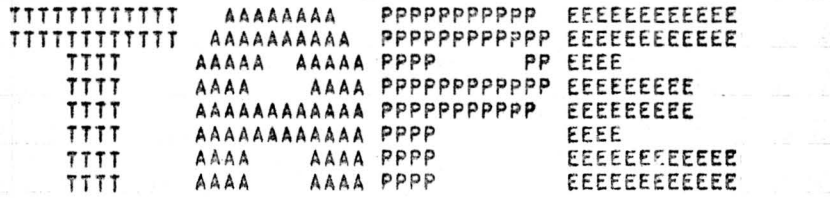

PPPPPPPPPP VVVV VVVV 1111 777777777777 00000000 1111 00000000 2222222222
PPPPPPPPPPP VVVV VVVV 11111 777777777777 0000000000 11111 0000000000 222222222222
PPPP PP VVVV VVVV 111111 7777 00000 00000 111111 00000 00000 222 2222
PPPPPPPPPPP VVVV VVVV 11 1111 7777 0000 0000 11 1111 0000 0000 2222
PPPPPPPPPP VVV VVV 1111 7777 0000 0000 1111 0000 0000 2222
PPPP VVVVVV 1111 7777 00000 00000 1111 00000 00000 2222
PPPP VVVVVV 1111 7777 0000000000 1111 0000000000 222222222222
PPPP VVVV 1111111111 7777 00000000 1111111111 00000000 222222222222
PPPPPPPPPP VVVV VVVV 1111 777777777777 00000000 1111 00000000 3333333333
PPPPPPPPPPP VVVV VVVV 11111 777777777777 0000000000 11111 0000000000 333333333333
PPPP PP VVVV VVVV 111111 7777 00000 00000 111111 00000 00000 333 3333
PPPPPPPPPPP VVVV VVVV 11 1111 7777 0000 0000 11 1111 0000 0000 33333333
PPPPPPPPPP VVV VVV 1111 7777 0000 0000 1111 0000 0000 33333333
PPPP VVVVVV 1111 7777 00000 00000 1111 00000 00000 333 3333
PPPP VVVVVV 1111 7777 0000000000 1111 0000000000 333333333333
PPPP VVVV 1111111111 7777 00000000 1111111111 00000000 333333333
PPPPPPPPPP VVVV VVVV 1111 777777777777 00000000 1111 00000000 44444
PPPPPPPPPPP VVVV VVVV 11111 777777777777 0000000000 11111 0000000000 444444
PPPP PP VVVV VVVV 111111 7777 00000 00000 111111 00000 00000 44444444
PPPPPPPPPPP VVVV VVVV 11 1111 7777 0000 0000 11 1111 0000 0000 4444 4444
PPPPPPPPPP VVV VVV 1111 7777 0000 0000 1111 0000 0000 444444444444
PPPP VVVVVV 1111 7777 00000 00000 1111 00000 00000 444444444444
PPPP VVVVVV 1111 7777 0000000000 1111 0000000000 4444
PPPP VVVV 1111111111 7777 00000000 1111111111 00000000 4444
BBBBBBBBB 000000000 $SSSSSSS
BBBBBBBBBB 0000000000 $SSSSSSSS
BBBB BBBB 0000 0000 SSS
BBBBBBBBB 0000 0000 SSSSSSSSSS
BBBBBBBBBB 0000 0000 SSSSSSSSSS
BBBB BBBB 0000 0000 SSS
BBBBBBBBBB 0000000000 SSSSSSSSS
BBBBBBBBBB 0000000000 $SSSSSSS
UUUU UUUU TTTTTTTTTTT IIIIIIIII LLLL IIIIIIIII TTTTTTTTTTT IIIIIIIII EEEEEEEEEEE SSSSSSS
UUUU UUUU TTTTTTTTTTT IIII LLLL IIII TTTTTTTTTTT IIII EEEEEEEEEEE SSSSSSSSS
UUUU UUUU TTTT IIII LLLL IIII TTTT IIII EEEE SSS
UUUU UUUU TTTT IIII LLLL IIII TTTT IIII EEEEEEEEE SSSSSSSSSS
UUUU UUUU TTTT IIII LLLL IIII TTTT IIII EEEEEEEEE SSSSSSSSSS
UUUU UUUU TTTT IIII LLLL IIII TTTT IIII EEEE SSS
UUUUUUUUUUUU TTTT IIII LLLLLLLLLLLL IIII TTTT IIII EEEEEEEEEEE SSSSSSSSS
UUUUUUUUUU TTTT IIIIIIIII LLLLLLLLLLLL IIIIIIIII TTTT IIIIIIIII EEEEEEEEEEE SSSSSSS


PPPPPPPPPPP AAAAAAAA PPPPPPPPPPP EEEEEEEEEEEE RRRRRRRRRR
PPPPPPPPPPPP AAAAAAAAAA PPPPPPPPPPPP EEEEEEEEEEEE RRRRRRRRRRR
PPPP PP AAAAA AAAAA PPPP PP EEEE RRRR RRR
PPPPPPPPPPPP AAAA AAAA PPPPPPPPPPPP EEEEEEEEE RRRRRRRRRRR
PPPPPPPPPPP AAAAAAAAAAAA PPPPPPPPPPP EEEEEEEEE RRRRRRRRRR
PPPP AAAAAAAAAAAA PPPP EEEE RRRR RRRR
PPPP AAAA AAAA PPPP EEEEEEEEEEEE RRRR RRRR
PPPP AAAA AAAA PPPP EEEEEEEEEEEE RRRR RRRR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TTTTTTTTTTTT AAAAAAAAAA PPPPPPPPPPPP EEEEEEEEEEEE
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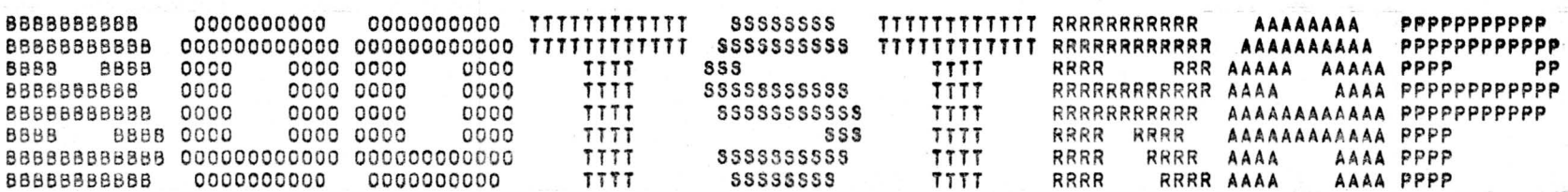
TTTT AAAA AAAA PPPPPPPPPPPP EEEEEEEEE
TTTT AAAAAAAAAAAA PPPPPPPPPP EEEEEEEEE
TTTT AAAAAAAAAAAA PPPP EEEE
TTTT AAAA AAAA PPPP EEEEEEEEEEEE
TTTT AAAA AAAA PPPP EEEEEEEEEEEE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BBBBBBBBBB 0000000000 0000000000 TTTTTTTTTTT SSSSSSSSS TTTTTTTTTTT RRRRRRRRRR AAAAAAAAA PPPPPPPPPP
BBBB BBBB 0000 0000 0000 0000 TTTT SSS TTTT RRRR RRR AAAAA AAAAA PPPP PP
BBBBBBBBB 0000 0000 0000 0000 TTTT SSSSSSSSS TTTT RRRRRRRRR AAAA AAAA PPPPPPPPP
BBBBBBBBB 0000 0000 0000 0000 TTTT SSSSSSSSS TTTT RRRRRRRRR AAAAAAAAAA PPPPPPPPP
BBBB BBBB 0000 0000 0000 0000 TTTT SSS TTTT RRRR RRRR AAAAAAAAAA PPPP
BBBBBBBBB 0000000000 0000000000 TTTT SSSSSSS TTTT RRRR RRRR AAAA AAAA PPPP
BBBBBBBBB 0000000000 0000000000 TTTT SSSSSSS TTTT RRRR RRRR AAAA AAAA PPPP

```
00000                    IDENT    BOOT88                VER#2  REL#2
00001                  * THIS BOOTSTRAP PERFORMS LOADING IN CORE OF BINARY TAPE IN 8+8 FORMAT
00002                  * FROM HIGH SPEED PUNCHED TAPE READER WITH PHYSICAL HEXADECIMAL
00003                  * ADDRESS /20 ON P855 OR P860 COMPUTERS
00004                  *
00005                  *
00006                  * THE BINARY CODE READ FROM PAPER TAPE IS LOADED AT ADDRESS FOUND IN
00007                  * SECOND USEFUL WORD OF THE TAPE ADDED WITH THE CONTENT OF LOCATION
00008                  * /3C IN THE BOOTSTRAP.
00009                  * THIS ALLOWS PARAMETERISATION OF LOADING ADDRESS OF BINARY PROGRAMS
00010                  * ON PAPERTAPE. (DEPENDING ON MEMORY SIZE)
00011                  *
00012                  * CAUTION :
00013                  **********
00014                  *           IF BINARY LOADED PROGRAM CONTAINS MEMORY DIRECT REFERENCES,
00015                  *           LOCATION /3C MUST CONTAIN /0000
00016                  *
00017                  *
00018                  * ON LOADING COMPLETION, THE BOOTSTRAP PERFORMS A BRANCH TO THE FIRST
00019                  * LOADED LOCATION. AT THIS STAGE, A1 CONTAINS THE 1 WORD COMPUTED
00020                  * CHECKSUM FROM PAPERTAPE AND THE PAPERTAPE READER IS STILL ACTIVE,
00021                  * CONSEQUENTLY, THE LOADED PROGRAM HAS OPPORTUNITY BY ISSUING TWO
00022                  * OTR FOLLOWED BY CIO HALT AND SST TO COMPARE PUNCHED AND
00023                  * COMPUTED CHECKSUM
00024                  * IF THIS IS NOT THE CASE, THE PUNCHED TAPE READER CONTROLLER WILL
00025                  * AUTOMATICALLY SWITCH INTO SST STATE, CONSEQUENTLY IT IS THEN
00026                  * NECESSARY TO DEPRESS 'MASTER CLEAR' BUTTON IN ORDER TO RESET THE
00027                  * PTR CONTROLLER
00028                  *
00029                  ********************************************************************************
```

```
00030                                EJECT
00031                    CODE        EQU     *+/2E
00032                    PR          EQU     /20
00033                    S           EQU     1
00034  0000  20BF                    INH
00035  0002  41E0                    CIO     A1,S,PR
00036  0004  4A20      SEARCH        INR     A2,0,PR
00037  0006  5C04                    RB(4)   *-2
00038  0008  227F                    ANK     A2,/7F
00039  000A  5808                    RB(0)   SEARCH
00040  000C  0704                    LDK     A7,4
00041  000E  0540                    LDK     A5,/40
00042                    INPUT       EQU     *
00043  0010  4A20                    INR     A2,0,PR
00044  0012  5C04                    RB(4)   *-2
00045  0014  E235                    SCR     A2,A5
00046  0016  1501                    ADK     A5,1
00047  0018  1F01                    SUK     A7,1
00048  001A  590C                    RB(1)   INPUT
00049  001C  5210                    RF(2)   CODE
00050  001E  BAC0                    ML      5,/3A
       0020  003A
00051  0022  1502                    ADK     A5,2
00052  0024  9508                    ADR     A5,A2
00053  0026  3C41                    SLL     A4,1
00054  0028  8614                    LDR     A6,A5
00055  002A  0100                    LDK     A1,0
00056  002C  5F1E                    RB      INPUT
00057                  * CODE LABEL
00058  002E  E104                    ECR     A1,A1
00059  0030  B108                    XRR     A1,A2
00060  0032  1C01                    SUK     A4,1
00061  0034  5C26                    RB(4)   INPUT
00062  0036  8F18                    ABR     A6
00063  0038  0000                    DATA    0       UNUSED
00064  003A  0000                    DATA    0       UNUSED
00065  003C  0000                    DATA    0       MUST CONTAIN BASE ADDRESS
00066  003E  0000                    DATA    0       UNUSED
00067                                END
```

```
                SYMBOL TABLE

CODE    002E  R   PR      0020  A   $       0001  A   SEARCH  0004  R
INPUT   0010  R

                ASS,ERR,    00000
```

```
PPPPPPPPPPP    AAAAAAAA   PPPPPPPPPPP  EEEEEEEEEEEE RRRRRRRRRRR
PPPPPPPPPPPP  AAAAAAAAAA  PPPPPPPPPPPP EEEEEEEEEEEE RRRRRRRRRRRR
PPPP       PP AAAAA  AAAAA PPPP       PP EEEE         RRRR      RRR
PPPPPPPPPPPP AAAA    AAAA PPPPPPPPPPPP EEEEEEEEE    RRRRRRRRRRR
PPPPPPPPPPP  AAAAAAAAAAAA PPPPPPPPPPP  EEEEEEEEE    RRRRRRRRRRR
PPPP         AAAAAAAAAAAA PPPP         EEEE         RRRR  RRRR
PPPP         AAAA    AAAA PPPP         EEEEEEEEEEEE RRRR    RRRR
PPPP         AAAA    AAAA PPPP         EEEEEEEEEEEE RRRR     RRRR

TTTTTTTTTTTT   AAAAAAAA   PPPPPPPPPPP  EEEEEEEEEEEE
TTTTTTTTTTTT  AAAAAAAAAA  PPPPPPPPPPPP EEEEEEEEEEEE
    TTTT     AAAAA  AAAAA PPPP       PP EEEE
    TTTT     AAAA    AAAA PPPPPPPPPPPP EEEEEEEEE
    TTTT     AAAAAAAAAAAA PPPPPPPPPPP  EEEEEEEEE
    TTTT     AAAAAAAAAAAA PPPP         EEEE
    TTTT     AAAA    AAAA PPPP         EEEEEEEEEEEE
    TTTT     AAAA    AAAA PPPP         EEEEEEEEEEEE

       IIIIIIIIII  PPPPPPPPPPP  LLLL
          IIII     PPPPPPPPPPPP LLLL
          IIII     PPPP       PP LLLL
          IIII     PPPPPPPPPPPP LLLL
          IIII     PPPPPPPPPPP  LLLL
          IIII     PPPP         LLLL
          IIII     PPPP         LLLLLLLLLLLL
       IIIIIIIIII  PPPP         LLLLLLLLLLLL
```

```
00000                                IDENT   IPLCD
00001                          PTR   EQU     /20
00002                          ASR   EQU     /10
00003                          S     EQU     1
00004                          H     EQU     0
00005  0000  8380              START LDR     A11,P
00006                          BASE  EQU     *
00007  0002  85A0                    LDK,L   A13,OUTMSG-BASE
       0004  0000  F
00008  0006  958E                    ADR     A13,A11
00009  0008  0602                    LDK     A6,2
00010  000A  4A20              INR   INR     A2,0,PTR
00011  000C  5C04                    RB(4)   *-2             INPUT CKSUM
00012  000E  22FF                    ANK     A2,/FF
00013  0010  3D48                    SLL     A5,8
00014  0012  9508                    ADR     A5,A2
00015  0014  1E01                    SUK     A6,1
00016  0016  5C0E                    RB(4)   INR
00017  0018  42A0                    CIO     A2,H,PTR
00018  001A  4AE0                    SST     A2,PTR
00019  001C  5C04                    RB(4)   *-2
00020  001E  86A0                    LDK,L   A14,CFZON-BASE
       0020  0000  F
00021  0022  968E                    ADR     A14,A11
00022  0024  8114                    XRR     A1,A5
00023  0026  5000  F                 RF(0)   CKOK            TEST IF CKSUM  OK
00024  0028  8120              ERCKSM LDK,L  A1,CKERMG-BASE
       002A  0000  F
00025  002C  910E                    ADR     A1,A11
00026  002E  020C                    LDK     A2,12
00027  0030  F697                    CFR     A14,A13
00028  0032  207F                    HLT                     YOU BETTER RELOAD BY BOOTSTRAP
00029  0034  424F              CKERMG DATA   'BOOT CK ER'
       0036  4F54
       0038  2043
       003A  4B20
       003C  4552
00030  003E  0D0A                    DATA    /0D0A
00031  0040  4F42              SYSMSG DATA   'OBJCT TAPE ON RE'
       0042  4A43
       0044  5420
       0046  5441
       0048  5045
       004A  204F
       004C  4E20
       004E  5245
00032  0050  4144                    DATA    'ADER, THINK OF B'
       0052  4552
       0054  2E20
       0056  5448
```

```
                0058  494E
                005A  4820
                005C  4F46
                005E  2042
00033           0060  4153                DATA    'ASE !'
                0062  4520
                0064  2120
00034           0066  0D0A                DATA    /0D0A
00035                               STAD    EQU     *
00036           0068  4543          ECMSG   DATA    'EC'
00037           006A  0D0A                DATA    X'0D0A'
00038           006C  4F56          OFLMSG  DATA    'OVFR'
                006E  4652
00039           0070  0D0A                DATA    /0D0A
00040           0072                      RES     4
00041                               CFZON   EQU     *-2
00042           007A  0300          OUTMSG  LDK     A3,0
00043           007C  43D0                CIO     A3,S,ASR
00044           007E  E324                LCR     A3,A1
00045           0080  4310          OTR     OTR     A3,0,ASR
00046           0082  5C04                RB(4)   *-2
00047           0084  1101                ADK     A1,1
00048           0086  1A01                SUK     A2,1
00049           0088  5C0C                RB(4)   OTR-2
00050           008A  4390                CIO     A3,H,ASR
00051           008C  48D0                SST     A3,ASR
00052           008E  5C04                RB(4)   *-2
00053           0090  F03A                RTN     A14
00054           0092  013E          CKOK    LDK     A1,SYSMSG-BASE
00055           0094  910E                ADR     A1,A11
00056           0096  0228              LDK     A2,/28
00057           0098  F697                CFR     A14,A13
00058           009A  81A0                LDK,L   A9,/40
                009C  0040
00059           009E  207F                HLT
00060           00A0  84A0                LDK,L   A12,MNLD-BASE
                00A2  0000  F
00061           00A4  948E                ADR     A12,A11
00062           00A6  F693                CFR     A14,A12
00063           00A8  814E                LD      A1,COREND-BASE,A11
                00AA  0000  F
00064           00AC  8C04                ABR(4)  A1              EOS  OR EOF HAS BEEN READ
00065           00AE  207F                HLT                      NO START ADDRESS
00066           00B0  0000          BADDR   DATA    0
00067           00B2  0300          RAFL    LDK     A3,0
00068           00B4  0700                  LDK     A7,0
00069           00B6  8520                  LDK,L   A5,BUFF-BASE
                00B8  0000  F
00070           00BA  950E                  ADR     A5,A11
00071           00BC  0600                  LDK     A6,0
```

```
00072  00BE  46E0          CIO     A6,S,PTR      AVAILABLE ON THE PAPER READER
00073  00C0  4A20    INP2  INR     A2,0,PTR
00074  00C2  5C04          RB(4)   *+2
00075  00C4  5700  F       RF(7)   SWITCH
00076  00C6  EF04    OBJINP CWR    A7,A1
00077  00C8  5000  F       RF(0)   END2
00078  00CA  E235          SCR     A2,A5
00079  00CC  B408          XRR     A4,A2
00080  00CE  1501          ADK     A5,1
00081  00D0  EF20          CWK     A7,1
       00D2  0001
00082  00D4  5400  F       RF(4)   OBJIN1
00083  00D6  0400          LDK     A4,0
00084  00D8  8108          LDR     A1,A2
00085  00DA  9108          ADR     A1,A2
00086  00DC  1103          ADK     A1,3
00087  00DE  1701    OBJIN1 ADK    A7,1
00088  00E0  5F22          RB(7)   INP2
00089  00E2  220F    FIRST ANK     A2,/F
00090  00E4  0150          LDK     A1,80
00091  00E6  5F22          RB(7)   OBJINP
00092  00E8  42A0    END2  CIO     A2,H,PTR
00093  00EA  49E0          SST     A1,PTR
00094  00EC  5C04          RB(4)   *+2
00095  00EE  24FF          ANK     A4,/FF
00096  00F0  5000  F       RF(0)   PROL01+2
00097  00F2  0166          LDK     A1,ECMSG-BASE
00098  00F4  910E          ADR     A1,A11
00099  00F6  0204          LDK     A2,4
00100  00F8  84A0          LDK,L   A12,OUTMSG-BASE
       00FA  0078
00101  00FC  948E          ADR     A12,A11
00102  00FE  F693          CFR     A14,A12
00103  0100  207F    STOP  HLT
00104  0102  5F52          RB(7)   RAFL
00105  0104  EA20    ASCINP CWK    A2,/0D
       0106  000D
00106  0108  5000  F       RF(0)   END1
00107  010A  EF20          CWK     A7,68
       010C  0044
00108  010E  5850          RB(0)   INP2
00109  0110  E235          SCR     A2,A5
00110  0112  1501          ADK     A5,1
00111  0114  1701          ADK     A7,1
00112  0116  5F58          RB(7)   INP2
00113  0118  42A0    END1  CIO     A2,H,PTR
00114  011A  4AE0          SST     A2,PTR
00115  011C  5C04          RB(4)   *+2
00116  011E  8120          LDK,L   A1,BUFF-BASE
       0120  0000  F
```

```
00117  0122  910E                    ADR       A1,A11
00118  0124  821C                    LDR       A2,A7
00119  0126  0320                    LDK       A3,/20
00120  0128  E335                    SCR       A3,A5
00121  012A  1501                    ADK       A5,1
00122  012C  8320                    LDK,L     A3,/0D0A
       012E  0D0A
00123  0130  8335                    STR       A3,A5
00124  0132  1203                    ADK       A2,3
00125  0134  3A61                    SRL       A2,1
00126  0136  3A41                    SLL       A2,1
00127  0138  F697                    CFR       A14,A13
00128  013A  8220                    LDK,L     A2,BUFF-BASE
       013C  0000  F
00129  013E  920E                    ADR       A2,A11
00130  0140  8328                    LDR*      A3,A2
00131  0142  EB20                    CWK       A3,/3A45            * !E
       0144  3A45
00132  0146  5C96                    RB(4)     RAFL
00133  0148  F03A                    RTN       A14           *EOF OR EOS READ
00134  014A  1300          SWITCH    ADK       A3,0
00135  014C  5988                    RB(1)     OBJINP
00136  014E  227F                    ANK       A2,/7F
00137  0150  5892                    RB(0)     INP2
00138  0152  EA20                    CWK       A2,/7F
       0154  007F
00139  0156  5898                    RB(0)     INP2
00140  0158  1300                    ADK       A3,0
00141  015A  5A58                    RB(2)     ASCINP
00142  015C  EA20                    CWK       A2,/18
       015E  0018
00143  0160  5100  F                 RF(1)     ASCII
00144  0162  EA20                    CWK       A2,/14
       0164  0014
00145  0166  5100  F                 RF(1)     OBJEC
00146  0168  EA20                    CWK       A2,5
       016A  0005
00147  016C  5200  F                 RF(2)     OBJEC
00148  016E  EA20                    CWK       A2,/10
       0170  0010
00149  0172  5CB4                    RB(4)     INP2
00150  0174  1301          OBJEC     ADK       A3,1
00151  0176  5F96                    RB(7)     FIRST
00152  0178  1801          ASCII     SUK       A3,1
00153  017A  5F78                    RB(7)     ASCINP
00154                      *
00155                      *
00156                      *
00157                      * PROCESS LOADING : THIS  MODULE READ A  CLUSTER
00158                      *          AND  BRANCH ACCORDING TO THE CLUSTER TYPE
```

```
00159                          *          ON EXIT   A1 = BUFF  ADDRESS +1
00160                          *                    A2 = WORD  COUNT
00161                          *                    A3 = TYPE
00162                          *          THE TYPE MUST BE    3,4,7   IF NOT THIS :HALT
00163  017C  82A0       PROLO  LDK,L    A10,STAD-BASE      END ADDRESS
       017E  0066
00164  0180  928E              ADR      A10,A11
00165  0182  85A0              LDK,L    A13,OUTMSG-BASE
       0184  0078
00166  0186  958E              ADR      A13,A11
00167                    ABA   EQU      0
00168  0188  81CF              ST       A9,BADDR-BASE,A11       BADDR =BASE ADDRESS
       018A  00AE
00169  018C  208F       PROGLD INH
00170  018E  5FDE       PROLO1 RB(7)    RAFL           READ A CLUSTER
00171  0190  8120              LDK,L    A1,BUFF-BASE
       0192  0000  F
00172  0194  910E              ADR      A1,A11
00173  0196  0401              LDK      A4,1
00174  0198  0300              LDK      A3,0
00175  019A  E324              LCR      A3,A1          A3 = TYPE
00176  019C  1101              ADK      A1,1
00177  019E  E224              LCR      A2,A1          A2 = WORD COUNT
00178  01A0  1101              ADK      A1,1
00179  01A2  EB20              CWK      A3,3
       01A4  0003
00180  01A6  5000  F           RF(0)    CLCODE         BRANCH  ON CLUSTER CODE
00181  01A8  EB20              CWK      A3,4
       01AA  0004
00182  01AC  5000  F           RF(0)    CLIMOD         INTERNAL MODIFICATION
00183  01AE  EB20              CWK      A3,7
       01B0  0007
00184  01B2  5000  F           RF(0)    CLEND          END/START
00185  01B4  5F28              RB(7)    PROLO1
00186  01B6  5FC2       CLCO1  RB(7)    STOP-10
00187                          ************************************
00188                          * CLUSTER CODE  TYPE 3
00189                          *          UPON ENTRY: A1=ADDRESS OF BUFF+1 (RBK
00190                          *                      A2=WORD COUNT
00191                          *                      A9=BADDRESS
00192                          *                      A10=ENDADDRESS
00193                          ************************************************
00194  01B8  834E       CLCODE LD       A3,BUFF+6-BASE,A11
       01BA  0000  F
00195  01BC  5C30              RB(4)    PROLO1       EMBK SET SKIP THE CLUSTER
00196  01BE  834E       CLCO1A LD       A3,BUFF+4-BASE,A11
       01C0  0000  F
00197  01C2  A311              TM       A3,A4        IS IT  RELOCATABLE SECTION
00198  01C4  5000  F           RF(0)    CLCO4
00199  01C6  3301              XRK      A3,1
```

```
00200  01C8  9306        ADR     A3,A9
00201  01CA  8524  CLC04 LDR*    A5,A1          A5=(RBK)
00202  01CC  1106        ADK     A1,6           A1= ADDRESS OF ST CODE WORD IN BUFF
00203  01CE  1A03        SUK     A2,3           A2= NUMBER OF CODE WORD
00204                    *                      A3= STORAGE ADDRESS
00205                    *                      A4= MASK FOR RBK
00206                    *                      A6= CODE WORD
00207  01D0  3CE1  CLC05 SRC     A4,1
00208  01D2  8624        LDR*    A6,A1
00209  01D4  EB0A        CWR     A3,A10         COMPARE LOAD ADDRESS WITH AD OF IPL
00210  01D6  5822        RB(0)   CLC01
00211  01D8  A511        TM      A5,A4
00212  01DA  5000  F     RF(0)   CLC07
00213  01DC  9606        ADR     A6,A9
00214  01DE  862D  CLC07 STR     A6,A3          STORE CODE W=RDS
00215  01E0  1102        ADK     A1,2
00216  01E2  1302        ADK     A3,2
00217  01E4  1A01        SUK     A2,1
00218  01E6  5C18        RB(4)   CLC05
00219  01E8  5F6E        RB(7)   PROLO
00220                    *
00221                    ************************************************************
00222                    * INTERNAL MODIFICATION CLUSTER
00223                    ********************************************
00224  01EA  0701  CLIMOD LDK     A7,1           A7= MASK FOR ADDRESS
00225  01EC  8524        LDR*    A5,A1          A5=(RBK)
00226  01EE  1A01        SUK     A2,1
00227  01F0  3CE1  CLIM1 SRC     A4,1
00228  01F2  1102        ADK     A1,2
00229  01F4  8324        LDR*    A3,A1           A3=ADDRESS
00230  01F6  A31D        TM      A3,A7          IS IT RELOCATABLE
00231  01F8  5000  F     RF(0)   CLIM2          NO
00232  01FA  3301        XRK     A3,1
00233  01FC  9306        ADR     A3,A9          YES AD BASE
00234  01FE  EB0A        CWR     A3,A10         ADDRESS OK
00235  0200  584C        RB(0)   CLC01
00236  0202  1102  CLIM2 ADK     A1,2
00237  0204  8624        LDR*    A6,A1         TAKE CODE WORD
00238  0206  A511        TM      A5,A4         IS IT RELOCATABLE
00239  0208  5000  F     RF(0)   CLIM3
00240  020A  9606        ADR     A6,A9          AD BASE
00241  020C  862D  CLIM3 STR     A6,A3          STORE CODE WORD
00242  020E  1A02        SUK     A2,2
00243  0210  5C22        RB(4)   CLIM1
00244  0212  5F98        RB(7)   PROLO
00245                    ****************************************
00246                    *  CLUSTER  END/START
00247                    ****************************************
00248  0214  8324  CLEND LDR*    A3,A1
00249  0216  5000  F     RF(0)   CLEN3A        FINISH WO START
```

```
00250  0218  A311                    TM        A3,A4
00251  021A  5000  F                 RF(0)     CLEN1
00252  021C  9306                    ADR       A3,A9
00253                     *
00254                     *
00255  021E  A320        CLEN1       ANK,L     A3,/FFFE
       0220  FFFE
00256  0222  834F                    ST        A3,COREND-BASE,A11
       0224  0000  F
00257  0226  814E        CLEN3A      LD        A1,BUFF+6-BASE,A11     UPDATE BASE ADDRESS
       0228  0000  F
00258  022A  914F                    AD,S      A1,BADDR-BASE,A11
       022C  00AE
00259  022E  9184                    ADR       A9,A1
00260  0230  5FB6                    RB        PROLO
00261                     *
00262                     *
00263  0232              BUFF        RES       35
00264  0278  FFFF                    DATA      /FFFF
00265  027A  0000        COREND      DATA      0
00266                     MNLD        EQU       PROLO
00267                                 END       START
```

