY+1                                       C4280003
012E          SSUER  EQU     CKYN+1                                      C4280004
012F          SIL    EQU     SSUER+1                                     C4280005
0130          SILSW  EQU     SIL+1                                       C4280006
0131          SCH    EQU     SILSW+1                                     C4280007
0132          SER    EQU     SCH+1                                       C4280008
0133          SECSU  EQU     SER+1                                       C4280009
0134          SKIN1  EQU     SECSU+1                                     C4280010
0135          SKIN0  EQU     SKIN1+1                                     C4280011
0136          PDKYB  EQU     SKIN0+1                                     C4280012
0137          PHKYB  EQU     PDKYB+1                                     C4280013
0138          ENDO   EQU     PHKYB+1                                     C4280014
013A          S2     EQU     ENDO+2                                      C4280015
013E          BINRY  EQU     S2+4                                        C4280016
01DF          KEYIN  EQU     BINRY+161                                   C4280017
0437          ZERO   EQU     KEYIN+600                                   C4280018
0438          BGNR   EQU     ZERO+1                                      C4280019
0439          ERR    EQU     BGNR+1                                      C4280020
043A          WCC    EQU     ERR+1                                       C4280021
043B          MTRM   EQU     WCC+1                                       C4280022
043C          TRFX   EQU     MTRM+1                                      C4280023
043D          TERM   EQU     TRFX+1                                      C4280024
043E          LWC    EQU     TERM+1                                      C4280025
043F          LGROP  EQU     LWC+1                                       C4280026
0440          STBF   EQU     LGROP+1                                     C4280027
0441          SRTRY  EQU     STBF+1                                      C4280028
0C17 0  0028  SKI1   DC      /0028     PID                               C4280029
0C18 0  0000  SKI2   DC      /0000     CD NO                             C4280030
0C19 0  0002  SKI3   DC      /0002     NO ENTRIES                        C4280031
0C1A 00 4480012E SKI4 BSI  I SSUER     SET ERROR CONTROL           SRC   C4280032
0C1C 00 4480012C     BSI  I  KEY       ENTER IL                    SRC   C4280033
0C1E 1  0C53         DC      SM1                                         C4280034
0C1F 0  8120         DC      /8120                                       C4280035
              *                                                          C4280036
0C20 00 4480012F     BSI  I  SIL       CK INTR LVL                 SRC   C4280037
0C22 0  D02E         STO     SWB1      SAVE                              C4280038
              *                                                          C4280039
0C23 00 4480012E     BSI  I  SSUER     SET ERROR RETURN            SRC   C4280040
0C25 00 4480012C     BSI  I  KEY       ILSW BIT                    SRC   C4280041
0C27 1  0C77         DC      SM2                                         C4280042
0C28 0  8120         DC      /8120                                       C4280043
              *                                                          C4280044
0C29 00 44800130     BSI  I  SILSW     CK ILSW BIT                 SRC   C4280045
0C2B 0  F025         EOR     SWB1      BUILD DDEF                        C4280046
0C2C 0  D024         STO     SWB1      SAVE                              C4280047
              *                                                          C4280048
0C2D 00 4480012E     BSI  I  SSUER     SET ERROR RETURN            SRC   C4280049
0C2F 00 4480012C     BSI  I  KEY       ENTER CH                    SRC   C4280050
0C31 1  0C9B         DC      SM3                                         C4280051
0C32 0  8210         DC      /8210                                       C4280052
              *                                                          C4280053
0C33 00 44800131     BSI  I  SCH       CK CHANNEL                  SRC   C4280054
0C35 0  F01B         EOR     SWB1      BUILD DDEF                        C4280055
0C36 0  D01A         STO     SWB1      SAVE                              C4280056
              *                                                          C4280057
0C37 00 4480012E     BSI  I  SSUER     SET ERROR RETURN            SRC   C4280058
0C39 00 4480012C     BSI  I  KEY       IS MEM SPEED 2 MIC          SRC   C4280059
0C3B 1  0CBC         DC      SM4                                         C4280060
0C3C 0  8000         DC      /8000                                       C4280061