SYMBOL TABLE

PTR	0020	A	ASR	0010	A	S	0001	A	H	0000	A
START	0000	R	BASE	0002	R	OUTMSG	007A	R	INR	000A	R
CFZON	0078	R	CKOK	0092	R	ERCKSM	0028	R	CKERMG	0034	R
SYSMSG	0040	R	STAD	0068	R	ECMSG	0068	R	OFLMSG	006C	R
OTR	0080	R	MNLD	017C	R	COREND	027A	R	BADDR	00B0	R
RAFL	00B2	R	BUFF	0232	R	INP2	00C0	R	SWITCH	014A	R
OBJINP	00C6	R	END2	00E8	R	OBJIN1	00DE	R	FIRST	00E2	R
PROLO1	018E	R	STOP	0100	R	ASCINP	0104	R	END1	0118	R
ASCII	0178	R	OBJEC	0174	R	PROLO	017C	R	ABA	0000	A
PROGLD	018C	R	CLCODE	0188	R	CLIMOD	01EA	R	CLEND	0214	R
CLCO1	01B6	R	CLCO1A	018E	R	CLCO4	01CA	R	CLCO5	01D0	R
CLCO7	01DE	R	CLIM1	01F0	R	CLIM2	0202	R	CLIM3	020C	R
CLEN3A	0226	R	CLEN1	021E	R						

ASS,ERR, 00000

```
PPPPPPPPPPP  VVVV     VVVV      1111       66666666   555555555555                  00000000     00000000    2222222222
PPPPPPPPPPPP VVVV     VVVV     11111      6666666666  555555555555                 0000000000   0000000000  222222222222
PPPP       PP  VVVV   VVVV     111111     666          555                        00000  00000 00000  00000 222     2222
PPPPPPPPPPPP   VVVV   VVVV    11 1111     66666666666  55555555555   ----------   0000    0000 0000    0000        2222
PPPPPPPPPPP     VVV   VVV        1111     666666666666 555555555555  ----------   0000    0000 0000    0000     2222
PPPP             VVVVVV         1111     666      666          555                 00000  00000 00000  00000   2222
PPPP             VVVVVV         1111     666666666666 555555555555                 0000000000   0000000000  222222222222
PPPP              VVVV      1111111111   6666666666   5555555555                   00000000     00000000   222222222222

BBBBBBBBBB    IIIIIIIIII  NNNNN   NNNN   AAAAAAAA   RRRRRRRRRRR  YYYY    YYYY
BBBBBBBBBBB     IIII      NNNNNN  NNNN  AAAAAAAAAA  RRRRRRRRRRRR YYYY    YYYY
BBBB   BBBB     IIII      NNNNNNN NNNN AAAAA  AAAAA RRRR     RRR  YYYY  YYYY
BBBBBBBBB       IIII      NNNNNNNNNNNN AAAA    AAAA RRRRRRRRRRR    YYYYYYYY
BBBBBBBBBB      IIII      NNNNNNNNNNNN AAAAAAAAAAAA RRRRRRRRRR      YYYYYY
BBBB    BBBB    IIII      NNNN NNNNNNN AAAAAAAAAAAA RRRR  RRRR       YYYY
BBBBBBBBBBB     IIII      NNNN  NNNNNN AAAA    AAAA RRRR   RRRR      YYYY
BBBBBBBBBB    IIIIIIIIII  NNNN   NNNNN AAAA    AAAA RRRR    RRRR     YYYY

  CCCCCCCCC   OOOOOOOOO  RRRRRRRRRR  EEEEEEEEEEE
 CCCCCCCCCCC OOOOOOOOOOO RRRRRRRRRRR EEEEEEEEEEE
CCCCC    CCC OOOO   OOOO RRRR    RRR EEEE
CCCC         OOOO   OOOO RRRRRRRRRRR  EEEEEEEEE
CCCC         OOOO   OOOO RRRRRRRRRR   EEEEEEEEE
CCCCC    CCC OOOO   OOOO RRRR  RRRR   EEEE
 CCCCCCCCCCC OOOOOOOOOOO RRRR   RRRR  EEEEEEEEEEE
  CCCCCCCCC   OOOOOOOOO  RRRR    RRRR EEEEEEEEEEE

DDDDDDDDDD   UUUU    UUUU MMMM    MMMM PPPPPPPPPP
DDDDDDDDDDD  UUUU    UUUU MMMMM  MMMMM PPPPPPPPPPP
DDDD    DDDD UUUU    UUUU MMMMMMMMMMMM PPPP     PP
DDDD     DDD UUUU    UUUU MMMMMMMMMMMM PPPPPPPPPP
DDDD     DDD UUUU    UUUU MMMM MM MMMM PPPPPPPPPP
DDDD    DDDD UUUU    UUUU MMMM    MMMM PPPP
DDDDDDDDDD   UUUUUUUUUUUU MMMM    MMMM PPPP
DDDDDDDDD     UUUUUUUUUU  MMMM    MMMM PPPP
```

```
00000                                IDENT     DUMPSA            15-03-73  REL#2  PV165-002
00001                          *
00002                          *
00003                                ENTRY     DUMPSA
00004                          ASR   EQU       /10
00005                          PTP   EQU       /30
00006                          S     EQU       1
00007                          H     EQU       0
00008                          XOFF  EQU       X'13'
00009                          ROUT  EQU       X'FF'
00010                          TON   EQU       /12
00011                          *
00012                          TOFF  EQU       X'14'
00013                          * STORE IN A1 DEVICE ADDRESS ; /10 FOR ASR
00014                          *                              /30 FOR PTP
00015                          *
00016                          * STORE IN A2 FORMAT OF OUTPUT D /4 FOR 4*4 FORMAT
00017                          *                                /8 FOR 8*8 FORMAT
00018                          *
00019                          *
00020                          * CAUTION D NO CHECK IS MADE ON VALIDITY
00021                          *
00022                          * START AT INIT
00023                          * ON HALT WITH -1 IN A1, THE DUMPSA IS MODIFIED ACCORDING TO USER
00024                          * REQUIREMENTS
00025                          *
00026                          * IT MAY BE DUMPED AND THEN LOADED DIRECTLY BY BOOTSTRAP
00027                          INIT  EQU       *
00028  0000  207F                           HLT                        READY FOR REGISTER LOAD
00029  0002  E920                           CWK       A1,/10
       0004  0010
00030  0006  5000  F                        RF(0)     HALT
00031  0008  8320                           LDK,L     A3,/FFC0
       000A  FFC0
00032  000C  A341                           AN,S      A3,PP1
       000E  0000  F
00033  0010  A341                           AN,S      A3,PP2
       0012  0000  F
00034  0014  A341                           AN,S      A3,PP3
       0016  0000  F
00035  0018  A341                           AN,S      A3,PP4
       001A  0000  F
00036  001C  A341                           AN,S      A3,PP5
       001E  0000  F
00037  0020  A341                           AN,S      A3,PP6
       0022  0000  F
00038  0024  A341                           AN,S      A3,PP7
       0026  0000  F
00039  0028  A341                           AN,S      A3,PP8
       002A  0000  F
```

```
00040  002C  A341          AN,S    A3,PP9
       002E  0000  F
00041  0030  A941          OR,S    A1,PP1
       0032  0000  F
00042  0034  A941          OR,S    A1,PP2
       0036  0000  F
00043  0038  A941          OR,S    A1,PP3
       003A  0000  F
00044  003C  A941          OR,S    A1,PP4
       003E  0000  F
00045  0040  A941          OR,S    A1,PP5
       0042  0000  F
00046  0044  A941          OR,S    A1,PP6
       0046  0000  F
00047  0048  A941          OR,S    A1,PP7
       004A  0000  F
00048  004C  A941           OR,S   A1,PP8
       004E  0000  F
00049  0050  A941           OR,S   A1,PP9
       0052  0000  F
00050  0054  EA20          CWK     A2,4
       0056  0004
00051  0058  5000  F       RF(0)   HALT
00052  005A  8340          LD      A3,M1
       005C  0000  F
00053  005E  8341          ST      A3,EIGHT1
       0060  0000  F
00054  0062  8340          LD      A3,M2
       0064  0000  F
00055  0066  8341          ST      A3,EIGHT2
       0068  0000  F
00056  006A  8340          LD      A3,M3
       006C  0000  F
00057  006E  8341           ST     A3,EIGHT3
       0070  0000  F
00058  0072  8340          LD      A3,M4
       0074  0000  F
00059  0076  8341          ST      A3,EIGHT4
       0078  0000  F
00060  007A  8340          LD      A3,M4+2
       007C  0000  F
00061  007E  8341          ST      A3,EIGHT4+2
       0080  0000  F
00062                HALT   EQU     *
00063  0082  8120          LDK,L   A1,/FFFF
       0084  FFFF
00064  0086  207F          HLT
00065  0088  5700  F       RF(7)   DUMPSA      READY TO START THE DUMP
00066  008A  0602          M1      LDK     A6,2
00067  008C  0508          M2      LDK     A5,8
```

```
00068  008E  27FF      M3      ANK     A7,/FF
00069  0090  8F20      M4      AB,L    Y4
       0092  0000  F
00070                  ********************************************************************************
00071                  *
00072                  * HERE ONLY STARTS THE USEFULL PART ONCE INITIALIZATION HAS
00073                  * BEEN PERFORMED
00074                  *
00075                  ********************************************************************************
00076  0094            STACK   RES     2
00077                  DUMPSA  EQU     *
00078  0098  87A0              LDK,L   A15,STACK
       009A  0094  R
00079  009C  20BF               INH
00080  009E  9A0C              SUR     A2,A3
00081  00A0  3A21              SRA     A2,1
00082  00A2  1201              ADK     A2,1            A2= WORD  COUNT
00083  00A4  0100              LDK     A1,0
00084                  PP1     EQU     *
00085  00A6  41D0              CIO     A1,S,ASR    PUT ASR  IN  OUTPUT
00086  00A8  5C04              RB(4)   *+2
00087  00AA  0112              LDK     A1,TON      OUTPUT TAPE=ON
00088                  PP2     EQU     *
00089  00AC  4110              OTR     A1,0,ASR
00090  00AE  5C04              RB(4)   *+2
00091  00B0  0480              LDK     A4,/80      OUTPUT 128 NULLS ON TAPPE
00092  00B2  0100              LDK     A1,0
00093                  PP3     EQU     *
00094  00B4  4110              OTR     A1,0,ASR
00095  00B6  5C04              RB(4)   *+2
00096  00B8  1C01              SUK     A4,1
00097  00BA  5C08              RB(4)   *+6
00098  00BC  01FF              LDK     A1,ROUT     OUTPUT RUB=OUT
00099                  PP4     EQU     *
00100  00BE  4110              OTR     A1,0,ASR
00101  00C0  5C04              RB(4)   *+2
00102  00C2  0100              LDK     A1,0         A1 = CHECKSUM
00103  00C4  8408              LDR     A4,A2        A4 = WORD COUNT
00104  00C6  F7A1              CF      A15,S4
       00C8  0000  F
00105                                               OUTPUT  WORD COUNT
00106  00CA  820C              LDR     A2,A3
00107  00CC  1A02              SUK     A2,2
00108  00CE  F7A1              CF      A15,S4
       00D0  0000  F
00109  00D2  822C      DB1     LDR*    A2,A3        OUTPUT   CODE WORD
00110  00D4  B108              XRR     A1,A2       CHECKSUM
00111  00D6  F7A1              CF      A15,S4
       00D8  0000  F
00112  00DA  1302              ADK     A3,2
```

```
00113  00DC  1C01          SUK     A4,1        DECREMENT WORD COUNT
00114  00DE  590E          RB(1)   DB1         NOT YET FINISHED  LOOP
00115  00E0  8204          LDR     A2,A1       OUTPUT  CHECKSUM
00116  00E2  F7A1          CF      A15,S4
       00E4  0000  F
00117  00E6  0213          LDK     A2,XOFF     OUTPUT   X=OFF
00118                PP5   EQU     *
00119  00E8  4210          OTR     A2,0,ASR
00120  00EA  5C04          RB(4)   *=2
00121  00EC  0214          LDK     A2,TOFF     OUTPUT  T=OFF
00122                PP6   EQU     *
00123  00EE  4210          OTR     A2,0,ASR
00124  00F0  5C04          RB(4)   *=2
00125                PP7   EQU     *
00126  00F2  4290          CIO     A2,H,ASR
00127                PP8   EQU     *
00128  00F4  49D0           SST      A1,ASR
00129  00F6  5C04           RB(4)    *=2
00130  00F8  207F          HLT
00131  00FA  5F64          RB      DUMPSA      READY FOR ANOTHER DUMP
00132                      *
00133                      *
00134                EIGHT1 EQU    *
00135  00FC  0604    S4    LDK     A6,4
00136                EIGHT2 EQU    *
00137  00FE  050C    Y1    LDK     A5,12
00138  0100  3AE1    Y2    SRC     A2,1
00139  0102  1D01          SUK     A5,1
00140  0104  5906          RB(1)   Y2
00141  0106  8708          LDR     A7,A2
00142                EIGHT3 EQU    *
00143  0108  270F          ANK     A7,X'F'
00144                EIGHT4 EQU    *
00145  010A  5000  F       RF(0)   Y3
00146  010C  EF20          CWK     A7,5
       010E  0005
00147  0110  5200  F       RF(2)   Y4
00148  0112  2F10    Y3    ORK     A7,X'10'
00149                PP9   EQU     *
00150  0114  4710    Y4    OTR     A7,0,ASR
00151  0116  5C04          RB(4)   *=2
00152  0118  1E01          SUK     A6,1
00153  011A  591E          RB(1)   Y1
00154  011C  97A0          ADK,L   A15,4
       011E  0004
00155  0120  8F3E          ABR*    A15
00156                      *
00157                      *
00158                      *
00159                      END     INIT
```

SYMBOL TABLE

DUMPSA	0098	R	ASR	0010	A	PTP	0030	A	S	0001	A
H	0000	A	XOFF	0013	A	ROUT	00FF	A	TON	0012	A
TOFF	0014	A	INIT	0000	R	HALT	0082	R	PP1	00A6	R
PP2	00AC	R	PP3	00B4	R	PP4	00BE	R	PP5	00E8	R
PP6	00EE	R	PP7	00F2	R	PP8	00F4	R	PP9	0114	R
M1	008A	R	EIGHT1	00FC	R	M2	008C	R	EIGHT2	00FE	R
M3	008E	R	EIGHT3	0108	R	M4	0090	R	EIGHT4	010A	R
Y4	0114	R	STACK	0094	R	S4	00FC	R	DB1	00D2	R
Y1	00FE	R	Y2	0100	R	Y3	0112	R			

ASS,ERR, 00000

```
PPPPPPPPPPP  VVVV     VVVV      1111       66666666   555555555555                 00000000     00000000    3333333333
PPPPPPPPPPPP VVVV     VVVV     11111      6666666666  555555555555                 00000000000  00000000000 333333333333
PPPP       PP  VVVV   VVVV    111111     666          555                         00000  00000 00000  00000 333     3333
PPPPPPPPPPPP   VVVV   VVVV   11 1111     66666666666  55555555555   ----------    0000    0000 0000    0000      33333333
PPPPPPPPPPP     VVV   VVV       1111     666666666666 555555555555  ----------    0000    0000 0000    0000      33333333
PPPP             VVVVVV         1111     666      666          555                 00000  00000 00000  00000 333     3333
PPPP             VVVVVV         1111     666666666666 555555555555                 0000000000   0000000000  333333333333
PPPP              VVVV       1111111111   6666666666   5555555555                  00000000     00000000    333333333
```

```
  AAAAAAAA     SSSSSSSS     CCCCCCCCC   IIIIIIIIII   IIIIIIIIII
 AAAAAAAAAA   SSSSSSSSSS   CCCCCCCCCCC     IIII         IIII
AAAAA  AAAAA SSS          CCCCC    CCC     IIII         IIII
AAAA    AAAA SSSSSSSSSSS  CCCC             IIII         IIII
AAAAAAAAAAAA  SSSSSSSSSS  CCCC             IIII         IIII
AAAAAAAAAAAA          SSS CCCCC    CCC     IIII         IIII
AAAA    AAAA  SSSSSSSSSS   CCCCCCCCCCC     IIII         IIII
AAAA    AAAA   SSSSSSSS     CCCCCCCCC   IIIIIIIIII   IIIIIIIIII
```

```
  CCCCCCCCC   OOOOOOOOOO  RRRRRRRRRR  EEEEEEEEEEE
 CCCCCCCCCCC OOOOOOOOOOOO RRRRRRRRRRR EEEEEEEEEEE
CCCCC    CCC OOOO    OOOO RRRR     RRR EEEE
CCCC         OOOO    OOOO RRRRRRRRRRR  EEEEEEEEE
CCCC         OOOO    OOOO RRRRRRRRRRR  EEEEEEEEE
CCCCC    CCC OOOO    OOOO RRRR  RRRR   EEEE
 CCCCCCCCCCC OOOOOOOOOOOO RRRR   RRRR  EEEEEEEEEEE
  CCCCCCCCC   OOOOOOOOOO  RRRR    RRRR EEEEEEEEEEE
```

```
DDDDDDDDD   UUUU    UUUU MMMM    MMMM PPPPPPPPPP
DDDDDDDDDD  UUUU    UUUU MMMMM  MMMMM PPPPPPPPPPP
DDDD    DDDD UUUU    UUUU MMMMMMMMMMMM PPPP      PP
DDDD     DDD UUUU    UUUU MMMMMMMMMMMM PPPPPPPPPPP
DDDD     DDD UUUU    UUUU MMMM MM MMMM PPPPPPPPPP
DDDD    DDDD UUUU    UUUU MMMM    MMMM PPPP
DDDDDDDDDD  UUUUUUUUUUUU MMMM    MMMM PPPP
DDDDDDDDD    UUUUUUUUUU  MMMM    MMMM PPPP
```

```
00000                                IDENT     DMLPSA          15=03=73  REL#2 PV165=003
00001                          *
00002                          *
00003                          *STAND  ALONE  HEXADECIMAL MEMORY DUMP.
00004                          *        THIS MODULE  OUTPUT THE  CONTENT OF CORE MEMORY
00005                          * ON ASR OR LINE PRINTER EITHER ON BUS OR MX
00006                          *
00007                          *
00008                          * ENTRY CONDITIONS
00009                          *                                  A8=DEVICE ADDRESS
00010                          * SET BIT 0 IF  PROGRAMMED CHANNEL
00011                                              A9=FIRST  ADDRESS TO BE DUMPED
00012                                              A10=LAST ADDRESS TO BE DUMPED
00013                          *
00014                          *
00015                          DMLPSA   EQU      *
00016  0000  207F                       HLT                        READY FOR REGISTER LOAD
00017  0002  87A0                       LDK,L     A15,STACK
       0004  0000  F
00018  0006  010C                       LDK       A1,/0C
00019  0008  E141                       SC        A1,BUFCP=1
       000A  0000  F
00020  000C  8120                       LDK,L     A1,=50
       000E  FFCE
00021  0010  8141                       ST        A1,LINE
       0012  0000  F
00022  0014  8102                       LDR       A1,A8
00023  0016  29C0                        ORK      A1,/C0
00024  0018  E141                       SC        A1,CIOLNE+1  SET  CIO  INST
       001A  0000  F
00025  001C  E141                       SC        A1,SSTLNE+1  SET  SST  INST
       001E  0000  F
00026  0020  8102                       LDR       A1,A8
00027  0022  5100  F                    RF(1)     DEVMX        BRANCH IF DEVICE ON MX
00028                          * ELSE GENERATE OTR AND HALT
00029  0024  E141                       SC        A1,OTRLNE+1
       0026  0000  F
00030  0028  2980                       ORK       A1,/80
00031  002A  E141                       SC        A1,HLTLNE+1
       002C  0000  F
00032  002E  0100                       LDK       A1,0
00033  0030  8141                       ST        A1,MULTX     SET FLAG TO 0 FOR BUS
       0032  0000  F
00034  0034  5700  F                    RF        COMM
00035                          DEVMX    EQU       *
00036  0036  3941                       SLL       A1,1
00037  0038  3941                       SLL       A1,1
00038  003A  1180                       ADK       A1,/80
00039  003C  8141                       ST        A1,MULTX     SET MULTIPLEX ADDRESS
       003E  0000  F
```

```
00040
00041                        COMM    EQU     *
00042  0040  8306                    LDR     A3,A9
00043  0042  AAA0                    ORK,L   A10,/E
       0044  000E
00044  0046  A320                    ANK,L   A3,/FFF0
       0048  FFF0
00045  004A  8620              DMH0  LDK,L   A6,BUFCP    A6= ADDRESS WHERE TO STORE CHARACTERS
       004C  0000  F
00046  004E  8120                    LDK,L   A1,/2020
       0050  2020
00047  0052  870C                    LDR     A7,A3
00048  0054  F7A1                    CF      A15,BH      BH  CONVERTS  NUMBER A7 AND STORES
       0056  0000  F
00049                        *                           IT  IN  BUFCP
00050  0058  8139                    STR     A1,A6       STORE  TWO MORE  BLANKS
00051  005A  1602                    ADK     A6,2
00052                        *
00053                        *
00054  005C  0500                    LDK     A5,0        COUNT  OF WORDS
00055  005E  872C                    LDR*    A7,A3       TAKE FIRST WORD
00056                        *
00057  0060  1502              DMH1  ADK     A5,2
00058  0062  1302                    ADK     A3,2
00059  0064  EB0A                    CWR     A3,A10      END OF DUMP ?
00060  0066  5100  F                 RF(1)   DMHA
00061  0068  842C                    LDR*    A4,A3       A4=NEXT WORD
00062  006A  EC1C                    CWR     A4,A7       IS IT THE SAME THAN FIRST WORD
00063  006C  580E                    RB(0)   DMH1        YES,LOOP
00064                        *
00065  006E  ED20                    CWK     A5,14       NO  ARE WE STILL ON FIRST LINE
       0070  000E
00066  0072  5100  F                 RF(1)   DMHA              NO  GO  TO PRINT  BLANKS
00067  0074  0400                    LDK     A4,0              UES  ,PREPARE  THE LINE
00068  0076  F7A1              DMH2  CF      A15,BH            CONVERT AND STORE  THE FIRST WORD   &
       0078  0000  F
00069  007A  F7A1                    CF      A15,STOINT  STORE INTERRATION
       007C  0000  F
00070  007E  1402                    ADK     A4,2
00071  0080  ED10                    CWR     A5,A4
00072  0082  590E                    RB(1)    DMH2
00073                        *
00074  0084  872C              DMH3  LDR*    A7,A3
00075  0086  1302                    ADK     A3,2
00076  0088  F7A1                    CF      A15,BH            CONVERT AND STORE  THE
       008A  0000  F
00077  008C  F7A1                    CF      A15,STOINT  REMAIN  OF  THE  LINE
       008E  0000  F
00078  0090  1402                    ADK     A4,2
00079  0092  EC20                    CWK     A4,16
```

```
                0094  0010
00080           0096  5A14                RB(2)    DMH3
00081           0098  0648                LDK      A6,72
00082           009A  F7A1          DMH5    CF       A15,CIO      CALL OUTPUT FUNCTION
                009C  0000  F
00083           009E  EB0A                CWR      A3,A10        END OF DUMP ?
00084           00A0  5A58                RB(2)    DMH0           NO , LOOP  TO  BEGIN
00085           00A2  207F                HLT                      HLT**********************************
00086           00A4  5FA6                RB       DMLPSA      READY FOR ANOTHER DUMP
00087                                 ** THIS IS THE CASE  WHERE    ALL THE NUMBERS OF THE LINE
00088                                 **                  ARE DENTICAL
00089           00A6  F7A1          DMHA    CF       A15,BH        CONVERT  AND STORE  FIRST  WORD
                00A8  0000  F
00090           00AA  A320                ANK,L    A3,/FFF0
                00AC  FFF0
00091           00AE  060C                LDK      A6,12         NUMBER OF CHARACTER IN BUFCP
00092           00B0  5F18                RB(7)    DMH5
00093                                 *
00094                                 *
00095                                 ********************************************************************************
00096                                 ********************************************************************************
00097                                 *
00098                                 *
00099           00B2  20BF          CIO     INH                    PRIN OF A LINE ROUTINE
00100           00B4  B93F                MSR      2,A15
00101           00B6  1602                ADK      A6,2           A6=LENGTH TO OUTPUT
00102           00B8  8118                LDR      A1,A6
00103           00BA  F904                CIR      A1,A1
00104           00BC  A120                ANK,L    A1,/FFF
                00BE  0FFF
00105           00C0  1101                ADK      A1,1
00106           00C2  A920                ORK,L    A1,/8000      1ST MULTIPLEX WORD COMPUTED
                00C4  8000
00107           00C6  8218                LDR      A2,A6
00108           00C8  1A01                SUK      A2,1
00109           00CA  9220                ADK,L    A2,BUFCP-2     SECOND MULTIPLEX WORD
                00CC  0000  F
00110           00CE  B941                MS       2,MULTX         SET MULTIPLEX LOCATIONS
                00D0  0000  F
00111                               MULTX   EQU      *-2
00112           00D2  9041                IM       LINE
                00D4  0000  F
00113           00D6  0100                LDK      A1,0
00114           00D8  4180          CIOLNE  CIO      A1,0,0
00115           00DA  8140                LD       A1,MULTX
                00DC  00D0  R
00116           00DE  5400  F             RF(4)    SSTLNE      JUMP TO SST IF MX
00117           00E0  8220                LDK,L    A2,BUFCP-2
                00E2  0000  F
00118           00E4  010A                LDK      A1,/A
```

```
00119  00E6  E141            SC      A1,BUFCP-1
       00E8  0000  F
00120                 PRNT    EQU     *
00121  00EA  E128            LCR     A1,A2
00122  00EC  4100      OTRLNE  OTR     A1,0,0
00123  00EE  5C04            RB(4)   *-2
00124  00F0  1201            ADK     A2,1
00125  00F2  1E01            SUK     A6,1
00126  00F4  5C0C            RB(4)   PRNT
00127  00F6  4180      HLTLNE  CIO     A1,0,0
00128  00F8  49C0      SSTLNE  SST     A1,0          LOOP UNTIL LINE
00129  00FA  5C04            RB(4)   *-2           IS PRINTED
00130  00FC  8120            LDK,L   A1,0
       00FE  0000
00131                 LINE    EQU     *-2
00132  0100  5400  F         RF(4)   RETURN
00133  0102  010C            LDK     A1,/C         FORM FEED
00134  0104  E141            SC      A1,BUFCP-1
       0106  0000  F
00135  0108  8120            LDK,L   A1,-50        REINITIALIZE  LINE
       010A  FFCE
00136  010C  8141            ST      A1,LINE       COUNT
       010E  00FE  R
00137  0110  5700  F         RF      RTN
00138  0112  010A      RETURN  LDK     A1,/0A
00139  0114  E141            SC      A1,BUFCP-1
       0116  0000  F
00140  0118  B93E      RTN     MLR     2,A15
00141  011A  F03E              RTN     A15
00142                 ********************************************************************************
00143                 *  STORE INTEPRATION ROUTINE
00144                 * A7 CONTAINS THE CHARACTERS TO BE STORED
00145                 *
00146                 *
00147  011C  823F      STOINT  STR     A2,A15
00148  011E  873F              STR     A7,A15
00149  0120  0200              LDK     A2,0
00150  0122  E09C              ECR     A8,A7
00151  0124  27FF      DMH2C   ANK     A7,/FF
00152  0126  EF20              CWK     A7,/20
       0128  0020
00153  012A  5200  F           RF(2)   DMH2A
00154  012C  EF20            CWK     A7,/60
       012E  0060
00155  0130  5200  F         RF(2)   DMH2B
00156  0132  0720      DMH2A   LDK     A7,/20
00157  0134  1200      DMH2B   ADK     A2,0
00158  0136  5100  F         RF(1)   DMH2D
00159  0138  E751            SC      A7,BUFCP+57,A4
       013A  0000  F
```

```
00160  013C  8702            LDR       A7,A8
00161  013E  1201            ADK       A2,1
00162  0140  5F1E            RB(7)     DMH2C
00163  0142  E751      DMH2D SC        A7,BUFCP+56,A4
       0144  0000  F
00164  0146  873E            LDR*      A7,A15
00165  0148  823E            LDR*      A2,A15
00166  014A  F03E            RTN       A15
00167                  *
00168                  *
00169                  ********************************************************************************
00170                  ********************************************************************************
00171                  *
00172                  ********************************************************************************
00173                  ********************************************************************************
00174                  * BH SUBROUTINE    CONVERT THE NUMBER GIVEN IN A7
00175                  *         INTO      HEXADECIMAL  CHARACTERS , AND STORE IN BUFCP
00176                  *         AFTER  THAT PUT A BLANK LOCATION IN  BUFCP
00177                  *
00178                  *
00179                  *         UPON  ENTRY      A7=  NUMBER (BINARY) TO  CONVERT)
00180                  *                          A6=  ADDRESS OF STORING AREA
00181                  *                          A1=  BLANKS
00182                  *
00183                  *         UPON  EXIT       A6  IS  UPDATED
00184                  *                          A7  NOT  DESTROYED
00185                  *
00186                  *
00187                  ********************************************************************************
00188                  ********************************************************************************
00189  014C  853F      BH        STR       A5,A15
00190  014E  843F                STR       A4,A15
00191  0150  0404                LDK       A4,4
00192  0152  050C      BH0       LDK       A5,12
00193  0154  3FE1      BH1       SRC       A7,1                    SHIFT OF TWELVE (RIGHT CIRCULAR)
00194  0156  1D01                SUK       A5,1
00195  0158  5906                RB(1)     BH1
00196  015A  050F                LDK       A5,X'F'       CONVERT
00197  015C  A51C                ANR       A5,A7
00198  015E  1530                ADK       A5,X'30'
00199  0160  ED20                CWK       A5,X'3A'
       0162  003A
00200  0164  5200  F             RF(2)     BH2
00201  0166  1507                ADK       A5,X'7'
00202  0168  E539      BH2       SCR       A5,A6         STORE VIA  A6
00203  016A  1601                ADK       A6,1
00204  016C  1C01                SUK       A4,1
00205  016E  EC20                CWK       A4,0          IS IT FINISHED
       0170  0000
00206  0172  5922                RB(1)     BH0
```

```
00207  0174  8139                STR     A1,A6       YES , STORE  BLANKS
00208  0176  1602                ADK     A6,2
00209  0178  843E                LDR*    A4,A15
00210  017A  853E                LDR*    A5,A15
00211  017C  F03E                RTN     A15
00212                    ********************************************************************************
00213                    *
00214                    *
00215                    *
00216  017E  0D0A                DATA    /0D0A
00217  0180              BUFCP   RES     36
00218                    ENDAD   EQU     *-2
00219  01C8                      RES     10
00220                    STACK   EQU     *-2
00221                    *
00222                    *
00223                            END     DMLPSA
```

SYMBOL TABLE

DMLPSA	0000	R	STACK	01DA	R	BUFCP	0180	R	LINE	00FE	R
CIOLNE	00D8	R	SSTLNE	00F8	R	DEVMX	0036	R	OTRLNE	00EC	R
MLTLNE	00F6	R	MULTX	00D0	R	COMM	0040	R	DMH0	004A	R
BH	014C	R	DMH1	0060	R	DMHA	00A6	R	DMH2	0076	R
STOINT	011C	R	DMH3	0084	R	DMH5	009A	R	CIO	00B2	R
PRNT	00EA	R	RETURN	0112	R	RTN	0118	R	DMH2C	0124	R
DMH2A	0132	R	DMH2B	0134	R	DMH2D	0142	R	BH0	0152	R
BH1	0154	R	BH2	0168	R	ENDAD	01C6	R			