              *                                                          C4280062
0C3D 00 4480012D     BSI  I  CKYN      CK FOR Y OR N               SRC   C4280063
0C3F 0  7001         MDX     SK2       ENTRY WAS Y                       C4280064
0C40 0  7002         MDX     SK1       ENTRY WAS N                       C4280065
              *                                                          C4280066
0C41 0  1010  SK2    SLA     16        CLEAR ACCUM                       C4280067
0C42 0  7001         MDX     SK3                                         C4280068
```



```
              *                                                          C4280069
0C43 0  C00C  SK1    LD      K0001     GET 1                             C4280070
0C44 0  D00D  SK3    STO     SWB2      SET MEM SPEED                     C4280071
              *                                                          C4280072
0C45 01 65800C17     LDX  I1 SKI1      SET IXING                         C4280073
0C47 01 66800C18     LDX  I2 SKI2                                        C4280074
0C49 01 67800C19     LDX  I3 SKI3                                        C4280075
              *                                                          C4280076
0C4B 00 44800133     BSI  I  SECSU     SET CARD                    SRC   C4280077
0C4D 1  0C51         DC      SWB1                                        C4280078
              *                                                          C4280079
0C4E 00 4C00013A     BSC  L  S2        EXIT                              C4280080
              *                                                          C4280081
0C50 0  0001  K0001  DC      1         CONSTANT                          C4280082
              *                                                          C4280083
0C51 0  0000  SWB1   DC      0         DATA STORAGE                      C4280084
0C52 0  0000  SWB2   DC      0                                           C4280085
              *                                                          C4280086
0C53    0012  SM1    EBC     .C001  PID 28-CD 00.                        C4280087
0C5C    0012         EBC     .  ENTER 2 DIGIT DE.                        C4280088
0C65    0012         EBC     .CIMAL INTR LVL FOR.                        C4280089
0C6E    000F         EBC     . 360 CH ADAPTER.                           C4280090
0C76 0  FFFF         DC      /FFFF                                       C4280091
              *                                                          C4280092
0C77    0012  SM2    EBC     .C002  PID 28-CD 00.                        C4280093
0C80    0012         EBC     .  ENTER 2 DIGIT DE.                        C4280094
0C89    0012         EBC     .CIMAL ILSW BIT FOR.                        C4280095
0C92    000F         EBC     . 360 CH ADAPTER.                           C4280096
0C9A 0  FFFF         DC      /FFFF                                       C4280097
              *                                                          C4280098
0C9B    0012  SM3    EBC     .C003  PID 28-CD 00.                        C4280099
0CA4    0012         EBC     .  ENTER 1 DIGIT DE.                        C4280100
0CAD    0012         EBC     .CIMAL CH FOR 360 C.                        C4280101
0CB6    0009         EBC     .H ADAPTER.                                 C4280102
0CBB 0  FFFF         DC      /FFFF                                       C4280103
              *                                                          C4280104
0CBC    0012  SM4    EBC     .C010  PID 28-CD 00.                        C4280105
0CC5    0012         EBC     .  IS MEM SPEED FOR.                        C4280106
0CCE    0012         EBC     . THIS SYS 2 MICRSE.                        C4280107
0CD7    000D         EBC     .C-TYPE Y OR N.                             C4280108
0CDE 0  FFFF         DC      /FFFF                                       C4280109
0CDF 00 4C000138 END1 BSC L  ENDO                                        C4280110
0CE2    0CDF         END     END1                              C428011 C4280120
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17, 0C3D
END0	0138	0C17, 0CDF
END1	0CDF	0CE1
ERR	0439	0C17
KEY	012C	0C17, 0C1C, 0C25, 0C2F, 0C39
KEYIN	01DF	0C17
K0001	0C50	0C43
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17, 0C33
SECSU	0133	0C17, 0C48
SER	0132	0C17
SIL	012F	0C17, 0C20
SILSW	0130	0C17, 0C29
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C45
SKI2	0C18	0C47
SKI3	0C19	0C49
SKI4	0C1A	
SK1	0C43	0C40
SK2	0C41	0C3F
SK3	0C44	0C42
SM1	0C53	0C1E
SM2	0C77	0C27
SM3	0C9B	0C31
SM4	0CBC	0C3B
SRTRY	0441	
SSUER	012E	0C17, 0C1A, 0C23, 0C2D, 0C37
STBF	0440	0C17
SWB1	0C51	0C22, 0C2B, 0C2C, 0C35, 0C36, 0C4D