ASS,ERR, 00000


PPPPPPPPPPP VVVV VVVV 1111 66666666 3333333333 00000000 00000000 2222222222
PPPPPPPPPPPP VVVV VVVV 11111 6666666666 333333333333 0000000000 0000000000 222222222222
PPPP PP VVVV VVVV 111111 666 333 3333 00000 00000 00000 00000 222 2222
PPPPPPPPPPPP VVVV VVVV 11 1111 66666666666 33333333 ========== 0000 0000 0000 0000 2222
PPPPPPPPPPP VVV VVV 1111 666666666666 33333333 ========== 0000 0000 0000 0000 2222
PPPP VVVVVV 1111 666 666 333 3333 00000 00000 00000 00000 2222
PPPP VVVVVV 1111 666666666666 333333333333 0000000000 0000000000 222222222222
PPPP VVVV 1111111111 6666666666 333333333 00000000 00000000 222222222222
BBBBBBBBB AAAAAAAA SSSSSSSS IIIIIIIIII CCCCCCCCC
BBBBBBBBBB AAAAAAAAAA SSSSSSSSS IIII CCCCCCCCCC
BBBB BBBB AAAAA AAAAA SSS IIII CCCCC CCC
BBBBBBBBB AAAA AAAA SSSSSSSSSS IIII CCCC
BBBBBBBBBB AAAAAAAAAAA SSSSSSSSSS IIII CCCC
BBBB BBBB AAAAAAAAAAA SSS IIII CCCCC CCC
BBBBBBBBBB AAAA AAAA SSSSSSSSS IIII CCCCCCCCCC
BBBBBBBBB AAAA AAAA SSSSSSS IIIIIIIIII CCCCCCCCC
OOOOOOOOO PPPPPPPPPP EEEEEEEEEEE RRRRRRRRR AAAAAAAA TTTTTTTTTTT IIIIIIIII NNNNN NNNN GGGGGGGGG
OOOOOOOOOOO PPPPPPPPPPP EEEEEEEEEEE RRRRRRRRRR AAAAAAAAA TTTTTTTTTTT IIII NNNNN NNNN GGGGGGGGGG
OOOO OOOO PPPP PP EEEE RRRR RRR AAAAA AAAAA TTTT IIII NNNNNN NNNN GGGG GGGG
OOOO OOOO PPPPPPPPPP EEEEEEEE RRRRRRRRRR AAAA AAAA TTTT IIII NNNNNNNNNN GGGG
OOOO OOOO PPPPPPPPPP EEEEEEEE RRRRRRRRR AAAAAAAAAA TTTT IIII NNNNNNNNNN GGGG GGGGG
OOOO OOOO PPPP EEEE RRRR RRRR AAAAAAAAAA TTTT IIII NNNN NNNNNN GGGG GGG
OOOOOOOOOO PPPP EEEEEEEEE RRRR RRRR AAAA AAAA TTTT IIII NNNN NNNNN GGGGGGGGG
OOOOOOOOO PPPP EEEEEEEEE RRRR RRRR AAAA AAAA TTTT IIIIIIIII NNNN NNNNN GGGGGGGG
MMMM MMMM OOOOOOOOO NNNNN NNNN IIIIIIIII TTTTTTTTTTT OOOOOOOOO RRRRRRRRR
MMMMM MMMMM OOOOOOOOOO NNNNNN NNNN IIII TTTTTTTTTTT OOOOOOOOOO RRRRRRRRRR
MMMMMMMMMMM OOOO OOOO NNNNNNN NNNN IIII TTTT OOOO OOOO RRRR RRR
MMMMMMMMMMM OOOO OOOO NNNNNNNNNNN IIII TTTT OOOO OOOO RRRRRRRRRR
MMMM MM MMMM OOOO OOOO NNNNNNNNNNN IIII TTTT OOOO OOOO RRRRRRRRR
MMMM MMMM OOOO OOOO NNNN NNNNNNN IIII TTTT OOOO OOOO RRRR RRRR
MMMM MMMM OOOOOOOOOO NNNN NNNNN IIII TTTT OOOOOOOOOO RRRR RRRR
MMMM MMMM OOOOOOOOO NNNN NNNNN IIIIIIIII TTTT OOOOOOOOO RRRR RRRR
BBBBBBBBB OOOOOOOOO SSSSSSSS
BBBBBBBBBB OOOOOOOOOO SSSSSSSSS
BBBB BBBB OOOO OOOO SSS
BBBBBBBBB OOOO OOOO SSSSSSSSS
BBBBBBBBBB OOOO OOOO SSSSSSSSS
BBBB BBBB OOOO OOOO SSS
BBBBBBBBBB OOOOOOOOOO SSSSSSSSS
BBBBBBBBB OOOOOOOOO SSSSSSS

```
ASM LOCAT
DATE  06 /04 /73    TIME 10H-02M-16S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                IDENT    LOCAT
00001                                ENTRY    STB
00002                                EXTRN    HALT,RINIT
00003                                EXTRN    I:PR
00004                                EXTRN    I:PP
00005                                EXTRN    I:DISK
00006                                EXTRN    I:LP
00007                                EXTRN    I:CR
00008                                EXTRN    I:CP
00009                                EXTRN    I:PFAR
00010                                EXTRN    I:LKM
00011                                EXTRN    I:RTC
00012                                EXTRN    I:ITCP
00013                                EXTRN    I:MEMP
00014                                EXTRN    I:ASR
00015                                EXTRN    I:MHDL
00016                                EXTRN    INTAB
00017                                EXTRN    CVT
00018                              ********** HARWARE LOCATIONS STARTING FROM ABSOLUTE ADDRESS /40 ********
00019  0000   0000   X              DATA     I:PFAR       0 LEVEL
00020  0002   0000   X              DATA     I:LKM        1 LEVEL
00021  0004   0000   X              DATA     I:RTC        2 LEVEL
00022  0006   0000   X              DATA     HALT         3 LEVEL
00023  0008   0000   X              DATA     HALT         4 LEVEL
00024  000A   0000   X              DATA     I:MHDL       5 LEVEL
00025  000C   0000   X              DATA     I:MEMP       6 LEVEL
00026  000E   0000   X              DATA     I:ITCP       7 LEVEL
00027  0010   0000   X              DATA     HALT         8 LEVEL
00028  0012   0000   X              DATA     HALT         9 LEVEL
00029  0014   0000   X              DATA     HALT         10 LEVEL
00030  0016   0000   X              DATA     HALT         11 LEVEL
00031  0018   0000   X              DATA     HALT         12 LEVEL
00032  001A   0000   X              DATA     HALT         13 LEVEL
00033  001C   0000   X              DATA     HALT         14 LEVEL
00034  001E   0000   X              DATA     HALT         15 LEVEL
00035  0020   0000   X              DATA     HALT         16 LEVEL
00036  0022   0000   X              DATA     HALT         17 LEVEL
00037  0024   0000   X              DATA     HALT         18 LEVEL
00038  0026   0000   X              DATA     HALT         19 LEVEL
00039  0028   0000   X              DATA     HALT         20 LEVEL
00040  002A   0000   X              DATA     HALT         21 LEVEL
00041  002C   0000   X              DATA     HALT         22 LEVEL
00042  002E   0000   X              DATA     HALT         23 LEVEL
00043  0030   0000   X              DATA     HALT         24 LEVEL
00044  0032   0000   X              DATA     HALT         25 LEVEL
00045  0034   0000   X              DATA     HALT         26 LEVEL
00046  0036   0000   X              DATA     HALT         27 LEVEL
00047  0038   0000   X              DATA     HALT         28 LEVEL
00048  003A   0000   X              DATA     HALT         29 LEVEL
00049  003C   0000   X              DATA     HALT         30 LEVEL
```

```
00050  003E  0000  X            DATA    HALT          31 LEVEL
00051                  ******* THE FOLLOWING TWO LOCATIONS ARE NOT USED BY HARDWARE **********
00052  0040  0000  X            DATA    INTAB         MASKABLE INT TABLE ADDRESS
00053  0042  0000  X            DATA    CVT           CVT ADDRESS
00054                  ******* SECOND SET OF INTERRUPT LOCATIONS AFTER THE MULTIPLEX DOUBLE WOR
00055  0044                     RES     30            MULTIPLEX AREA
00056  0080  0000  X            DATA    HALT          32 LEVEL
00057  0082  0000  X            DATA    HALT          33 LEVEL
00058  0084  0000  X            DATA    HALT          34 LEVEL
00059  0086  0000  X            DATA    HALT          35 LEVEL
00060  0088  0000  X            DATA    HALT          36 LEVEL
00061  008A  0000  X            DATA    HALT          37 LEVEL
00062  008C  0000  X            DATA    HALT          38 LEVEL
00063  008E  0000  X            DATA    HALT          39 LEVEL
00064  0090  0000  X            DATA    HALT          40 LEVEL
00065  0092  0000  X            DATA    HALT          41 LEVEL
00066  0094  0000  X            DATA    HALT          42 LEVEL
00067  0096  0000  X            DATA    HALT          43 LEVEL
00068  0098  0000  X            DATA    HALT          44 LEVEL
00069  009A  0000  X            DATA    HALT          45 LEVEL
00070  009C  0000  X            DATA    HALT          46 LEVEL
00071  009E  0000  X            DATA    HALT          47 LEVEL
00072                  ******* END OF HARWARE LOCATIONS ************************
00073  00A0                     RES     16            OVERFLOW AREA
00074  00C0  FFFF               DATA    /FFFF         OVERFLOW LOCATION
00075  00C2                     RES     61            STACK AREA
00076  013C  FFFF     STB       DATA    /FFFF         STACK BASE
00077                  *******   END OF STACK AREA .      INITIAL VALUE FOR A15 .    **********
00078                            END
```

SYMBOL TABLE

STB	013C	R	HALT		X	RINIT		X	I:PR		X
I:PP		X	I:DISK		X	I:LP		X	I:CR		X
I:CP		X	I:PFAR		X	I:LKM		X	I:RTC		X
I:ITCP		X	I:MEMP		X	I:ASR		X	I:MHDL		X
INTAB		X	CVT		X						

ASS.ERR. 00000

```
ASM INTAB
DATE  06 /04 /73    TIME 10H-02M-26S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                   IDENT    INTAB
00001          ***************************************************************
00002          *
00003          * TABLE OF INTERRUPT ROUTINES START ADDRESSES WHEN CONNECTED TO
00004          *
00005          * THE COMMON LEVEL
00006          *
00007          ***************************************************************
00008                   ENTRY    INTAB
00009                   EXTRN    I:DK0
00010                   EXTRN    I:PL
00011                   EXTRN    I:LP
00012                   EXTRN    I:MHD1
00013                   EXTRN    I:MHD2
00014                   EXTRN    I:FHD
00015                   EXTRN    I:ASR
00016                   EXTRN    I:ASR2
00017                   EXTRN    I:PP
00018                   EXTRN    I:PP02
00019                   EXTRN    I:PR
00020                   EXTRN    I:PR02
00021                   EXTRN    I:CR
00022                   EXTRN    I:MT
00023                   EXTRN    HALT
```

```
00024                          EJECT
00025                  INTAB   EQU     *
00026  0000  0000  X           DATA    HALT        BIT 15 IN INTERRUPT SIGNAL REGISTER
00027  0002  0000  X           DATA    I:CR        BIT 14
00028  0004  0000  X           DATA    I:PR        BIT 13
00029  0006  0000  X           DATA    HALT        BIT 12
00030  0008  0000  X           DATA    HALT    BIT11
00031  000A  0000  X           DATA    I:PP        BIT 10
00032  000C  0000  X           DATA    HALT        BIT 9
00033  000E  0000  X           DATA    I:ASR       BIT 8
00034  0010  0000  X           DATA    HALT        BIT 7
00035  0012  0000  X           DATA    I:MT        BIT 6
00036  0014  0000  X           DATA    HALT        BIT 5
00037  0016  0000  X           DATA    HALT     BIT 4  **********************************
00038  0018  0000  X           DATA    HALT        BIT 3
00039  001A  0000  X           DATA    I:LP        BIT 2
00040  001C  0000  X           DATA    HALT        BIT 1
00041  001E  0000  X           DATA    HALT        BIT 0
00042  0020  0000  X           DATA    HALT        NO BIT SET ===> PERFORM HALT
00043                          END
```

SYMBOL TABLE

INTAB	0000	R		I:DK0		X	I:PL		X	I:LP	X
I:MHD1			X	I:MHD2		X	I:FHD		X	I:ASR	X
I:ASR2			X	I:PP		X	I:PP02		X	I:PR	X
I:PR02			X	I:CR		X	I:MT		X	HALT	X

ASS,ERR, 00000

```
ASM CVT
DATE  06 /04 /73    TIME 10H-02M-34S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                          IDENT   CVT
00001                          ENTRY   CVT
00002                           ENTRY  CVTMSZ      MEMORY SIZE
00003                          ENTRY   CVTSTB      STACK A15 BASE
00004                          ENTRY   CVTSBA      SMALLEST BUFF AREA ADDRESS
00005                          ENTRY   CVTBBA      BIGGEST BUFF AREA ADDRESS
00006                          ENTRY   CVTBKA          BACKGROUND ADDRESS
00007                          EXTRN   STB
00008                    CVT   EQU     *
00009  0000  0000        CVTMSZ DATA    /0000         MEMORY SIZE = 32 K
00010  0002  0000  X     CVTSTB DATA    STB
00011  0004  0000        CVTSBA DATA    /0
00012  0006  0000        CVTBBA DATA    0
00013  0008  3000        CVTBKA DATA    /3000
00014                          END
```

```
          SYMBOL TABLE

CVT      0000  R    CVTMSZ   0000  R    CVTSTB   0002  R    CVTSBA   0004  R
CVTBBA   0006  R    CVTBKA   0008  R    STB             X

          ASS,ERR,    00000
```

ASM PCT61
DATE 06 /04 /73 TIME 10H-02M-39S-
LABEL = SAGR DATE = 270273 PACK NBR = 102 BOMREL

```
00000                          IDENT   PCT61
00001                          ENTRY   PCT61
00002  0000  0000    STADR     DATA    0
00003  0002  0000    SAVADR    DATA    0
00004  0004  0000    STATUS    DATA    0
00005                PCT61     EQU     *-2
00006  0006  0000    ECBWT     DATA    0
00007  0008  0000    ECBSCL    DATA    0
00008                          END
```

```
          SYMBOL TABLE

PCT61   0004  R    STADR   0000  R    SAVADR  0002  R    STATUS  0004  R
ECBWT   0006  R    ECBSCL  0008  R

          ASS,ERR,     00000
```

```
ASM CPT
DATE  06 /04 /73   TIME 10H-02M-43S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                          IDENT   CPT
00001                          ENTRY   CPT
00002  0000  0004    CPT       DATA    4          LENTH
00003  0002  0004              DATA    /0004      00= PAGE NUMBER 04= NUMBER OF PAGES
00004  0004  003F               DATA     /003F          MASK1 FOR EXEC, SYSTEM
00005  0006  0000              DATA    /0000          MASK2
00006                           END
```

```
          SYMBOL TABLE

CPT       0000  R

          ASS.ERR.    00000
```

```
ASM LKMAL
DATE  06 /04 /73    TIME 10H-02M-47S-
DATE  06 /04 /73    TIME 10H-02M-47S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                IDENT    LKMAL
00001                          *THIS IS THE LIST OF LK1 ADDRESSES
00002                          *THE FIRST LOCATION OF TABLE IS THE TABLE LENGTH
00003                                ENTRY    LKMAL
00004                                EXTRN    M:IORM
00005                                EXTRN    WAIT,EXIT
00006                                EXTRN    GETBUF,FRBUFF
00007                                EXTRN    PSMAC
00008                                EXTRN    ABADR
00009  0000  0007          LKMAL     DATA     7
00010  0002  0000  X                 DATA     M:IORM    1
00011  0004  0000  X                 DATA     WAIT      2
00012  0006  0000  X                 DATA     EXIT      3
00013  0008  0000  X                 DATA     GETBUF    4
00014  000A  0000  X                 DATA     FRBUFF    5
00015  000C  0000  X                 DATA     PSMAC     6
00016  000E  0000  X                 DATA     ABADR     7
00017                                END
```

```
        SYMBOL TABLE

LKMAL   0000  R    M:IORM        X    WAIT          X    EXIT          X
GETBUF        X    FRBUFF        X    PSMAC         X    ABADR         X

        ASS,ERR,    00000
```

```
ASM FCT
DATE  06 /04 /73   TIME 10H-03M-03S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                          IDENT    FCT
00001                        * THIS MODULE GIVES THE DEVICE CORRESPONDING TO A FILE CODE,
00002                        * FOR EVERY FILE CODE,THERE IS AN ADDRESS IN THE DEVICE WORK TABLE
00003                          ENTRY    F:CT
00004                        *
00005                          EXTRN    D:WAS1
00006                          EXTRN    D:WAS2
00007                          EXTRN    D:WAS3
00008                          EXTRN    D:WPTP
00009                          EXTRN    D:WPTR
00010                          EXTRN    D:WLP
00011                          EXTRN    D:WCR
00012                          EXTRN    D:WTC1
00013                          EXTRN    D:WTC2
00014                          EXTRN    D:WTC3
00015                          EXTRN    D:WMT0
00016                          EXTRN    D:WMT1
00017                        *
00018  0000  0000  F    F:CT    DATA     F:CT1-F:CT   * NUMBER OF WORDS IN THIS TABLE
00019                        *                        * FCT EXCLUSIVE
00020  0002  0000  X           DATA     D:WCR        *01* SOURCE INPUT STANDARD
00021  0004  0000  X           DATA     D:WLP        *02* LISTING STANDARD
00022  0006  0000  X           DATA     D:WPTP       *03* PUNCH STANDARD
00023  0008  0000  X           DATA     D:WPTR       *04* OBJECT INPUT STANDARD
00024  000A  0000  X           DATA     D:WAS1       *05* OPERATOR TYPEWRITER
00025  000C  0000  X           DATA     D:WAS2       *06* SLOW TAPE READRE
00026  000E  0000  X           DATA     D:WAS3       *07* SLOW TAPE PUNCH
00027  0010  0000  X           DATA     D:WPTR       *08* PAPER TAPE READER
00028  0012  0000  X           DATA     D:WPTP       *09* PAPER TAPE PUNCH
00029  0014  0000  X           DATA     D:WLP        *0A* LINE PRINTER
00030  0016  0000  X           DATA     D:WCR        *0B* CARD READER
00031  0018  0000  X           DATA      D:WMT0     *0C*   MT NBR1
00032  001A  0000  X           DATA      D:WMT1     *0D*   MT NBR2
00033  001C  0000              DATA      0
00034  001E  0000              DATA      0
00035                F:CT1      EQU      *-2
00036                           END
```

```
        SYMBOL TABLE

F:CT    0000  R   D:WAS1        X   D:WAS2        X   D:WAS3        X
D:WPTP        X   D:WPTR        X   D:WLP         X   D:WCR         X
D:WTC1        X   D:WTC2        X   D:WTC3        X   D:WMT0        X
D:WMT1        X   F:CT1   001E  R

        ASS.ERR.    00000
```

```
ASM DWT
DATE  06 /04 /73    TIME 10H-03M-10S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                          IDENT    DWT
00001                  ********************************************************************************
00002                  * THIS MODULE CONTAINS THE WORK TABLE FOR EVERY DEVICE
00003                  ********************************************************************************
00004                          ENTRY     D:WT
00005                          ENTRY    P:DWLG
00006                          ENTRY    D:WTEN
00007                          ENTRY    D:WAS1
00008                          ENTRY    D:WAS2
00009                          ENTRY    D:WAS3
00010                          ENTRY    D:WPTP
00011                          ENTRY    D:WPTR
00012                          ENTRY    D:WLP
00013                          ENTRY    D:WCR
00014                          ENTRY    D:WMT0
00015                          ENTRY    D:WMT1
00016                          ENTRY    C:NASR
00017                          ENTRY    C:NPTP
00018                          ENTRY    C:NPTR
00019                          ENTRY    C:NLP
00020                          ENTRY    C:NCR
00021                          ENTRY    C:ONMT
00022                  ********************************************************************************
00023                          EXTRN    D:RAS1
00024                          EXTRN    D:RAS2
00025                          EXTRN    D:RAS3
00026                          EXTRN    D:RPTP
00027                          EXTRN    D:RPTR
00028                          EXTRN    D:RLP
00029                          EXTRN    D:RCR
00030                          EXTRN    I:ASR
00031                          EXTRN    I:PP
00032                          EXTRN    I:PR
00033                          EXTRN    I:LP
00034                          EXTRN    I:CR
00035                          EXTRN    D:MT
00036                          EXTRN    I:MT
00037                  *
00038                  ********************************************************************************
00039                  *
00040                  D:WT    EQU      *
00041  0000  5459      D:WAS1  DATA     'TY'          *00* TYPEWRITER
00042  0002  0010              DATA     /0010         *02* DEVICE ADDRESS
00043  0004  004A              DATA     74            *04* BEST LENGTH
00044  0006  0000  X           DATA     D:RAS1        *06* ACTIVATION DRIVER
00045  0008  8000              DATA     /8000         *08* SOFTWARE STATUS
00046  000A                    RES      1             *10*ECB ADDRESS
00047  000C                    RES      1             *12* CHARACTER ADDRESS
00048                  *                              *12* BUFFER ADDRESS AT BEGINNING
00049  000E                    RES      1             *14* REQUESTED LENGTH
```

```
00050  0010                        RES     1          *16* EFFECTIVE LENGTH
00051  0012                        RES     1          *18* ORDER
00052  0014                        RES     1          *20* RETRY BIT WITH BASIC ORDER
00053  0016                        RES     1          *22* OUTPUT * WORD TO OUTPUT
00053  0016                        RES     1          *22* OUTPUT * WORD TO OUTPUT
00054                      *                          *22* INPUT * TABULATION TABLE ADDRESS
00055  0018                        RES     1          *24* CHECKSUM WITH OBJECT ORDER
00056                                                  * 24 * LINE PRINTER * SAVE LAST CHARACTER
00057  001A                        RES     1          *26* OBJECT 4*4 * RIGHT OR LEFT
00058                      *                          *26* LINE PRINTER * SAVE CONTROL CODE
00059  001C                        RES     1          *28*A5
00060  001E                        RES     1          *30*A6
00061  0020  0000  F               DATA    C:NASR     *32* CONTROLLER STATUS ADDRESS
00062  0022  8000                  DATA    /8000      *34*ATTACH
00063  0024  0002  X               DATA    I:ASR+2    *36* SST SEQUENCE ADDRESS
00064                      *
00065                      D:WT1   EQU     *
00066                      P:DWLG  EQU     D:WT1-D:WT
00067                      ********************************************************************************
00068                      *
00069  0026  5452          D:WAS2  DATA    'TR'       *00* TAPE READER
00070  0028  0010                  DATA    /0010      *02*
00071  002A  0050                  DATA    80
00072  002C  0000  X               DATA    D:RAS2     *06* DRIVER
00073  002E  C000                  DATA    /C000      *08*
00074  0030                        RES     9
00075  0042                        RES     2          *28*30*
00076  0046  0000  F               DATA    C:NASR     *32*
00077  0048  8000                  DATA    /8000
00078  004A  0002  X               DATA    I:ASR+2
00079                      *
00080                      ********************************************************************************
00081                      *
00082  004C  5450          D:WAS3  DATA    'TP'       *00* TAPE PUNCH
00083  004E  0010                  DATA    /0010      *02*
00084  0050  0050                  DATA    80
00085  0052  0000  X               DATA    D:RAS3     *06* DRIVER
00086  0054  C000                  DATA    /C000      *08*
00087  0056                        RES     9
00088  0068                        RES     2          *28*30*
00089  006C  0000  F               DATA    C:NASR     *32*
00090  006E  8000                  DATA    /8000
00091  0070  0002  X               DATA    I:ASR+2
00092                      *
00093                      ********************************************************************************
00094                      *
00095  0072  5050          D:WPTP  DATA    'PP'       *00* H S P P
00096  0074  0030                   DATA   /0030
00097  0076  0050                  DATA    80
00098  0078  0000  X               DATA    D:RPTP
00099  007A  C000                   DATA     /C000
```

```
00100  007C                        RES     9
00101  008E                        RES     2           *28*30*
00102  0092  0000  F               DATA    C:NPTP
00103  0094  8000                  DATA    /8000       *30*
00104  0096  0002  X               DATA    I:PP+2
00105                      *
00106                      ********************************************************************************
00107                      *
00108  0098  5052          D:WPTR  DATA    'PR'        *00* H S P R
00109  009A  0020                  DATA    /0020       *02*
00110  009C  0050                  DATA    80
00111  009E  0000  X               DATA    D:RPTR
00112  00A0  C000                   DATA     /C000
00113  00A2                        RES     9
00114  00B4                        RES     2           *28*30*
00115  00B8  0000  F               DATA    C:NPTR
00116  00BA  8000                  DATA    /8000
00117  00BC  0002  X               DATA    I:PR+2
00118                      *
00119                      ********************************************************************************
00120                      *
00121  00BE  4C50          D:WLP   DATA    'LP'        *00* LINE PRINTER
00122  00C0  000D                  DATA    /000D       ****************************
00123  00C2  0088                  DATA    136
00124  00C4  0000  X               DATA    D:RLP       *06* DRIVER
00125  00C6  8000                  DATA    /8000
00126  00C8                        RES     9
00127  00DA                        RES     2
00128  00DE  0000  F               DATA    C:NLP       *32*
00129  00E0  8000                  DATA    /8000
00130  00E2  0002  X               DATA    I:LP+2
00131                      *
00132                      ********************************************************************************
00133                      *
00134  00E4  4352          D:WCR   DATA    'CR'        *00* CARD READER
00135  00E6  0005                  DATA    /0005               * ADDRESS
00136  00E8  0050                  DATA    80
00137  00EA  0000  X               DATA    D:RCR       *06* DRIVER
00138  00EC  8000                  DATA    /8000       * STATUS
00139  00EE                        RES     11
00140  0104  0000  F               DATA    C:NCR       *32*
00141  0106                        RES     1           * ATTACH
00142  0108  0002  X               DATA    I:CR+2
00143                      *
00144                      ********************************************************************************
00145                      *
00146  010A  4D54          D:WMT0  DATA    'MT'    00  NAME = MAGNETIC TAPE
00147  010C  0004                  DATA    /04     02  DEVICE ADDRESS
00148  010E  0FFF                  DATA    4095    04  MAX RECORD LENGTH
00149  0110  0000  X               DATA    D:MT    06  ADDRESS OF COMMON DRIVER
```

```
00150  0112  8000          DATA    /8000   08  DEVICE SOFTWARE STATUS
00151  0114                RES     1       10  ECB ADDRESS
00152  0116                RES     1       12  CURRENT CHAR ADDRESS
00153  0118                RES     1       14  REQUESTED LENGTH
00154  011A                RES     1       16  EFFECTIVE LENGTH
00155  011C  0000          DATA    0        SOFTWARE I/O ORDER
00156  011E                RES     1       20
00157  0120  0200          DATA     /0200  22      FLAG ORDER FOR 7 OR 9 TRACK
00158  0122                RES     2       24
00159  0126                RES     2       28  * 28 * 30 *
00160  012A  0000  F       DATA    C:ONMT  32  CONTROLLER STATUS ADDRESS
00161  012C  8000          DATA    /8000   34  NOT ATTACHED DEVICE
00162  012E  0002  X       DATA    I:MT+2  36
00163                *
00164                *
00165  0130  4D54    D:WMT1 DATA    'MT'        NAME =MAGNETIC TAPE
00166  0132  0014          DATA    /14         DEVICE ADDRESS
00167  0134  0FFF          DATA    4095        MAX RECORD LENGTH
00168  0136  0000  X       DATA    D:MT        ADDRESS OF COMMON DRIVER
00169  0138  8000          DATA    /8000       DEVICE SOFTWARE STATUS
00170  013A                RES     1           ECB ADDRESS
00171  013C                RES     1           CURRENT CHAR ADDRESS
00172  013E                RES     1           REQUESTED LENGTH
00173  0140                RES     1           EFFECTIVE LENGTH
00174  0142  0000          DATA    0       SOFTWARE I/O ORDER
00175  0144                RES     1
00176  0146  0200          DATA     /0200          FLAG ORDER FOR 7 OR 9 TRACK
00177  0148                RES     2
00178  014C                RES     2           * 28 * 30 *
00179  0150  0000  F       DATA    C:ONMT      CONTROLLER STATUS ADDRESS
00180  0152  8000          DATA    /8000       NOT ATTACHED DEVICE
00181  0154  0002  X       DATA    I:MT+2
00182                *
00183                D:WTEN EQU     *
00184                ********************************************************************************
00185                *
00186  0156  8000    C:NASR DATA    /8000
00187  0158                RES     1
00188  015A  8000    C:NPTP DATA    /8000
00189  015C                RES     1
00190  015E  8000    C:NPTR DATA    /8000
00191  0160                RES     1
00192  0162  8000    C:NLP  DATA    /8000
00193  0164  FFCE          DATA    -50         * NUMBER OF LINES IN A PAGE
00194  0166  8000    C:NCR  DATA    /8000
00195  0168                RES     1
00196                *
00197                *
00198                *
00199  016A  8000    C:ONMT DATA    /8000       STATUS OF THE MAGNETIC TAPE CONTROL UNIT
```

```
00200  016C  010A  R              DATA     D:WMT0      DWT FOR MAGNETIC DRIVE # 0
00201  016E  0130  R              DATA     D:WMT1      DWT FOR MAGNETIC DRIVE # 1
00202                    *
00203                    *
00204                    END
```

SYMBOL TABLE

D:WT	0000	R	P:DWLG	0026	A	D:WTEN	0156	R	D:WAS1	0000	R
D:WAS2	0026	R	D:WAS3	004C	R	D:WPTP	0072	R	D:WPTR	0098	R
D:WLP	00BE	R	D:WCR	00E4	R	D:WMT0	010A	R	D:WMT1	0130	R
C:NASR	0156	R	C:NPTP	015A	R	C:NPTR	015E	R	C:NLP	0162	R
C:NCR	0166	R	C:ONMT	016A	R	D:RAS1		X	D:RAS2		X
D:RAS3		X	D:RPTP		X	D:RPTR		X	D:RLP		X
D:RCR		X	I:ASR		X	I:PP		X	I:PR		X
I:LP		X	I:CR		X	D:MT		X	I:MT		X
D:WT1	0026	R									

ASS.ERR. 00000

```
ASM I:MHDL
DATE  06 /04 /73   TIME 10H-03M-55S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                   IDENT    I$MHDL
00001          ********M**************************************************
00002          *
00003          * INTERRUPT HANDLER FOR MULTI SIGNAL LEVEL
00004          *
00005          ******* **************************************************
00006                   ENTRY    I$MHDL
00007                   EXTRN    INTAB
00008          * WARNING ******************************
00009          *
00010          * NON REENTRANT AND NON INTERRUPTIBLE ROUTINE
00011          *
00012          * WORKS IN INHIBIT MODE AND PERFORMS INSTRUCTION MODIFICATION
00013          *
00014          *
```

```
00015                          EJECT
00016                I:MHDL    EQU     *
00017  0000  B93F              MSR     2,A15       SAVE ONLY A1 AND A2
00018  0002  4900              RIL     A1          READ INTERRUPT REGISTER
00019  0004  39A8              SRN     A1,A2       SHIFT RIGHT TILL A BIT 1
00020                      * IS IN POSITION 15
00021  0006  9208              ADR     A2,A2       MULTIPLY NUMBER OF SHIFTS BY 2
00022                      * (ADDRESS DISPLACEMENT)
00023  0008  9220              ADK,L   A2,INTAB    ADD BRANCH TABLE BASE
       000A  0000  X
00024  000C  8241              ST      A2,ITAD     STORE IN SECOND WORD OF BRANCH INSTRUCTION
       000E  0000  F
00025  0010  B93E              MLR     2,A15       RELOAD CONTEXT ;
00026                      * INTERRUPT ROUTINE  WILL SAVE REGISTERS
00027  0012  8F40              ABI     ITAD        PERFORM BRANCH TO INTERRUPT ROUTINE
       0014  0000  F
00028                      ******* WARNING : SECOND WORD OF THIS INSTRUCTION IS MODIFIED BY
00029                      *  PROGRAM
00030                      ITAD    EQU     *-2
00031                              END
```

```
        SYMBOL TABLE

I:MHDL  0000  R   INTAB         X   ITAD    0014  R

        ASS.ERR.    00000
```

```
ASM I:RTN
DATE  06 /04 /73   TIME 10H-04M-02S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                IDENT   I:RTN
00001                                ENTRY   I:PFAR
00002                                ENTRY   I:RTC
00003                                ENTRY   I:MEMP
00004                                ENTRY   PFAR
00005                                EXTRN   PCT61
00006                                EXTRN   SYSAB
00007                        STATUS  EQU     0
00008  0000  20EF            I:PFAR  RIT     /17
00009  0002  813F                    STR     A1,A15
00010  0004  8120                    LDK,L   A1,0
       0006  0000
00011                        PFAR    EQU     *-2
00012  0008  5100  F                 RF(1)   AUTRES
00013  000A  813E                    LDR*    A1,A15
00014  000C  BF3F                    MSR     14,A15
00015  000E  87C1                    ST      A15,SAVA15
       0010  0000  F
00016  0012  9041                    IM      PFAR
       0014  0006  R
00017  0016  207F                    HLT                     POWER FAILURE HALT
00018                        *
00019                        *
00020  0018  0100            AUTRES  LDK     A1,0
00021  001A  4100                    WIM     A1
00022  001C  8141                    ST      A1,PFAR
       001E  0006  R
00023  0020  87A0                    LDK,L   A15,SAVA15
       0022  0000  F
00024                        SAVA15  EQU     *-2
00025  0024  8140                    LD      A1,PCT61+STATUS
       0026  0000  X
00026  0028  217F                    ANK     A1,/7F
00027  002A  5400  F                 RF(4)   ABORT
00028  002C  BF3E                    MLR     14,A15
00029  002E  F03E                    RTN      A15
00030  0030  0201            ABORT   LDK     A2,1
00031  0032  97A0                    ADK,L   A15,12    -> A15 points to interrupted A8+2
       0034  000C
00032                        AB1     EQU     *
00033  0036  0600                    LDK     A6,0
00034  0038  835E                    LD      A3,20,A15 -> interrupted A0
       003A  0014
00035  003C  8F20                    AB,L    SYSAB
       003E  0000  X
00036                        *
00037                        *
00038  0040  20F7            I:RTC   RIT     /1B
00039  0042  F03E                    RTN     A15
00040  0044  20FD            I:MEMP  RIT     /1E
```

```
00041   0046   BC3F            MSR     8,A15
00042   0048   0203            LDK     A2,3
00043   004A   5F16            RB      AB1
00044                          END
```

SYMBOL TABLE

I:PFAR	0000	R	I:RTC	0040	R	I:MEMP	0044	R	PFAR	0006	R
PCT61		X	SYSAB		X	STATUS	0000	A	AUTRES	0018	R
SAVA15	0022	R	ABORT	0030	R	AB1	0036	R			

ASS.ERR. 00000

```
ASM I:LKM
DATE  06 /04 /73   TIME 10H-04M-20S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     'BOMREL
```

```
00000                          IDENT    I:LKM
00001                    *LKM INTERRUPT HANDLING,SEARCH IN LKMAL IF THE REQUESTED MODULE
00002                    *IS AVAILABLE,    IF THE MODULE IS NOT HERE,RTN WITH A1=-1
00003                                      IF THE MODULE IS HERE BRANCH ON IT
00004                          ENTRY    I:LKM
00005                          EXTRN    LKMAL
00006                          EXTRN    DISPAT
00007                          EXTRN    PCT61
00008                          EXTRN    SYSAB
00009                          EXTRN    M:A00
00010                    STATUS EQU      0
00011                    LKM    EQU      X'2804'      LKM SYNTAX
00012  0000  BC3F        I:LKM  MSR      8,A15
00013  0002  20FB               RIT      /1D
00014  0004  EFA0               CWK      A15,/100
       0006  0100
00015  0008  5500  F            RF(5)    LKM3         STACK OVERFLOW
00016  000A  825E               LD       A2,20,A15     ADDRESS OF USER DATA
       000C  0014
00017  000E  8128                LDR*     A1,A2        USER DATA
00018  0010  8348               LD       A3,-2,A2     USER LKM
       0012  FFFE
00019  0014  EB20               CWK      A3,LKM       TEST IF LKM
       0016  2804
00020  0018  5000  F            RF(0)    LKM1         SYNTAX O.K.
00021  001A  8F20               AB,L     M:A00        SYNTAX N.O.K. GO TO SIMUL
       001C  0000  X
00022  001E  0101        LKM3   LDK      A1,1         OR STACK OFLOW
00023  0020  207F               HLT
00024  0022  0302        LKM1   LDK      A3,2
00025  0024  0600               LDK      A6,0
00026  0026  1100               ADK      A1,0
00027  0028  5100  F            RF(1)    LKM4
00028  002A  F904               C1R      A1,A1
00029  002C  1101               ADK      A1,1
00030  002E  8640               LD       A6,PCT61+STATUS
       0030  0000  X
00031  0032  263F               ANK      A6,/3F
00032  0034  1E3F               SUK      A6,/3F
00033  0036  5202               RF(2)    *+4
00034  0038  207F               HLT
00035  003A  9041               IM       PCT61+STATUS
       003C  0000  X
00036  003E  8648               LD       A6,2,A2      USER INT ADDR
       0040  0002
00037  0042  0304               LDK      A3,4
00038  0044  935F        LKM4   AD,S     A3,20,A15
       0046  0014
00039                          *                     IF PROCESSOR NOT HERE ,RTN
00040  0048  8240               LD       A2,LKMAL
```

Selct. Label

```
        004A  0000  X
00041   004C  E908              CWR       A1,A2          IF LKM GREATER THAN
00042   004E  5100  F           RF(1)     LKM2           TABLE LENGTH ,RTN
00043   0050  3941              SLL       A1,1
00044   0052  8244              LD        A2,LKMAL,A1
        0054  0000  X
00045   0056  5000  F           RF(0)     LKM2
00046   0058  8F08              ABR       A2
00047   005A  8720        LKM2  LDK,L     A7,-1
        005C  FFFF
00048   005E  8F20              AB,L      DISPAT
        0060  0000  X
00049                           END
```

```
                SYMBOL TABLE

I:LKM   0000  R   LKMAL         X   DISPAT        X   PCT61         X
SYSAB         X   M:A00          X   STATUS  0000  A   LKM     2804  A
LKM3    001E  R   LKM1    0022   R   LKM4    0044  R   LKM2    005A  R

        ASS.ERR.    00000
```

```
ASM HALT
DATE  06 /04 /73   TIME 10H-04M-28S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                          IDENT   HALT
00001                          ENTRY   HALT
00002                    *
00003                    HALT  EQU     *
00004  0000  207F               HLT
00005  0002  5F04               RB      *-2
00006                    *
00007                          END
```

```
        SYMBOL TABLE

HALT    0000  R

        ASS.ERR.    00000
```

```
ASM INIT
DATE  06 /04 /73    TIME 10H-04M-33S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                   IDENT    INIT                                                    ASM 02
00001                           * THIS MODULE IS ENTERED TO LOAD THE MODULES AND INITIALIZE
00002                                                    THE RUNNING
00003                                                    LOAD USER (BASE ADDRSESS:/0800
00004                                                    SET BUFFERS AREA LIMIT
00005                                                    SET A15
00006                                                    LOAD USER REGISTERS FROM SAVE AREA
00007                                                    INITIALIZE USER PCT (LEVEL 62)
00008                                                    GIVE CONTROL TO USER
00009                                   ENTRY    INIT,RINIT
00010                                   ENTRY    MAINEX
00011                                   ENTRY    RELOAD
00012                           *
00013                           *
00014                                   EXTRN    CVTSBA,CVTSTB,PCT61
00015                                   EXTRN    CVTBKA
00016                                   EXTRN    CPT
00017                                   EXTRN    SOFMA,FILLAB,SCLFG
00018                                    EXTRN   INHCP
00019                                    EXTRN   C:NASR
00020                                    EXTRN   C:NPTR
00021                                    EXTRN   C:NPTP
00022                                   EXTRN    C:NLP
00023                                   EXTRN     C:NCR
00024                                   EXTRN    D:WMTO
00025                                   EXTRN    D:WMT1
00026                                   EXTRN    C:ONMT
00027                                   EXTRN    PFAR
00028                                   EXTRN    LDFLAG
00029                                   EXTRN    INHST
00030                                   EXTRN    MCABFL
00031                           *
00032                           *
00033                           ECBWT    EQU     2
00034                           ECBSCL   EQU     4
00035                           MNLD     EQU     /F10
00036                           COREND   EQU     /1FFE
00037                           SAVADR   EQU     -2
00038                           STADR    EQU     -4
00039                           STATUS   EQU     0
00040                           USPSW    EQU     /F800          LEVEL  62
00041  0000  E9C0               INIT     CW      A9,CVTBKA
       0002  0000  X
00042  0004  5104                       RF(1)    *+6
00043  0006  81C0               RELOAD   LD      A9,CVTBKA    SET USER BASE ADDRESS (NORMALLY /0800 )
       0008  0000  X
00044  000A  81C1                        ST      A9,CVTBKA
       000C  0000  X
00045  000E  81C1                        ST      A9,PCT61+SAVADR
       0010  FFFE  X
```

```
00046                          RINIT    EQU     *
00047  0012  0100              RINITA   LDK     A1,0
00048                          MAINEX   EQU     RINITA
00049  0014  4100                       WIM     A1
00050  0016  8141                       ST      A1,FILLAB-2
       0018  FFFE  X
00051  001A  8141                       ST      A1,INHST
       001C  0000  X
00052  001E  8141                       ST      A1,SCLFG
       0020  0000  X
00053  0022  8141                       ST      A1,PCT61+STATUS
       0024  0000  X
00054  0026  8141                       ST      A1,PCT61+ECBWT
       0028  0002  X
00055  002A  8141                       ST      A1,PCT61+ECBSCL
       002C  0004  X
00056  002E  8141                       ST      A1,MCABFL
       0030  0000  X
00057  0032  8161                       ST*     A1,CVTSBA    INITIALIZE GET CORE AREA
       0034  0000  X
00058  0036  B940                       ML      2,CPT+4
       0038  0004  X
00059  003A  4140                       WMP     A1
00060  003C  42C0                       WM2     A2
00061  003E  87C0                       LD      A15,CVTSTB   SET A15 TO STACK BASE
       0040  0000  X
00062  0042  8120                       LDK.L   A1,TESTLD
       0044  0000  F
00063  0046  8220                       LDK.L   A2,USPSW
       0048  F800
00064  004A  B93F                       MSR     2,A15
00065  004C  F03E                       RTN     A15
00066  004E  8140              TESTLD   LD      A1,LDFLAG
       0050  0000  X
00067  0052  5806                       RB(0)   TESTLD
00068  0054  8140                       LD      A1,INHST
       0056  0000  X
00069  0058  580C                       RB(0)   TESTLD
00070  005A  20BF                       INH
00071  005C  8140                       LD      A1,PCT61+STADR
       005E  FFFC  X
00072  0060  8204                       LDR     A2,A1
00073  0062  2201                       ANK     A2,1     keep user mode bit
00074  0064  AA20                       ORK.L   A2,USPSW
       0066  F800
00075  0068  B93F                       MSR     2,A15
00076  006A  8140                       LD      A1,CVTBKA
       006C  0000  X
00077  006E  8240                       LD      A2,CVTSBA
       0070  0000  X
```

```
00078  0072  F03E              RTN     A15         CONTROL TO USER
00079                          END     INIT
```

```
          SYMBOL TABLE

INIT    0000  R   RINIT   0012  R   MAINEX  0012  R   RELOAD  0006  R
CVTSBA        X   CVTSTB        X   PCT61         X   CVTBKA        X
CPT           X   SOFMA         X   FILLAB        X   SCLFG         X
INHCP         X   C:NASR        X   C:NPTR        X   C:NPTP        X
C:NLP         X   C:NCR         X   D:WMT0        X   D:WMT1        X
C:ONMT        X   PFAR          X   LDFLAG        X   INHST         X
MCABFL        X   ECBWT   0002  A   ECBSCL  0004  A   MNLD    0F10  A
COREND  1FFE  A   SAVADR  FFFE  A   STADR   FFFC  A   STATUS  0000  A
USPSW   F800  A   RINITA  0012  R   TESTLD  004E  R

          ASS.ERR.    00000
:EOF
```

```
ASM NSCHLB
DATE  06 /04 /73   TIME 10H-04M-44S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                IDENT    NSCHLB
00001                          ********************************************************************************
00002                          *SCHEDULE LABEL DISPATCHEUR
00003                                 CREATE A NEW ENTRY IN SCHEDULE LABEL FILE  IF A6#0
00004                                 THEN  LOOKS FOR  LAST LEVEL  IN   STACK
00005                                          IF  <48     RTN  AFTER MLR
00006                                          IF  49<L<61 ERROR,HALT
00007                                          IF  62    PROCESS LABEL IF ANY
00008                                          IF  63    RESET FIRST MAIN REGISTERS, THEN PROCESS
00009                                                    AS FOR 62,
00010                                    ENTRY    DISPAT
00011                                    ENTRY    FILLAB
00012                                    ENTRY    SCLFG
00013                                    ENTRY    EXSCH
00014                          *
00015                          *
00016                                    EXTRN    PCT61
00017                                    EXTRN    MAINEX
00018                                    EXTRN    CHLEV
00019                                    EXTRN    SYSAB
00020                          *
00021                          *
00022                          SAVADR    EQU      -2
00023                          STATUS    EQU      0
00024                          ECBWT     EQU      2
00025                          ECBSCL    EQU      4
00026  0000  20BF              DISPAT    INH
00027  0002  1600                       ADK      A6,0
00028  0004  5000  F                    RF(0)    DISP1       NO LABEL TO PUT IN FILE
00029  0006  8140                       LD       A1,PCT61+STATUS
       0008  0000  X
00030  000A  2140                       ANK      A1,/40      IS PROGRAM ABORTED
00031  000C  5400  F                    RF(4)    ABORT       YES DO NOT SCHEDULE LABEL
00032  000E  8140                       LD       A1,FILLAB-2
       0010  0000  F
00033  0012  E920                       CWK      A1,14
       0014  000E
00034  0016  5208                       RF(2)    *+10
00035  0018  0205                       LDK      A2,5
00036  001A  8318                       LDR      A3,A6
00037  001C  8F20                       AB,L     SYSAB                ERROR TOO MANY LABEL
       001E  0000  X
00038  0020  8645                       ST       A6,FILLAB,A1  PUT NEW ENTRY IN FILE
       0022  0000  F
00039                          *                                      INCREMENT NUMBER OF ENTRY
00040  0024  1102                       ADK      A1,2
00041  0026  8141                       ST       A1,FILLAB-2
       0028  0000  F
00042  002A  8120              ABORT     LDK,L    A1,-1
       002C  FFFF
```

```
00043  002E  9141          AD,S     A1,PCT61+STATUS
       0030  0000  X
00044  0032  815E    DISP1 LD       A1,18,A15    TAKE PSW INTERRJPTED
       0034  0012
00045  0036  396A          SRL      A1,10
00046  0038  193D          SUK      A1,61
00047  003A  5104          RF(1)    *+6          >49
00048  003C  BC3E    RETURN MLR     8,A15        QUICK  BACK  TO  PROGRAM
00049  003E  F03E          RTN      A15
00050  0040  1901          SUK      A1,1
00051  0042  5004          RF(0)    *+6
00052  0044  97A0          ADK,L    A15,20
       0046  0014
00053  0048  E140          LC       A1,PCT61+STATUS
       004A  0000  X
00054  004C  2140          ANK      A1,/40       IN PAUSE ?
00055  004E  5400  F       RF(4)    DISP3        YES
00056  0050  8240          LD       A2,SCLFG
       0052  0000  F
00057  0054  5000  F       RF(0)    DISPAB
00058  0056  8340          LD       A3,PCT61+ECBSCL      IN WAIT (SCH, LABEL )
       0058  0004  X
00059  005A  5820          RB(0)    RETURN                NO
00060  005C  822C          LDR*     A2,A3                EVENT OCCURRED
00061  005E  5600  F       RF(6)    DISP3                NO
00062  0060  8141          ST       A1,PCT61+ECBSCL       YES RAZ EVENT ADDRESS
       0062  0004  X
00063  0064  5F2A          RB       RETURN
00064  0066  8120    DISPAB LDK,L    A1,0         EXIT OF A SCHEDULED LABEL
       0068  0000
00065                EXSCH EQU      *-2
00066  006A  5500  F       RF(5)    DISPX        NO
00067  006C  0100          LDK      A1,0         RESET EXSCH
00068  006E  8141          ST       A1,EXSCH
       0070  0068  R
00069  0072  97A0          ADK,L    A15,20
       0074  0014
00070  0076  8340          LD       A3,PCT61+SAVADR
       0078  FFFE  X
00071  007A  B92C          MLR      2,A3
00072  007C  B93F          MSR      2,A15
00073  007E  1304          ADK      A3,4
00074  0080  BF2C          MLR      14,A3
00075  0082  BC3F          MSR      8,A15
00076  0084  8240    DISPX LD       A2,FILLAB-2
       0086  0000  F
00077  0088  5000  F       RF(0)    DISP2        NO ELEMENT IN LABEL FILE
00078  008A  8140          LD       A1,PCT61+SAVADR
       008C  FFFE  X
00079  008E  86C5           ST      A14,30,A1
```

```
        0090  001E
00080   0092  1104              ADK       A1,4
00081   0094  8684              LDR       A14,A1
00082   0096  BC3E              MLR       8,A15
00083   0098  BEBB              MSR       13,A14
00084   009A  B93E              MLR       2,A15
00085   009C  B95B              MS        2,-4,A14
        009E  FFFC
00086   00A0  9041              IM        SCLFG          SET INTERRUPT SEQUENCE RUNNING FLAG
        00A2  0000  F
00087   00A4  8240              LD        A2,FILLAB-2
        00A6  0000  F
00088   00A8  8348              LD        A3,FILLAB-2,A2
        00AA  0000  F
00089   00AC  833F              STR       A3,A15
00090   00AE  1A02              SUK       A2,2
00091   00B0  8241              ST        A2,FILLAB-2
        00B2  0000  F
00092   00B4  9FA0              SUK,L     A15,2
        00B6  0002
00093   00B8  F03E              RTN       A15
00094   00BA  8340      DISP2   LD        A3,PCT61+ECBWT         IN WAIT (MAIN)
        00BC  0002  X
00095   00BE  5000  F           RF(0)     DISP2A                 NO
00096   00C0  822C              LDR*      A2,A3                  EV, OCCURRED
00097   00C2  5600  F           RF(6)     DISP3                  NO
00098   00C4  0100              LDK       A1,0
00099   00C6  8141              ST        A1,PCT61+ECBWT         RAZ EVENT ADDRESS
        00C8  0002  X
00100   00CA  5F90              RB        RETURN
00101   00CC  8140      DISP2A  LD        A1,PCT61+STATUS
        00CE  0000  X
00102   00D0  39C4              SLC       A1,4              EXIT BIT ON ?
00103   00D2  5E98              RB(6)     RETURN         NO,RETURN TO MAIN
00104                                                    YES IS EVERYTHING QUIET ?
00105   00D4  A120              ANK,L     A1,/7F0      /7F0 BECAUSE SLC BEFORE
        00D6  07F0
00106   00D8  5400  F           RF(4)     DISP3
00107   00DA  0100              LDK       A1,0
00108   00DC  8141              ST        A1,PCT61+STATUS
        00DE  0000  X
00109   00E0  0130              LDK        A1,48
00110   00E2  F7A1              CF        A15,CHLEV
        00E4  0000  X
00111   00E6  80A0              LDK,L     A8,ECBEX
        00E8  0000  F
00112   00EA  0705              LDK       A7,5
00113   00FC  2804              LKM
00114   00EE  0001              DATA      1
00115   00F0  8722              LDR*      A7,A8
```

```
00116  00F2  5E04          RB(6)     *-2
00117  00F4  8F20          AB.L      MAINEX      GO TO MAINEX
       00F6  0000  X
00118  00F8  0005    ECBEX DATA      5
00119  00FA  0000  F       DATA      EXMSG
00120  00FC  0008          DATA      8
00121  00FE                RES       2
00122  0102  0D0A    EXMSG DATA      /0D0A
00123  0104  4558          DATA      'EXIT'
       0106  4954
00124  0108  0D0A          DATA      /0D0A
00125                *
00126                *
00127                ********************************************************************************
00128                *
00129                *                                        NOT YET  QUIET ,IDLE TASK
00130  010A  8220    DISP3 LDK.L     A2,/FC00
       010C  FC00
00131  010E  8120          LDK.L     A1,ADDR
       0110  0000  F
00132  0112  B93F          MSR       2,A15
00133  0114  F03E          RTN       A15
00134  0116  5F02    ADDR  RB        ADDR          IDLE  LOOP
00135  0118  0000          DATA      0
00136  011A          FILLAB RES      7
00137  0128  0000    SCLFG DATA      0
00138                      END
```