SWB2	0C52	0C44
S2	013A	0C17, 0C4E
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17


```
0000                    ORG     *+3095                          C4281001
012C                KEY EQU     300                             C4281002
012D                CKYN EQU    KEY+1                           C4281003
012E                SSUER EQU   CKYN+1                          C4281004
012F                SIL EQU     SSUER+1                         C4281005
0130                SILSW EQU   SIL+1                           C4281006
0131                SCH EQU     SILSW+1                         C4281007
0132                SER EQU     SCH+1                           C4281008
0133                SECSU EQU   SER+1                           C4281009
0134                SKIN1 EQU   SECSU+1                         C4281010
0135                SKIN0 EQU   SKIN1+1                         C4281011
0136                PDKYB EQU   SKIN0+1                         C4281012
0137                PHKYB EQU   PDKYB+1                         C4281013
0138                END0 EQU    PHKYB+1                         C4281014
013A                S2 EQU      END0+2                          C4281015
013E                BINRY EQU   S2+4                            C4281016
01DF                KEYIN EQU   BINRY+161                       C4281017
0437                ZERO EQU    KEYIN+600                       C4281018
0438                BGNR EQU    ZERO+1                          C4281019
0439                ERR EQU     BGNR+1                          C4281020
043A                WCC EQU     ERR+1                           C4281021
043B                MTRM EQU    WCC+1                           C4281022
043C                TRFX EQU    MTRM+1                          C4281023
043D                TERM EQU    TRFX+1                          C4281024
043E                LWC EQU     TERM+1                          C4281025
043F                LGROP EQU   LWC+1                           C4281026
0440                STBF EQU    LGROP+1                         C4281027
0441                SRTRY EQU   STBF+1                          C4281028
0C17 0  0028        SKI1 DC     /0028                           C4281029
0C18 0  FFFF        SKI2 DC     /FFFF                           C4281030
0C19 0  0000        SKI3 DC     0                               C4281031
0C1A 0  0000        SKI4 DC     0                               C4281032
0C1B 00 4C000138    END1 BSC  L ENDO                            C4281033
0C1E    0C18            END     END1                    C428103 C4281043
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
END0	0138	0C17, 0C1B
END1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17


```
0000                    ORG     *+3095                          C4290001
012C                KEY EQU     300                             C4290002
012D                CKYN EQU    KEY+1                           C4290003
012E                SSUER EQU   CKYN+1                          C4290004
012F                SIL EQU     SSUER+1                         C4290005
0130                SILSW EQU   SIL+1                           C4290006
0131                SCH EQU     SILSW+1                         C4290007
0132                SER EQU     SCH+1                           C4290008
0133                SECSU EQU   SER+1                           C4290009
0134                SKIN1 EQU   SECSU+1                         C4290010
0135                SKIN0 EQU   SKIN1+1                         C4290011
0136                PDKYB EQU   SKIN0+1                         C4290012
0137                PHKYB EQU   PDKYB+1                         C4290013
0138                END0 EQU    PHKYB+1                         C4290014
013A                S2 EQU      END0+2                          C4290015
013E                BINRY EQU   S2+4                            C4290016
01DF                KEYIN EQU   BINRY+161                       C4290017
0437                ZERO EQU    KEYIN+600                       C4290018
0438                BGNR EQU    ZERO+1                          C4290019
0439                ERR EQU     BGNR+1                          C4290020
043A                WCC EQU     ERR+1                           C4290021
043B                MTRM EQU    WCC+1                           C4290022
043C                TRFX EQU    MTRM+1                          C4290023
043D                TERM EQU    TRFX+1                          C4290024
043E                LWC EQU     TERM+1                          C4290025
043F                LGROP EQU   LWC+1                           C4290026
0440                STBF EQU    LGROP+1                         C4290027
0441                SRTRY EQU   STBF+1                          C4290028