SYMBOL TABLE

DISPAT	0000	R	FILLAB	011A	R	SCLFG	0128	R	EXSCH	0068	R
PCT61		X	MAINEX		X	CHLEV		X	SYSAB		X
SAVADR	FFFE	A	STATUS	0000	A	ECBWT	0002	A	ECBSCL	0004	A
DISP1	0032	R	ABORT	002A	R	RETURN	003C	R	DISP3	010A	R
DISPAB	0066	R	DISPX	0084	R	DISP2	00BA	R	DISP2A	00CC	R
ECBEX	00F8	R	EXMSG	0102	R	ADDR	0116	R			

ASS,ERR, 00000

```
ASM CHLEV
DATE  06 /04 /73   TIME 10H-05M-01S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                          IDENT    CHLEV
00001                    *THIS    ROUTINE   INSERT  THE CALLING
00002                    *PROGRAM IN THE A15=STACK   ACCORDING TO THE LEVEL
00003                    *SPECIFIED IN A1
00004                    *REGISTERS A5, A6  ARE SAVED IN THE STACK
00005                    *REGISTERS A1 TO A4 DESTROYED
00006                    *
00007                    *        CALLING  SEQUENCE      A1= LEVEL  (NORMALLY  48=49)
00008                    *
00009                    *                               CF  A15,CHLEV
00010                    *
00011                    *        AT THE END OF THE ROUTINE ,BRANCH TO THE DISPATCHER
00012                             ENTRY    CHLEV
00013                             EXTRN    DISPAT
00014                    *
00015                    *
00016                    *
00017  0000              SAVE     RES      8
00018  0010  0000        SAV15    DATA     0
00019  0012  BC41        CHLEV    MS       8,SAVE
       0014  0000  R
00020  0016  831E                LDR      A3,A15
00021  0018  1302                ADK      A3,2
00022                    *
00023  001A  1314        CHLEV1   ADK      A3,20        FIND AN ENTRY  SO
00024                    *                              THAT  LEVEL OF THIS ENTRY =A1
00025  001C  822C                LDR*     A2,A3
00026  001E  3A6A                SRL      A2,10
00027  0020  EA04                CWR      A2,A1
00028  0022  5A0A                RB(2)    CHLEV1
00029                    *
00030                    *
00031  0024  1B12                SUK      A3,18
00032                    *
00033  0026  821E                LDR      A2,A15       SHIFT UP  THE STACK OF 10 LOCATIONS
00034  0028  1202        CHLEV2   ADK      A2,2         FROM THE TOP END DOWN TO THE ENTRY
00035  002A  8428                LDR*     A4,A2
00036  002C  8449                ST       A4,=20,A2
       002E  FFEC
00037  0030  EA0C                CWR      A2,A3
00038  0032  5C0C                RB(4)    CHLEV2
00039  0034  9FA0                SUK,L    A15,20
       0036  0014
00040                    *                              SET ENTRY ELEMENT
00041  0038  825E                LD       A2,4,A15
       003A  0004
00042  003C  822D                STR      A2,A3        A0 SETTING
00043                    *
00044  003E  825E                LD       A2,2,A15     PSW  SETTING
       0040  0002
```

```
00045  0042  A220          ANK.L   A2,/3FF
       0044  03FF
00046  0046  394A          SLL     A1,10
00047  0048  A908          ORR     A1,A2
00048  004A  814D          ST      A1,-2,A3
       004C  FFFE
00049  004E  87C1          ST      A15,SAV15
       0050  0010  R
00050  0052  1B04          SUK     A3,4
00051  0054  878C          LDR     A15,A3
00052  0056  BC40          ML      8,SAVE
       0058  0000  R
00053  005A  BC3F          MSR     8,A15
00054  005C  87C0          LD      A15,SAV15
       005E  0010  R
00055                *
00056  0060  97A0          ADK.L   A15,4
       0062  0004
00057                *
00058  0064  0600          LDK     A6,0        NO SCHEDULED LABEL PLEASE
00059  0066  8F20          AB.L    DISPAT
       0068  0000  X
00060                       END
```

```
          SYMBOL TABLE

CHLEV   0012  R   DISPAT        X   SAVE    0000  R   SAV15   0010  R
CHLEV1  001A  R   CHLEV2  0028  R

          ASS.ERR.    00000
```

```
ASM M;A00
DATE  06 /04 /73    TIME 10H-05M-11S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                IDENT    M:A00
00001                                ENTRY    M:A00
00002                                ENTRY    M:B00
00003                                EXTRN    MPYMOD
00004                                EXTRN    DIVMOD
00005                                EXTRN    ADDMOD
00006                                EXTRN    DSUMOD
00007                                EXTRN    SYSAB
00008                    *                    VALIDITY  CHECK  OPC
00009                    *
00010                    * REGISTERS VALUE
00011                    *           A1       :USER DATA
00012                    *           A2       :ADDRESS OF USER DATA
00013                    *           A3       :USER DATA + 2
00014                    *
00015                    *
00016                    L:TOPC      EQU      3            T:OPC LENGHT,-1
00017                    *
00018  0000  0403        M:A00       LDK      A4,L:TOPC    INITIALIZATION OF T:OPC POINTER
00019  0002  850C                    LDR      A5,A3        LOAD USER DATA
00020  0004  3D68                    SRL      A5,8         OPC IN RIGHT CHARACTER OF A5
00021                    *
00022  0006  ED51        M:A01       CC       A5,T:OPC,A4 TEST OPC USER DATA =OK
       0008  0000  F
00023  000A  5000  F                 RF(0)    M:A02        OK GO TO M:A02
00024  000C  1C01                    SUK      A4,1
00025  000E  5E0A                    RB(6)    M:A01
00026  0010  8308                    LDR      A3,A2        USER P FOR ABORT ROUTINE
00027  0012  0202                    LDK      A2,2         INVALID  OPC  ERROR
00028  0014  0600                    LDK      A6,0
00029  0016  8F20                    AB,L     SYSAB
       0018  0000  X
00030                    *
00031  001A  8540        M:A02       LD       A5,L:TSVR
       001C  0000  F
00032  001E  1D24                    SUK      A5,36
00033  0020  80D4        M:A03       LD       A8,T:SVR,A5 IS THIS T:SVR AERA FREE ?
       0022  0000  F
00034  0024  5000  F                 RF(0)    M:A04        YES GO TO  M:A04
00035  0026  1D12                    SUK      A5,18        NO UPDATE OF T:SVR POINTER
00036  0028  5E0A                    RB(6)    M:A03        T:SVR  OVERFLOW ? NO GO TO M:A03
00037  002A  0201                    LDK      A2,1         YES  SYSTEM ABEND
00038  002C  8F20                    AB,L     SYSAB
       002E  0000  X
00039                    *
00040  0030  8094        M:A04       LDR      A8,A5        LOAD T:SVR POINTER
00041  0032  90A0                     ADK,L    A8,T:SVR+4
       0034  0000  F
00042  0036  BC41                    MS       8,Z:SVR      SAVE MONITOR REGISTERS
       0038  0000  F
```

```
00043  003A  BC3E          MLR      8,A15        LOAD USER REGISTERS
00044  003C  BF61          MS*      14,Z:SVR+14 USER REGISTERS IN T:SVR
       003E  0000  F
00045  0040  80A0          LDK,L    A8,-4
       0042  FFFC
00046  0044  90C1          AD,S     A8,Z:SVR+14
       0046  0000  F
00047  0048  B93E          MLR      2,A15        LOAD USER PSW AND P
00048  004A  B961          MS*      2,Z:SVR+14 USER PSW AND P IN T:SVR
       004C  0000  F
00049  004E  8120          LDK,L    A1,M:B00     LOAD NEW P REGISTER
       0050  0000  F
00050  0052  A220          ANK,L    A2,/FFFE
       0054  FFFE
00051  0056  B93F          MSR      2,A15        NEW PSW IN STACK
00052  0058  BC40          ML       8,Z:SVR      LOAD MONITOR REGISTERS
       005A  0000  F
00053  005C  F03E          RTN      A15          GO TO START  M:B00 IN USER LEVEL
00054                  *  THIS MODULE COMPUTE THE SECOND OPERAND OF THE USER DATA,AND
00055                  *       CALL A ROUTINE FOR SIMULATE  THE USER OPC.
00056                  *
00057  005E  860C      M:B00    LDR      A6,A3        LOAD USER DATA
00058  0060  A620               ANK,L    A6,/00DF     IS A CONSTANT INSTRUCTION
       0062  00DF
00059  0064  5400  F            RF(4)    M:B01        NO, GO TO M:B01
00060  0066  8648               LD       A6,0,A2
       0068  0000
00061  006A  EC20               CWK      A4,2         IS A DAK OPC
       006C  0002
00062  006E  5000  F            RF(0)    M:B00A
00063  0070  EC20               CWK      A4,3         IS A DSK OPC ?
       0072  0003
00064  0074  5400  F            RF(4)    M:B00B       NO GO TO M:B00B
00065  0076  81A0      M:B00A   LDK,L    A9,4
       0078  0004
00066  007A  91D5               AD,S     A9,T:SVR,A5 UPDATE OF USER P
       007C  0000  F
00067  007E  8748               LD       A7,2,A2
       0080  0002
00068  0082  5700  F            RF(7)    M:B06
00069  0084  81A0      M:B00B   LDK,L    A9,2
       0086  0002
00070  0088  91D5               AD,S     A9,T:SVR,A5 UPDATE OF USER P
       008A  0000  F
00071  008C  5700  F            RF(7)    M:B06        GO TO M:B06
00072  008E  860C      M:B01    LDR      A6,A3        REGISTER NUMBER ANALYSIS (BITS 11TO 14)
00073  0090  A620               ANK,L    A6,/0002
       0092  0002
00074  0094  5000  F            RF(0)    M:B01A
00075  0096  860C               LDR      A6,A3       BIT 14=1
```

```
00076  0098  3E62              SRL       A6,2
00077  009A  A620              ANK,L     A6,/0007
       009C  0007
00078  009E  1608              ADK       A6,8
00079  00A0  3E41              SLL       A6,1          A6 = 2*REGISTER NUMBER
00080  00A2  5700  F           RF(7)     M:B02
00081  00A4  860C      M:B01A  LDR       A6,A3         BIT 14 =0
00082  00A6  3E61              SRL       A6,1
00083  00A8  A620              ANK,L     A6,/000F
       00AA  000F
00084                      *
00085  00AC  8718      M:B02   LDR       A7,A6          A7=2 * R2
00086  00AE  1702              ADK       A7,2           A7=2 * (R2+1)
00087  00B0  818C              LDR       A9,A3          LOAD USER OPC
00088  00B2  A1A0              ANK,L     A9,/0040       ADRESSING MODE < 2
       00B4  0040
00089  00B6  5400  F           RF(4)     M:B03          NO GO TO M:B03
00090                      *
00091                      * REGISTER TO REGISTER INSTRUCTIONS
00092  00B8  9602              ADR       A6,A8          COMPUTE  OPERAND ADDRESS IN T:SVR
00093  00BA  8758              LD        A7,4,A6                 USER OPERAND BITS 16,31
       00BC  0004
00094  00BE  8658              LD        A6,2,A6     USRE OPERAND (BITS 0 TO 15)
       00C0  0002
00095                      *         USER INDIRECTION TEST,
00096  00C2  818C              LDR       A9,A3          LOAD USER DATA
00097  00C4  A1A0              ANK,L     A9,/0020                INDIRECTION
       00C6  0020
00098  00C8  5400  F           RF(4)     M:B05
00099  00CA  5700  F           RF(7)     M:B06
00100                      *
00101                      * MEMORY REFERENCE INSTRUCTIONS
00102                      *
00103  00CC  81A0      M:B03   LDK,L     A9,2
       00CE  0002
00104  00D0  91D5              AD,S      A9,T:SVR,A5 UPDATE OF USER P
       00D2  0000  F
00105                      *         USER INDEXATION TEST
00106  00D4  8618              LDR       A6,A6
00107  00D6  5000  F           RF(0)     M:B04          NO GO TO M:B04
00108  00D8  9602               ADR       A6,A8
00109  00DA  8658              LD        A6,2,A6                 USER INDEXATION
       00DC  0002
00110  00DE  9604      M:B04    ADR       A6,A1
00111                      *         USER INDIRECTION TEST,
00112  00E0  818C              LDR       A9,A3          LOAD USER DATA
00113  00E2  A1A0              ANK,L     A9,/0060
       00E4  0060
00114  00E6  81A0              XRK,L     A9,/0060                INDIRECTION
       00E8  0060
```

```
00115  00EA  5400  F            RF(4)    M:B05
00116  00EC  8658       M:B04A  LD       A6,0,A6              LOAD USER INDIRECT ADDRESS
       00EE  0000
00117  00F0  8758       M:B05   LD       A7,2,A6              LOAD USER OPERAND (BITS 16 TO 31)
       00F2  0002
00118  00F4  8658               LD       A6,0,A6              LOAD USER OPERAND (BITS  0 TO 15)
       00F6  0000
00119                     *
00120                     *
00121  00F8  B954       M:B06    ML       2,T:SVR+4,A5          LOAD USER A1,A2
       00FA  0000  F
00122  00FC  8410               LDR      A4,A4       IS A OPC MULTIPLICATION
00123  00FE  5400  F            RF(4)    M:B07        NO GO TO M:B07
00124  0100  8708               LDR      A7,A2       USER A2 IN A7
00125  0102  8682       M:B07   LDR      A14,A8
00126  0104  96A0               ADK,L    A14,34
       0106  0022
00127  0108  3C41               SLL      A4,1
00128  010A  81D0               LD       A9,T:SRA,A4 (A9)= SIMULATION ROUTINE ADDRESS
       010C  0000  F
00129  010E  F687               CFR      A14,A9
00130                     *
00131  0110  B955               MS       2,T:SVR+4,A5 RESULT IN USER A1 A2
       0112  0000  F
00132  0114  E154               LC       A1,T:SVR+32,A5       CR UPDATE
       0116  0000  F
00133  0118  E155               SC       A1,T:SVR+2,A5
       011A  0000  F
00134  011C  8154               LD       A1,T:SVR,A5          LOAD P
       011E  0000  F
00135  0120  8254               LD       A2,T:SVR+2,A5
       0122  0000  F
00136  0124  2A01               ORK      A2,/01      USER INDICATOR =1
00137  0126  20BF               INH                   INHIBIT INTERRUPT.
00138  0128  B93F               MSR      2,A15        USER PSW UPDATED IN STACK
00139  012A  0100               LDK      A1,0
00140  012C  8155               ST       A1,T:SVR,A5  USER T:SVR SAVE AERA =FREE
       012E  0000  F
00141  0130  BF54               ML       14,T:SVR+4,A5   UPDATE USER REGISTERS
       0132  0000  F
00142  0134  2840               ENB                    ENABLE INTERRUPT
00143  0136  F03E               RTN      A15           LINK TO USER PROGRAM
00144                     *
00145                     *
00146                     *
00147  0138  C0C8       T:OPC   DATA     /C0C8
00148  013A  D0D8               DATA     /D0D8
00149                     *
00150                     *
00151  013C  0000  X    T:SRA   DATA     MPYMOD       SIMULATION ROUTINES ADDRESSES
```

```
00152  013E  0000  X            DATA    DIVMOD
00153  0140  0000  X            DATA    ADDMOD
00154  0142  0000  X            DATA    DSUMOD
00155                    *
00156                    *
00157  0144              Z:SVR   RES     8           SAVE AERA
00158                    *
00159                    *
00160  0154  0000        T:SVR   DATA    0           SAVE AERA  USER PSW AND REGISTERS
00161  0156              ENDSVR  RES     17
00162  0178  0000        L:TSVR  DATA    0
00163  017A  0024                DATA    ENDSVR-T:SVR
00164                            END
```

SYMBOL TABLE

M:A00	0000	R	M:B00	005E	R	MPYMOD		X	DIVMOD		X
ADDMOD		X	DSUMOD		X	SYSAB		X	L:TOPC	0003	A
M:A01	0006	R	T:OPC	0138	R	M:A02	001A	R	L:TSVR	017A	R
M:A03	0020	R	T:SVR	0154	R	M:A04	0030	R	Z:SVR	0144	R
M:B01	008E	R	M:B00A	0076	R	M:B00B	0084	R	M:B06	00F8	R
M:B01A	00A4	R	M:B02	00AC	R	M:B03	00CC	R	M:B05	00F0	R
M:B04	00DE	R	M:B04A	00EC	R	M:B07	0102	R	T:SRA	013C	R
ENDSVR	0178	R									

ASS.ERR. 00000

```
ASM MPYMOD
DATE  06 /04 /73    TIME 10H=05M=31S=
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                IDENT    MPYMOD
00001                              * THIS ROUTINE EXECUTES THE MULTIPLY INSTRUCTION ON THE ALPLA COMPUTER
00002                              * CALLING SEQUENCE:
00003                              *                LD       A6,ARG1
00004                              *                LD       A7,ARG1
00005                              *          CF    A14,MPYMOD
00006                              * RETURN :        RESULT  IN  A1,A2
00007                              *          REGISTERS  A3,A4,A6,A7, ARE CRUSHED
00008                                         ENTRY    MPYMOD
00009  0000  8320        MPYMOD    LDK,L    A3,/8000     IF A6=A7=/8000 RETURN IN ERROR EXIT
       0002  8000
00010  0004  EB18                  CWR      A3,A6
00011  0006  5400  F               RF(4)    SUITE
00012  0008  EB1C                  CWR      A3,A7
00013  000A  5000  F               RF(0)    END3
00014  000C  861C                  LDR      A6,A7        * A6= X'8000'  A7# X'8000'
00015  000E  870C                  LDR      A7,A3        * EXCHANGE  A6=A7
00016  0010  0100        SUITE     LDK      A1,0         *INITIALISE
00017  0012  0200                  LDK      A2,0
00018  0014  0300                  LDK      A3,0
00019  0016  040F                  LDK      A4,15
00020  0018  1600                  ADK      A6,0
00021  001A  5000  F               RF(0)    END0
00022  001C  5600  F               RF(6)    ARG1PS
00023  001E  1301                  ADK      A3,1         *ARG1 NEGATIVE
00024  0020  FE18                  C1R      A6,A6
00025  0022  1601                  ADK      A6,1
00026  0024  1700        ARG1PS    ADK      A7,0
00027  0026  5000  F               RF(0)    END0
00028  0028  5600  F               RF(6)    ARG2PS
00029  002A  1B01                  SUK      A3,1         *ARG2 NEGATIVE
00030  002C  FF1C                  C1R      A7,A7
00031  002E  1701                  ADK      A7,1
00032  0030  5300  F               RF(3)    CASSPE
00033  0032  3FE1        ARG2PS    SRC      A7,1
00034  0034  5600  F               RF(6)    NOVER1
00035  0036  9118                  ADR      A1,A6
00036  0038  3A21        NOVER1    SRA      A2,1
00037  003A  39E1                  SRC      A1,1
00038  003C  5600  F               RF(6)    NOVER2
00039  003E  AA20                  ORK,L    A2,/4000
       0040  4000
00040  0042  A120                  ANK,L    A1,/7FFF
       0044  7FFF
00041  0046  1C01        NOVER2    SUK      A4,1
00042  0048  5C18                  RB(4)    ARG2PS
00043  004A  1300        NOVER3    ADK      A3,0         *END* RESTORE SI=N
00044  004C  5000  F               RF(0)    END1
00045  004E  F904                  C1R      A1,A1
00046  0050  FA08                  C1R      A2,A2
```

```
00047  0052  1201                ADK       A2,1
00048                      *CAUTION THE NEXT INSTRUCTION IS ABSOLUTELY NECESSARY TO SET CR
00049                      * WHEN THE ADK A2,1 SET AN OVERFLOW CR  EX (RESULT=8000)
00050  0054  1200                ADK       A2,0
00051  0056  5200  F             RF(2)     NOVER4
00052  0058  1101                ADK       A1,1
00053  005A  A220          NOVER4 ANK,L     A2,/7FFF
       005C  7FFF
00054  005E  5700  F             RF(7)     END2
00055  0060  1381          END3   ADK       A3,/81
00056  0062  1381          END2   ADK       A3,/81
00057  0064  1381          END1   ADK       A3,/81
00058  0066  3B41          END0   SLL       A3,1
00059  0068  A320                 ANK,L     A3,/0300
       006A  0300
00060  006C  8420                 LDK,L     A4,/FCFF
       006E  FCFF
00061  0070  A45B                 AN,S      A4,2,A14
       0072  0002
00062  0074  AB5B                 OR,S      A3,2,A14    UPDATE CR IN PSW CALLING PROGRAM
       0076  0002
00063  0078  F03A                 RTN       A14
00064  007A  8118          CASSPE LDR       A1,A6       *A7=X'8000' THEN  A4=  1
00065                      *                            *AND  A1= A6
00066  007C  5F34                 RB(7)     NOVER3
00067                      END
```

```
          SYMBOL TABLE

MPYMOD   0000  R    SUITE    0010  R    END3     0060  R    END0     0066  R
ARG1PS   0024  R    ARG2PS   0032  R    CASSPE   007A  R    NOVER1   0038  R
NOVER2   0046  R    NOVER3   004A  R    END1     0064  R    NOVER4   005A  R
END2     0062  R

          ASS,ERR,     00000
```

```
ASM DIVMOD
DATE  06 /04 /73   TIME 10H-05M-41S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                          IDENT    DIVMOD
00001                    * THIS ROUTINE EXECUTES THE DIVIDE INSTRUCTION ON THE ALPHA COMPUTER
00002                    * CALLING SEQUENCE
00003                    *                A1=A2= DIVIDEND
00004                    *                A6   = DIVISOR
00005                    *        CF      A14,DIVMOD
00006                    *RETURN*         RESUT IN A1=A2 ;  A1= REMAINDER;A2= QUOTIENT
00007                    * CAUTION : REGISTERS A3,A4,A6,A7,A8  ARE CRUSHED.
00008                          ENTRY    DIVMOD
00009  0000  8084       DIVMOD LDR      A8,A1        SAVE DIVIDEND SIGN
00010  0002  0300              LDK      A3,0
00011  0004  1600              ADK      A6,0
00012  0006  5000  F           RF(0)    END3         * IF DIVISOR IS NULL, OVREFLOW
00013  0008  1100              ADK      A1,0
00014  000A  5400  F           RF(4)    SIGNE
00015  000C  A220              ANK,L    A2,/7FFF
       000E  7FFF
00016  0010  5000  F           RF(0)    END0         * IF DIVIDEND IS NULL, CR = 0
00017                    * THIS SEQUENCE GIVES THE OPERAND  A POSITIVE VALUE
00018  0012  0700       SIGNE  LDK      A7,0
00019  0014  0410              LDK      A4,16
00020  0016  1100              ADK      A1,0         *SIGN OF DIVIDEND
00021  0018  5600  F           RF(6)    DIVENP
00022  001A  1301              ADK      A3,1         * DIVIDEND IS NEGATIVE
00023  001C  F904              C1R      A1,A1
00024  001E  FA08              C1R      A2,A2
00025  0020  A220              ANK,L    A2,X'7FFF'
       0022  7FFF
00026  0024  1201              ADK      A2,1
00027  0026  5100  F           RF(1)    DIVENP
00028  0028  1101              ADK      A1,1
00029  002A  5500  F           RF(5)    END3
00030  002C  1600       DIVENP ADK      A6,0         *SIGN OF DIVISOR
00031  002E  5600  F           RF(6)    DIVORP
00032  0030  1801              SUK      A3,1         *NEGATIVE DIVISOR
00033  0032  FE18              C1R      A6,A6
00034  0034  1601              ADK      A6,1
00035  0036  1600              ADK      A6,0                  RESET IF OVERFLOW
00036  0038  5500  F           RF(5)    CASSPE
00037  003A  E918       DIVORP CWR      A1,A6
00038  003C  5100  F           RF(1)    END3
00039  003E  5000  F           RF(0)    CASSP1
00040  0040  1C01       SHIFT  SUK      A4,1         *A1 LESS THAN A6
00041  0042  5000  F           RF(0)    END
00042  0044  3941              SLL      A1,1
00043  0046  3F41              SLL      A7,1
00044  0048  3A41              SLL      A2,1
00045  004A  5602              RF(6)    *+4
00046  004C  1101              ADK      A1,1
00047  004E  1100              ADK      A1,0
```

```
00048  0050  5200  F            RF(2)     CASSP1
00049  0052  E918               CWR       A1,A6
00050  0054  5A16               RB(2)     SHIFT
00051  0056  9918       CASSP1  SUR       A1,A6
00052  0058  1701               ADK       A7,1
00053  005A  5F1C               RB(7)     SHIFT
00054                    *THIS SEQUENCE RESTORES THE SIGN OF THE RESULTS
00055  005C  821C       END     LDR       A2,A7
00056  005E  1300               ADK       A3,0
00057  0060  5000  F            RF(0)     NOSIGN
00058  0062  5200  F            RF(2)     AA          DIVIDEND +, DIVISOR +
00059  0064  F904               C1R       A1,A1       *REMAINDER
00060  0066  1101               ADK       A1,1
00061  0068  FA08       AA      C1R       A2,A2       * QUOTIENT
00062  006A  1201               ADK       A2,1
00063                    *CAUTION THE NEXT INSTRUCTION IS ABSOLUTELY NECESSARY TO SET CR
00064                    * WHEN THE ADK A2,1 SET AN OVERFLOW CR EX (QUOTIENT=8000)
00065  006C  1200               ADK       A2,0
00066  006E  5200  F            RF(2)     END2
00067  0070  1381       END3    ADK       A3,/81
00068  0072  1381       END2    ADK       A3,/81
00069  0074  1381       END1    ADK       A3,/81
00070  0076  3841       END0    SLL       A3,1
00071  0078  A320               ANK,L     A3,/0300
       007A  0300
00072  007C  8420               LDK,L     A4,/FCFF
       007E  FCFF
00073  0080  A45B               AN,S      A4,2,A14
       0082  0002
00074  0084  AB5B               OR,S      A3,2,A14    UPDATE CR IN PSW CALLING PROGRAM
       0086  0002
00075  0088  F03A               RTN       A14
00076  008A  90A0       NOSIGN  ADK,L     A8,0        TEST OF DIVIDEND SIGN
       008C  0000
00077  008E  5600  F            RF(6)     BB
00078  0090  F904               C1R       A1,A1       DIVIDEND= ,DIVISOR =
00079  0092  1101               ADK       A1,1        REMAINDER =
00080  0094  1200       BB      ADK       A2,0
00081  0096  5822               RB(0)     END0
00082  0098  5A28               RB(2)     END2
00083  009A  5F28               RB(7)     END1
00084  009C  8704       CASSPE  LDR       A7,A1
00085  009E  8108               LDR       A1,A2
00086  00A0  E920               CWK       A1,/8000
       00A2  8000
00087  00A4  5C4A               RB(4)     END
00088  00A6  0100               LDK A1,0
00089  00A8  5F4E               RB(7)     END
00090                            END
```

SYMBOL TABLE

DIVMOD	0000	R	END3	0070	R	SIGNE	0012	R	END0	0076	R
DIVENP	002C	R	DIVORP	003A	R	CASSPE	009C	R	CASSP1	0056	R
SHIFT	0040	R	END	005C	R	NOSIGN	008A	R	AA	0068	R
END2	0072	R	END1	0074	R	BB	0094	R			

ASS.ERR. 00000

```
ASM ADDMOD
DATE  06 /04 /73    TIME 10H-05M-52S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102      BOMREL
```

```
00000                                IDENT    ADDMOD
00001                           * THIS ROUTINE EXECUTES THE DOUBLE ADDITION INSTRUCTION ON THE ALPHA
00002                           * COMPUTER
00003                           *CALLING SEQUENCE:
00004                           *                    A1=A2 = ARG1
00005                           *                    A6=A7 = ARG2
00006                           *          CF        A14,ADDMOD
00007                           *RETURN :            RESULT IN A1=A2
00008                           * CAUTION  REGISTERS  A3,A6,A7  ARE  CRUSHED.
00009                                ENTRY    ADDMOD
00010  0000  0300          ADDMOD  LDK      A3,0
00011  0002  A720                  ANK,L    A7,/7FFF
       0004  7FFF
00012  0006  A220                  ANK,L    A2,/7FFF
       0008  7FFF
00013  000A  921C                  ADR      A2,A7
00014  000C  5300  F               RF(3)    OVER1
00015  000E  9118          NOVER   ADR      A1,A6       * NO OVERFLOW
00016  0010  5100  F               RF(1)    END1
00017  0012  5200  F               RF(2)    END2
00018  0014  5300  F               RF(3)    END3
00019  0016  1200          NOVER1  ADK      A2,0
00020  0018  5000  F               RF(0)    END0
00021  001A  5700  F               RF(7)    END1
00022  001C  A220          OVER1   ANK,L    A2,/7FFF
       001E  7FFF
00023  0020  1101                  ADK      A1,1
00024  0022  5300  F               RF(3)    OVER3
00025  0024  5F18                  RB(7)    NOVER
00026  0026  9118          OVER3   ADR      A1,A6
00027  0028  5200  F               RF(2)    END3
00028  002A  1100                  ADK      A1,0
00029  002C  5100  F               RF(1)    END1
00030  002E  5F1A                  RB(7)    NOVER1
00031  0030  1380          END3    ADK       A3,/80
00032  0032  1380          END2     ADK      A3,/80
00033  0034  1380          END1     ADK      A3,/80
00034  0036  3B41          END0    SLL      A3,1
00035  0038  A320                  ANK,L    A3,/0300
       003A  0300
00036  003C  8420                  LDK,L    A4,/FCFF
       003E  FCFF
00037  0040  A45B                  AN,S     A4,2,A14
       0042  0002
00038  0044  AB5B                  OR,S     A3,2,A14    UPDATE CR IN PSW CALLING PROGRAM
       0046  0002
00039  0048  F03A                  RTN      A14
00040                                END
```

```
          SYMBOL TABLE

ADDMOD   0000  R    OVER1    001C  R    NOVER    000E  R    END1     0034  R
END2     0032  R    END3     0030  R    NOVER1   0016  R    END0     0036  R
OVER3    0026  R

          ASS,ERR,     00000
```

```
ASM DSUMOD
DATE  06 /04 /73    TIME 10H-06M-00S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102      BOMREL
```

```
00000                                IDENT    DSUMOD
00001                           * THIS ROUTINE EXECUTES THE DOUBLE SUBSTRACTION INSTRUCTION ON THE ALPHA
00002                           *COMPUTER
00003                           *CALLING SEQUENCE
00004                           *                A1=A2  = ARG1
00005                           *                A6=A7  = ARG2
00006                           *        CF      A14,DSUMOD
00007                           *RETURN:         RESULT IN A1=A2
00008                           * CAUTION  REGISTERS  A3,A6,A7  ARE  CRUSHED.
00009                                ENTRY    DSUMOD
00010  0000  0300          DSUMOD   LDK      A3,0
00011  0002  FE18                   C1R      A6,A6
00012  0004  FF1C                   C1R      A7,A7
00013  0006  A720                   ANK.L    A7,X'7FFF'
       0008  7FFF
00014  000A  A220                   ANK.L    A2,/7FFF
       000C  7FFF
00015  000E  1701                   ADK      A7,1
00016  0010  5100  F                RF(1)    NOVER1
00017  0012  1601                   ADK      A6,1
00018  0014  5300  F                RF(3)    OVER4
00019  0016  5700  F                RF(7)    NOVER
00020  0018  921C          NOVER1   ADR      A2,A7
00021  001A  5300  F                RF(3)    OVER1
00022  001C  9118          NOVER    ADR      A1,A6
00023  001E  5100  F       NOVER2   RF(1)    END1
00024  0020  5200  F                RF(2)    END2
00025  0022  5300  F                RF(3)    END3
00026  0024  1200                   ADK      A2,0
00027  0026  5000  F                RF(0)    END0
00028  0028  5700  F                RF(7)    END1
00029  002A  A220          OVER1    ANK.L    A2,X'7FFF'
       002C  7FFF
00030  002E  1101                   ADK      A1,1
00031  0030  5300  F                RF(3)    OVER4
00032  0032  5F18                   RB(7)    NOVER
00033  0034  9118          OVER4    ADR      A1,A6
00034  0036  5200  F                RF(2)    END3
00035  0038  1100                   ADK      A1,0
00036  003A  5F1E                   RB(7)    NOVER2
00037  003C  1380          END3     ADK       A3,/80
00038  003E  1380          END2      ADK      A3,/80
00039  0040  1380          END1      ADK      A3,/80
00040  0042  3841          END0     SLL      A3,1
00041  0044  A320                   ANK.L    A3,/0300
       0046  0300
00042  0048  8420                   LDK.L    A4,/FCFF
       004A  FCFF
00043  004C  A45B                   AN.S     A4,2,A14
       004E  0002
```

```
00044   0050   AB5B              OR,S     A3,2,A14    UPDATE CR IN PSW CALLING PROGRAM
        0052   0002
00045   0054   F03A              RTN      A14
00046                            END
```

```
          SYMBOL TABLE

DSUMOD   0000  R    NOVER1  0018  R    OVER4   0034  R    NOVER   001C  R
OVER1    002A  R    NOVER2  001E  R    END1    0040  R    END2    003E  R
END3     003C  R    END0    0042  R

          ASS,ERR,     00000
```

```
ASM WAIT
DATE  06 /04 /73   TIME 10H-06M-08S-
LABEL = SAGR              DATE =  270273        PACK NBR =  102     BOMREL
```

```
00000                                IDENT    WAIT
00001                          *ON ENTRY A8 CONTAINS ECB ADDRESS
00002                                ENTRY    WAIT
00003                                ENTRY    PWAIT
00004                                EXTRN     SCLFG
00005                                EXTRN    DISPAT
00006                                EXTRN    PCT61
00007                          ECBWT EQU      2
00008                          ECBSCL EQU     4
00009                          PWAIT EQU      *
00010  0000  8140              WAIT  LD       A1,SCLFG
       0002  0000  X
00011  0004  5000  F                     RF(0)    WAIT1
00012  0006  80C1                        ST       A8,PCT61+ECBSCL
       0008  0004  X
00013  000A  5700  F                     RF       RETURN
00014  000C  80C1              WAIT1     ST       A8,PCT61+ECBWT
       000E  0002  X
00015  0010  8F20              RETURN    AB,L     DISPAT
       0012  0000  X
00016                                END
```

```
          SYMBOL TABLE

WAIT    0000  R   PWAIT   0000  R   SCLFG         X   DISPAT        X
PCT61         X   ECBWT   0002  A   ECBSCL  0004  A   WAIT1   000C  R
RETURN  0010  R

          ASS,ERR,    00000
```

```
ASM EXIT
DATE  06 /04 /73   TIME 10H-06M-13S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                    IDENT    EXIT
00001                                    ENTRY    EXIT
00002                                    EXTRN    DISPAT,SCLFG
00003                                    EXTRN    PCT61
00004                                    EXTRN    EXSCH
00005                                    EXTRN    CVTSBA
00006                                * EXIT MODULE FOR GAMMA 4K EXEC, SYST,
00007                                STATUS   EQU      0
00008                                SAVADR   EQU      -2
00009                                STADR    EQU      -4
00010  0000  8140                   EXIT     LD       A1,SCLFG
       0002  0000  X
00011  0004  5100  F                         RF(1)    EXIT1
00012  0006  1600                            ADK      A6,0
00013  0008  5200  F                         RF(2)    LLEXIT
00014                                *                                  EXIT FROM MAIN ,SET  EXIT BIT
00015  000A  8120                   EXITA    LDK,L    A1,/800
       000C  0800
00016  000E  A941                            OR,S     A1,PCT61+STATUS
       0010  0000  X
00017  0012  8F20                   EXIT2    AB,L     DISPAT
       0014  0000  X
00018                                * EXIT FOR SCHEDULE LABEL ********************************************
00019  0016  0100                   EXIT1    LDK      A1,0
00020  0018  8141                            ST       A1,SCLFG
       001A  0000  X
00021  001C  9041                            IM       EXSCH      SET EXIT FOR SCHDULE LABEL FLAG
       001E  0000  X
00022  0020  5F10                            RB       EXIT2
00023                                ************************************************************************
00024  0022  81C1                   LLEXIT   ST       A9,PCT61+STADR
       0024  FFFC  X
00025  0026  1F24                            SUK      A7,36
00026  0028  8741                            ST       A7,PCT61+SAVADR
       002A  FFFE  X
00027  002C  80C1                            ST       A8,CVTSBA
       002E  0000  X
00028  0030  8620                            LDK,L    A6,-1
       0032  FFFF
00029  0034  9641                            AD,S     A6,PCT61+STATUS
       0036  0000  X
00030  0038  0600                            LDK      A6,0
00031  003A  5F32                            RB       EXITA
00032                                    END
```

```
          SYMBOL TABLE

EXIT    0000  R   DISPAT        X   SCLFG         X   PCT61         X
EXSCH         X   CVTSBA        X   STATUS  0000  A   SAVADR  FFFE  A
STADR  'FFFC  A   EXIT1   0016  R   LLEXIT  0022  R   EXITA   000A  R
EXIT2   0012  R

          ASS.ERR.    00000
```

```
ASM GETBUF
DATE  06 /04 /73    TIME 10H-06M-20S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102      BOMREL
```

```
00000                          IDENT    GETBUF
00001                  ********************************************************************************
00002                  *THIS  MODULE  ALLOCATES  DYNAMIC MEMORY BLOCK TO THE USER ON THE
00003                  *        SAGITTAIRE  GAMMA WITH 4K OF CORE MEMORY
00004                  *
00005                  *
00006                  *                CALLING SEQUENCE :   A7 =BLOCK LENGTH IN CHARACTER
00007                  *                                     LKM
00008                  *                                     DATA  4
00009                  *                UPON RETURN      :   OLD  AI4 IN BLOCK
00010                  *                                     NEW  AI4 GIVES ADDRESS OF THE
00011                  *                                     BEGINNING OF THE BLOCK
00012                  *
00013                  *                                IF  NO ROOM   A7=+1
00014                  *
00015                  *
00016                  *
00017                  ********************************************************************************
00018                          ENTRY    GETBUF
00019                          EXTRN    CVTMSZ,CVTSBA,CVTBBA
00020                          EXTRN    DISPAT
00021                          EXTRN CHLEV
00022                          EXTRN    SYSAB
00023                  *
00024                  *
00025  0000  0130      GETBUF  LDK      A1,48
00026  0002  87C1              ST       A15,SAV15
       0004  0000  F
00027  0006  F7A1              CF       A15,CHLEV
       0008  0000  X
00028  000A  8098              LDR      A8,A6
00029  000C  1700      GET0    ADK      A7,0
00030  000E  5400  F           RF(4)    GET1
00031                  *
00032  0010  8740              LD       A7,CVTMSZ     A7=0  GIVE MEMSIZE TO USER (IN AI4)
       0012  0000  X
00033  0014  5700  F           RF       RETURN
00034                  *
00035                  *
00036  0016  8240      GET1    LD       A2,CVTSBA     GET ADDRESS OF 1ST  AREA LOCATION
       0018  0000  X
00037  001A  1704          ADK          A7,4
00038  001C  A720              ANK,L    A7,/FFFE
       001E  FFFE
00039  0020  5200  F           RF(2)    ERROR         MORE THAN 16K IN LENGTH
00040  0022  0600              LDK      A6,0
00041  0024  0401              LDK      A4,1
00042                  *
00043                  *
00044  0026  8128      GET2    LDR*     A1,A2
```

```
00045  0028  5000  F          RF(0)     GET5          END OF ALLOCATED AREA,GO AND SEE
00046                  *                               IF THERE IS ENOUGH ROOM LEFT
00047                  *
00048  002A  A111              TM        A1,A4         IS THE BLOCK (ALLOCATED) BUSY
00049  002C  5000  F          RF(0)     GET4          NOT BUSY ,GO AND SEE IF THE SIZE IS O.K.
00050                  *
00051                  *
00052  002E  8228       GET3   LDR*      A2,A2         GO TO NEXT BLOCK
00053  0030  5F0C              RB(7)     GET2
00054                  *
00055                  *
00056  0032  8504       GET4   LDR       A5,A1         A5=IND OF BLOCK
00057  0034  9D08              SUR       A5,A2         A5=LENGTH OF BLOCK
00058                  *
00059                  *
00060  0036  ED1C              CWR       A5,A7
00061  0038  5A0C              RB(2)     GET3          BLOCK TOO SMALL
00062                  *
00063  003A  1600              ADK       A6,0
00064  003C  5000  F          RF(0)     GET4A
00065  003E  EE14              CWR       A6,A5         A6= PREVIOUS AVAILABLE BLOCK LENGTH
00066  0040  5A14              RB(2)     GET3          PREVIOUS IS BETTER
00067                  *
00068  0042  8614       GET4A  LDR       A6,A5         BLOCK  ALL RIGHT  GO TO SEE
00069  0044  8308              LDR       A3,A2         IF THERE IS ANYTHING BETTER
00070                  *
00071  0046  5F1A              RB(7)     GET3
00072                  *
00073                  *
00074                  *
00075                  *
00076  0048  1600       GET5   ADK       A6,0          HAVE  WE  FOUND AN ALLOC=NOTBUSY BLOCK?
00077  004A  5400  F          RF(4)     GET8          YES
00078  004C  A220              ANK.L     A2,/FFFE
       004E  FFFE
00079                  *
00080  0050  8108              LDR       A1,A2         NO  LOOK IF THERE STILL ROOM ENOUGH
00081  0052  911C              ADR       A1,A7
00082  0054  8540              LD        A5,CVTBBA
       0056  0000  X
00083  0058  8304              LDR       A3,A1
00084  005A  3B61              SRL       A3,1
00085  005C  3D61              SRL       A5,1
00086  005E  EB14              CWR       A3,A5
00087  0060  5200  F          RF(2)     GET6          NOT YET IN OVERFLOW
00088  0062  0701       GET5A  LDK       A7,1          CORE D'FLOW
00089  0064  5700  F          RF        RETURN
00090  0066  8540       GET6   LD        A5,CVTSBA
       0068  0000  X
00091  006A  3D61              SRL       A5,1
```

```
00092  006C  EB14          CWR     A3,A5
00093  006E  5A0E          RB(2)   GET5A
00094  0070  8308          LDR     A3,A2
00095  0072  3B61          SRL     A3,1
00096  0074  EB14          CWR     A3,A5
00097  0076  5200  F       RF(2)   ERROR       AREA DESTROYED BY USER
00098  0078  1101          ADK     A1,1        SET BLOCK BUSY
00099  007A  8129          STR     A1,A2
00100  007C  0700          LDK     A7,0
00101  007E  8769          ST*     A7,0,A2             PUT IN NEXT BLOCK LINK
       0080  0000
00102                  *
00103  0082  86C9      GET7    ST      A14,2,A2    PUT OLD AI4 IN BLOCK
       0084  0002
00104  0086  0700          LDK     A7,0
00105  0088  1206          ADK     A2,6
00106  008A  8688          LDR     A14,A2      UPDATE NEW AI4
00107                  *
00108                  *
00109  008C  8602      RETURN  LDR     A6,A8
00110  008E  8120          LDK,L   A1,SAV15
       0090  0000  F
00111                  SAV15   EQU     *-2
00112  0092  8745          ST      A7,4,A1
       0094  0004
00113  0096  8F20          AB,L    DISPAT
       0098  0000  X
00114                  *
00115                  *
00116  009A  8540      GET8    LD      A5,CVTSBA    CHECK IF ANYTHING
       009C  0000  X
00117  009E  840C          LDR     A4,A3
00118  00A0  3C61          SRL     A4,1
00119  00A2  3D61          SRL     A5,1
00120  00A4  EC14          CWR     A4,A5
00121  00A6  5200  F       RF(2)   ERROR
00122  00A8  8540          LD      A5,CVTBBA
       00AA  0000  X
00123  00AC  3D61          SRL     A5,1
00124  00AE  EC14          CWR     A4,A5
00125  00B0  5600  F       RF(6)   ERROR
00126                  *
00127                  *
00128  00B2  902D          IMR     A3          RESET BUSY=BLOCK FLAG
00129  00B4  820C          LDR     A2,A3
00130  00B6  5F36          RB      GET7        GO TO UPDATE A14
00131                  *
00132                  *
00133                  *
00134  00B8  0204      ERROR   LDK     A2,4
```

```
00135  00BA  8340          LD      A3,SAV15
       00BC  0090  R
00136  00BE  834C          LD      A3,20,A3
       00C0  0014
00137  00C2  8602          LDR     A6,A8
00138  00C4  8F20          AB,L    SYSAB
       00C6  0000  X
00139                  *
00140                  *
00141                  END
```

```
          SYMBOL TABLE

GETBUF   0000  R   CVTMSZ        X   CVTSBA        X   CVTBBA        X
DISPAT         X   CHLEV         X   SYSAB         X   SAV15    0090 R
GET0     000C  R   GET1    0016 R   RETURN  008C  R   ERROR    00B8 R
GET2     0026  R   GET5    0048 R   GET4    0032  R   GET3     002E R
GET4A    0042  R   GET8    009A R   GET6    0066  R   GET5A    0062 R
GET7     0082  R

          ASS,ERR,    00000
```