0C17 0  0029        SKI1 DC     /0029       PID                 C4290029
0C18 0  0000        SKI2 DC     /0000       CD NO               C4290030
0C19 0  0002        SKI3 DC     /0002       NO ENTRIES          C4290031
0C1A 00 4480012E    SKI4 BSI  I SSUER       SET ERROR CONTROL   SRC C4290032
0C1C 00 4480012C         BSI  I KEY         ENTER IL            SRC C4290033
0C1E 1  0C53             DC     SM1                              C4290034
0C1F 0  8120             DC     /8120                            C4290035
                    *                                           C4290036
0C20 00 4480012F         BSI  I SIL         CK INTR LVL         SRC C4290037
0C22 0  D02E             STO    SWB1        SAVE                    C4290038
                    *                                           C4290039
0C23 00 4480012E         BSI  I SSUER       SET ERROR RETURN    SRC C4290040
0C25 00 4480012C         BSI  I KEY         ILSW BIT            SRC C4290041
0C27 1  0C77             DC     SM2                              C4290042
0C28 0  8120             DC     /8120                            C4290043
                    *                                           C4290044
0C29 00 44800130         BSI  I SILSW       CK ILSW BIT         SRC C4290045
0C2B 0  F025             EOR    SWB1        BUILD DDEF              C4290046
0C2C 0  D024             STO    SWB1        SAVE                    C4290047
                    *                                           C4290048
0C2D 00 4480012E         BSI  I SSUER       SET ERROR RETURN    SRC C4290049
0C2F 00 4480012C         BSI  I KEY         ENTEP CH            SRC C4290050
0C31 1  0C9B             DC     SM3                              C4290051
0C32 0  8210             DC     /8210                            C4290052
                    *                                           C4290053
0C33 00 44800131         BSI  I SCH         CK CHANNEL          SRC C4290054
0C35 0  F01B             EOR    SWB1        BUILD DDEF              C4290055
0C36 0  D01A             STO    SWB1        SAVE                    C4290056
                    *                                           C4290057
0C37 00 4480012E         BSI  I SSUER       SET ERROR RETURN    SRC C4290058
0C39 00 4480012C         BSI  I KEY         IS MEM SPEED 2 MIC  SRC C4290059
0C3B 1  0C8C             DC     SM4                              C4290060
0C3C 0  8000             DC     /8000                            C4290061
                    *                                           C4290062
0C3D 00 44800120         BSI  I CKYN        CK FOR Y OR N       SRC C4290063
0C3F 0  7001             MDX    SK2         ENTRY WAS Y             C4290064
0C40 0  7002             MDX    SK1         ENTRY WAS N             C4290065
                    *                                           C4290066
0C41 0  1010        SK2  SLA    16          CLEAR ACCUM             C4290067
0C42 0  7001             MDX    SK3                                 C4290068
```

```
                        *
0C43 0  C00C    SK1     LD      K0001       GET 1
0C44 0  D00D    SK3     STO     SWB2        SET MEM SPEED
                        *
0C45 01 65800C17        LDX     I1 SKI1     SET IXING
0C47 01 66800C18        LDX     I2 SKI2
0C49 01 67800C19        LDX     I3 SKI3
                        *
0C4B 00 44800133        BSI     I  SECSU    SET CARD            SRC
0C4D 1  0C51            DC      SWB1
                        *
0C4E 00 4C00013A        BSC     L  S2       EXIT
                        *
0C50 0  0001    K0001   DC      1           CONSTANT
                        *
0C51 0  0000    SWB1    DC      0           DATA STORAGE
0C52 0  0000    SWB2    DC      0
                        *
0C53    0012    SM1     EBC     .C001  PID 29-CD 00.
0C5C    0012            EBC     .  ENTER 2 DIGIT DE.
0C65    0012            EBC     .CIMAL INTR LVL FOR.
0C6E    000F            EBC     . 360 CH ADAPTER.
0C76 0  FFFF            DC      /FFFF
                        *
0C77    0012    SM2     EBC     .C002  PID 29-CD 00.
0C80    0012            EBC     .  ENTER 2 DIGIT DE.
0C89    0012            EBC     .CIMAL ILSW BIT FOR.
0C92    000F            EBC     . 360 CH ADAPTER.
0C9A 0  FFFF            DC      /FFFF
                        *
0C9B    0012    SM3     EBC     .C003  PID 29-CD 00.
0CA4    0012            EBC     .  ENTER 1 DIGIT DE.
0CAD    0012            EBC     .CIMAL CH FOR 360 C.
0CB6    0009            EBC     .H ADAPTER.
0CBB 0  FFFF            DC      /FFFF
                        *
0CBC    0012    SM4     EBC     .C010  PID 29-CD 00.
0CC5    0012            EBC     .  IS MEM SPEED FOR.
0CCE    0012            EBC     . THIS SYS 2 MICRSE.
0CD7    000D            EBC     .C-TYPE Y OR N.
0CDE 0  FFFF            DC      /FFFF
0CDF 00 4C000138 END1   BSC     L  END0
0CE2    0CDF            END     END1
```

```
C4290069
C4290070
C4290071
C4290072
C4290073
C4290074
C4290075
C4290076
C4290077
C4290078
C4290079
C4290080
C4290081
C4290082
C4290083
C4290084
C4290085
C4290086
C4290087
C4290088
C4290089
C4290090
C4290091
C4290092
C4290093
C4290094
C4290095
C4290096
C4290097
C4290098
C4290099
C4290100
C4290101
C4290102
C4290103
C4290104
C4290105
C4290106
C4290107
C4290108
C4290109
C4290110
C429011 C4290120
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17, 0C3D
END0	0138	0C17, 0CDF
END1	0CDF	0CE1
ERR	0439	0C17
KEY	012C	0C17, 0C1C, 0C25, 0C2F, 0C39
KEYIN	01DF	0C17
K0001	0C50	0C43
LGRDP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17, 0C33
SECSU	0133	0C17, 0C4B
SER	0132	0C17
SIL	012F	0C17, 0C20
SILSW	0130	0C17, 0C29
SKIN0	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	0C45
SKI2	0C18	0C47
SKI3	0C19	0C49
SKI4	0C1A	
SK1	0C43	0C40
SK2	0C41	0C3F
SK3	0C44	0C42
SM1	0C53	0C1E
SM2	0C77	0C27
SM3	0C9B	0C31
SM4	0CBC	0C3B
SRTRY	0441	
SSUER	012E	0C17, 0C1A, 0C23, 0C2D, 0C37
STBF	0440	0C17
SWB1	0C51	0C22, 0C2B, 0C2C, 0C35, 0C36, 0C4D
SWB2	0C52	0C44
S2	013A	0C17, 0C4E
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17

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0000                    ORG    *+3095                    C4291001
012C                KEY EQU    300                       C4291002
012D                CKYN EQU   KEY+1                     C4291003
012E                SSUER EQU  CKYN+1                    C4291004
012F                SIL EQU    SSUER+1                   C4291005
0130                SILSW EQU  SIL+1                     C4291006
0131                SCH EQU    SILSW+1                   C4291007
0132                SER EQU    SCH+1                     C4291008
0133                SECSU EQU  SER+1                     C4291009
0134                SKIN1 EQU  SECSU+1                   C4291010
0135                SKINO EQU  SKIN1+1                   C4291011
0136                PDKYB EQU  SKINO+1                   C4291012
0137                PHKYB EQU  PDKYB+1                   C4291013
0138                ENDO EQU   PHKYB+1                   C4291014
013A                S2 EQU     ENDO+2                    C4291015
013E                BINRY EQU  S2+4                      C4291016
01DF                KEYIN EQU  BINRY+161                 C4291017
0437                ZERO EQU   KEYIN+600                 C4291018
0438                BGNR EQU   ZERO+1                    C4291019
0439                ERR EQU    BGNR+1                    C4291020
043A                WCC EQU    ERR+1                     C4291021
043B                MTRM EQU   WCC+1                     C4291022
043C                TRFX EQU   MTRM+1                    C4291023
043D                TERM EQU   TRFX+1                    C4291024
043E                LWC EQU    TERM+1                    C4291025
043F                LGROP EQU  LWC+1                     C4291026
0440                STBF EQU   LGROP+1                   C4291027
0441                SRTRY EQU  STBF+1                    C4291028
0C17 0  0029        SKI1 DC    /0029                     C4291029
0C18 0  FFFF        SKI2 DC    /FFFF                     C4291030
0C19 0  0000        SKI3 DC    0                         C4291031
0C1A 0  0000        SKI4 DC    0                         C4291032
0C1B 00 4C000138    END1 BSC L ENDO                      C4291033
0C1E    0C1B            END    END1              C429103 C4291043
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
BGNR	0438	0C17
BINRY	013E	0C17
CKYN	012D	0C17
ENDO	0138	0C17, 0C1B
END1	0C1B	0C1D
ERR	0439	0C17
KEY	012C	0C17
KEYIN	01DF	0C17
LGROP	043F	0C17
LWC	043E	0C17
MTRM	043B	0C17
PDKYB	0136	0C17
PHKYB	0137	0C17
SCH	0131	0C17
SECSU	0133	0C17
SER	0132	0C17
SIL	012F	0C17
SILSW	0130	0C17
SKINO	0135	0C17
SKIN1	0134	0C17
SKI1	0C17	
SKI2	0C18	
SKI3	0C19	
SKI4	0C1A	
SRTRY	0441	
SSUER	012E	0C17
STBF	0440	0C17
S2	013A	0C17
TERM	043D	0C17
TRFX	043C	0C17
WCC	043A	0C17
ZERO	0437	0C17