ASM FRBUFF
DATE 06 /04 /73 TIME 10H-06M-36S-

LABEL = SAGR DATE = 270273 PACK NBR = 102 BOMREL

```
00000                                IDENT    FRBUFF
00001                          *RELEASING OF A BLOCK IN DYNAMIC  BUFFER AREA
00002                          *
00003                          *                UPON ENTRY   A14 =USER ENTRY POINT IN THE BLOCK
00004                          *                             A7  =LENGTH OF THE BLOCK
00005                                           UPON RETURN
00006                                           UPON RETURN  A7  =0  O,K,
00007                                                        A7=  1  ERROR IN PARAMETERS
00008                                                                OR  4REA  DISTROYED
00009                                ENTRY    FRBUFF
00010                                EXTRN    CVTSBA,CVTBBA
00011                                EXTRN    DISPAT
00012                                EXTRN CHLEV
00013                          *
00014                          *
00015  0000  0130            FRBUFF  LDK      A1,48
00016  0002  809E                    LDR      A8,A15
00017  0004  F7A1                    CF       A15,CHLEV
       0006  0000  X
00018  0008  821A            FREE0   LDR      A2,A14
00019  000A  1A06                    SUK      A2,6          A2 =BEGINNING OF THE BLOCK
00020  000C  8540                    LD       A5,CVTSBA
       000E  0000  X
00021  0010  3D61                    SRL      A5,1
00022  0012  3A61                    SRL      A2,1
00023  0014  EA14                    CWR      A2,A5
00024  0016  5200  F                 RF(2)    ERROR
00025  0018  8540                    LD       A5,CVTBBA
       001A  0000  X
00026  001C  3D61                    SRL      A5,1
00027  001E  EA14                    CWR      A2,A5
00028  0020  5600  F                 RF(6)    ERROR
00029  0022  3A41                    SLL      A2,1
00030                          *
00031  0024  1704                ADK          A7,4
00032  0026  A720                    ANK,L    A7,/FFFE
       0028  FFFE
00033  002A  5200  F                 RF(2)    ERROR         MORE THAN 16K IN LENGTH
00034  002C  8328                    LDR*     A3,A2
00035  002E  812C                    LDR*     A1,A3
00036  0030  9B08                    SUR      A3,A2         A3=LENGTH OF BLOCK
00037  0032  1B01                    SUK      A3,1
00038  0034  EF0C                    CWR      A7,A3
00039  0036  5400  F                 RF(4)    ERROR
00040  0038  1100                    ADK      A1,0
00041  003A  5000  F                 RF(0)    FREE1
00042                          *
00043  003C  8420                    LDK,L    A4,/FFFE      THE BLOCK  IS NOT THE LAST
       003E  FFFE
00044  0040  A429                    ANR,S    A4,A2         OF THE CHAIN , RA2 BUSY BIT
```

```
00045  0042  5700  F            RF       FREE2
00046  0044  8129       FREE1   STR      A1,A2        END  OF THE CHAIN PUT 0
00047                    *                             IN  LAST FORWARD LINK
00048                    *
00049                    *
00050  0046  1202       FREE2   ADK      A2,2
00051  0048  86A8               LDR*     A14,A2       RESER  A14 TO USER
00052                    *
00053  004A  0700               LDK      A7,0
00054  004C  8743       RETURN  ST       A7,4,A8
       004E  0004
00055  0050  8F20               AB,L     DISPAT
       0052  0000  X
00056                    *
00057  0054  0701       ERROR   LDK      A7,1
00058  0056  5F0C               RB       RETURN
00059                    *
00060                    END
```

```
          SYMBOL TABLE

FRBUFF  0000  R    CVTSBA        X    CVTBBA        X    DISPAT        X
CHLEV         X    FREE0   0008  R    ERROR   0054  R    FREE1   0044  R
FREE2   0046  R    RETURN  004C  R

          ASS,ERR,     00000
```

```
KPF /O
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
 TOO MANY MODULES TO BE   CATALOGED
ASG /E0,PR20
ASM IORM
DATE  06 /04 /73   TIME 10H-08M-18S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                   IDENT    IORM
00001                           *
00002                           ********************************************************************************
00003                           *       ENTRY CONDITIONS
00004                           *       A6 = SCHEDULE LABEL ADDRESS
00005                           *       A7 = ORDER
00006                           *       A8 = ECB ADDRESS
00007                           *       ENTRY  M:IORM
00008                           ********************************************************************************
00009                                   ENTRY    M:IORM
00010                                   ENTRY    E:FECB
00011                                   ENTRY    E:SECB
00012                           *
00013                                   EXTRN    E:S000
00014                                   EXTRN    E:S015
00015                                   EXTRN    E:S012
00016                                   EXTRN    E:S011
00017                                   EXTRN    F:CT
00018                                   EXTRN    L:VCH
00019                                   EXTRN    PCT61
00020                                   EXTRN    DISPAT
00021                                   EXTRN    PWAIT
00022                           FCASR   EQU      5
00023                           * THIS SEQUENCE PERFORMS THE GET ASSIGN
00024  0000  8122              ORD30   LDR*     A1,A8                 * A1 = ECB0
00025  0002  21FF                      ANK      A1,/FF                * A1 = FILE CODE
00026  0004  5000  F                   RF(0)    ORD301                * FILE CODE = 0
00027  0006  9104                      ADR      A1,A1
00028  0008  E940                      CW       A1,F:CT
       000A  0000  X                                                   N
00029  000C  5100  F                   RF(1)    ORD301                * FILE CODE NOT IN TABLE
00030  000E  8444                      LD       A4,F:CT,A1            addr DWT
       0010  0000  X
00031  0012  5000  F                   RF(0)    ORD301
00032  0014  8130                      LDR*     A1,A4                 device name
00033  0016  8250                      LD       A2,4,A4               * LENGTH
       0018  0004
00034  001A  8350                      LD       A3,2,A4               * ADDRESS
       001C  0002
00035  001E  B9C3              ORD302  MS       3,2,A8
       0020  0002
00036  0022  0180                      LDK      A1,/80
00037  0024  E123                      SCR      A1,A8
00038  0026  0100                      LDK      A1,0
00039  0028  8143                      ST       A1,8,A8
       002A  0008
00040  002C  8F20                      AB,L(7)  DISPAT
       002E  0000  X
00041                           *
00042  0030  0100              ORD301  LDK      A1,0                  * FILE CODE UNKNOWM
```

```
00043  0032  0200                    LDK       A2,0
00044  0034  0300                    LDK       A3,0
00045  0036  5F1A                    RB(7)     ORD302
00046                        * BUFFERS TO OUTPUT EOS OR EOF
00047  0038  0A0A                    DATA      /0A0A
00048  003A  3A45          E:SECB    DATA      ':EOS'
       003C  4F53
00049  003E  0D0A                     DATA     /0D0A
00050  0040  3A45          E:FECB    DATA      ':EOF'
       0042  4F46
00051  0044  0D0A                     DATA     /0D0A
00052                        * OUTPUT SEQUENCE
00053  0046  8F20          ERS01     AB,L(7)   E:S011       * FUNCTION UNKNOWN
       0048  0000  X
00054  004A  8F20          NOTAS1    AB,L(7)   E:S015
       004C  0000  X
00055  004E  8F20          NOTAS2    AB,L(7)   E:S000
       0050  0000  X
00056                        * THIS SEQUENCE SEARCHES THE DWT CORRESPONDING TO FILE CODE
00057                        M:IORM    EQU       *
00058  0052  8140                     LD        A1,PCT61
       0054  0000  X
00059  0056  213F                    ANK       A1,/3F
00060  0058  193F                    SUK       A1,/3F
00061  005A  5204                    RF(2)     *+6
00062  005C  207F                     HLT                  OVERFLOW ON EVENT COUNT
00063  005E  5F04                    RB        *-2
00064  0060  8120                    LDK,L     A1,*+8
       0062  0068  R
00065  0064  8F20                    AB,L(7)   L:VCH        * AT RETURN LEVEL = 48
       0066  0000  X
00066  0068  A0A0                    ANK,L     A8,/FFFE
       006A  FFFE
00067  006C  811C                    LDR       A1,A7                * IS IT ORDER 30 ?
00068  006E  213F                    ANK       A1,/3F
00069  0070  E920                    CWK       A1,/30
       0072  0030
00070  0074  5876                    RB(0)     ORD30
00071  0076  9041                     IM       PCT61        INCREMENT EV, COUNT
       0078  0000  X
00072  007A  8122                    LDR*      A1,A8        * A1=ECB0
00073  007C  21FF                    ANK       A1,/FF       * A1=FILE CODE
00074  007E  5832                    RB(0)     NOTAS2       * IF FILE CODE =0, GO TO NOTASS
00075  0080  9104                    ADR       A1,A1
00076  0082  E940                    CW        A1,F:CT
       0084  0000  X
00077  0086  593E                    RB(1)     NOTAS1       * THE FILE CODE IS NOT IN THE TABLE
00078  0088  8344                    LD        A3,F:CT,A1    * A3 = DWT ADDRESS
       008A  0000  X
00079  008C  5840                    RB(0)     NOTAS2       * THE FILE IS NOT ASSIGNED
```

```
00080                          * THIS SEQUENCE CHECKS THAT THE CONTROLLER IS FREE
00081  008E  8402               IORM21  LDR     A4,A8       * SAVE A8
00082                          IORM21  EQU     *
00083  0090  20BF                       INH
00084  0092  80CC                       LD      A8,32,A3        A8=CONTROLLER STATUS ADDRESS
       0094  0020
00085  0096  8222                       LDR*    A2,A8
00086  0098  5200  F                    RF(2)   IORM20      * CONTROLLER FREE
00087                          *
00088                          *
00089  009A  2840                       ENB                         P
00090  009C  20BF                       INH                         OEN THE DOOR,LET INTERRUPTS OCCUR
00091                          *
00092                          *
00093  009E  825E                       LD      A2,18,A15   * CHECK IF LEVEL < 62
       00A0  0012
00094  00A2  3A6A                       SRL     A2,10
00095  00A4  1A3E                       SUK     A2,62
00096  00A6  5A18                       RB(2)   IORM21
00097  00A8  825E               CASCAS  LD      A2,20,A15   * RESTORE LKM INSTRUCTION
       00AA  0014
00098  00AC  8140                       LD      A1,PCT61
       00AE  0000  X
00099  00B0  1A04                       SUK     A2,4
00100  00B2  1901                       SUK     A1,1
00101  00B4  1600                       ADK     A6,0
00102  00B6  5000  F                    RF(0)   IORM22
00103  00B8  1A02                       SUK     A2,2        * SCHEDULE LABEL
00104  00BA  1901                       SUK     A1,1
00105  00BC  0600                       LDK     A6,0
00106  00BE  825F               IORM22  ST      A2,20,A15
       00C0  0014
00107  00C2  8141                       ST      A1,PCT61
       00C4  0000  X
00108  00C6  8F20                       AB,L(7) PWAIT
       00C8  0000  X
00109                          *
00110                          *
00111                          ********* THIS SEQUENCE CHECKS IF THE PHYSICAL UNIT IS NOT READY
00112                          *
00113                          *
00114                          IORM20  EQU     *
00115  00CA  80CC                       LD      A8,8,A3     IS THE PHYSICAL UNIT READY ?
       00CC  0008
00116  00CE  5200  F                    RF(2)   IORM2-2     YES
00117  00D0  E8A1                       CCK     A8,/0101    IS THE MESSAGE PRINTED ?
       00D2  0101
00118  00D4  5400  F                    RF(4)   CASPRT      PRINT
00119                          IRMCAS  EQU     *
00120                          *
```

```
00121                        *
00122  00D6  2840           ENB
00123  00D8  20BF           INH                        OPEN DOORS,LET INTERRUPTS OCCUR
00124                        *
00125                        *
00126  00DA  825E           LD       A2,18,A15         * CHECK
       00DC  0012
00127  00DE  3A6A           SRL      A2,10             * IF
00128  00E0  1A3E           SUK      A2,62             * LEVEL < 62
00129  00E2  5A1A           RB(2)    IORM20            LEVEL < 62
00130  00E4  5F3E           RB       CASCAS
00131                 CASPRT EQU      *
00132  00E6  0101           LDK      A1,1              EQUAL =
00133  00E8  814D           ST       A1,8,A3            THE MESSAGE HAS BEEN PRINTED
       00EA  0008
00134  00EC  2840           ENB
00135  00EE  811C           LDR      A1,A7             SAVE ORDER
00136  00F0  80AC           LDR*     A8,A3              DEVICE NAME
00137  00F2  80C1           ST       A8,MESS           RANGE IN BUFFER
       00F4  0000  F
00138  00F6  874C           LD       A7,2,A3           DEVICE ADDRESS
       00F8  0002
00139  00FA  3F64           SRL      A7,4
00140  00FC  EF21           CCK      A7,/0A0A          ALPHA ?
       00FE  0A0A
00141  0100  5200  F        RF(2)    NUMER             NO
00142  0102  1707           ADK      A7,7
00143  0104  1730      NUMER ADK     A7,/30            NUMERIC
00144  0106  3F48           SLL      A7,8
00145  0108  E74C           LC       A7,3,A3           LOAD SECOND CHR OF DEVICE ADDRESS
       010A  0003
00146  010C  A720           ANK,L    A7,/FF0F
       010E  FF0F
00147  0110  EF21           CCK      A7,/0A0A          ALPHA ?
       0112  0A0A
00148  0114  5200  F        RF(2)    SOTT1             NO
00149  0116  1707           ADK      A7,7
00150  0118  1730      SOTT1 ADK     A7,/30            NUMERIC
00151  011A  8741           ST       A7,MESS+2
       011C  0000  F
00152  011E  80A0           LDK,L    A8,ECBMES         ECB ADDRESS
       0120  0000  F
00153  0122  0706           LDK       A7,6             ASCII WRITE ORDER
00154  0124  2804           LKM
00155  0126  0001            DATA    1
00156  0128  808C           LDR      A8,A3             DWT ADDRESS
00157  012A  90A0           ADK,L    A8,8              PHYSICAL UNIT CHECK WORD ADDRESS
       012C  0008
00158  012E  8704           LDR      A7,A1             RESTORE ORDER
00159  0130  5F5C           RB       IRMCAS
```

```
00160                          *
00161  0132  0005       ECBMES  DATA    FCASR
00162  0134  0000  F            DATA    MESS-2
00163  0136  000A               DATA    10
00164  0138                     RES     2
00165  013C             MESS    RES     2
00166  0140  204F               DATA    ' OFF'
       0142  4646
00167                          *
00168                          *
00169                          *
00170                          *
00171  0144  8090               LDR     A8,A4
00172                          * THIS SEQUENCE PUTS THE ECB PARAMETERS IN THE PARAMETERS TABLE
00173                          IORM2   EQU     *
00174  0146  8220               LDK,L   A2,/7FFF
       0148  7FFF
00175  014A  A26D               AN,S*   A2,32,A3        SET CONTROLLER BUSY
       014C  0020
00176                          *
00177  014E  2840               ENB
00178  0150  864D               ST      A6,30,A3
       0152  001E
00179  0154  860C               LDR     A6,A3
00180  0156  0200               LDK     A2,0
00181  0158  E223               SCR     A2,A8           * ECB
00182  015A  E279               SC*     A2,32,A6        * CONTROLLER
       015C  0020
00183  015E  8259               ST      A2,26,A6        * CHECKSUM
       0160  001A
00184  0162  8259               ST      A2,24,A6        * CHARACTER FLAG
       0164  0018
00185  0166  8259               ST      A2,18,A6        * ORDER
       0168  0012
00186  016A  8243               ST      A2,8,A8         * USER STATUS
       016C  0008
00187  016E  8242               LD      A2,4,A8
       0170  0004
00188  0172  8820               AB,L(0) E:SO12          * LENGTH = 0
       0174  0000  X
00189                          * THIS SEQUENCE ANALYSES THE ORDER
00190  0176  80D9       IORM3   ST      A8,10,A6
       0178  000A
00191  017A  8142               LD      A1,2,A8
       017C  0002
00192  017E  8820               AB,L(0) E:SO12          * NO BUFFER ADDRESS
       0180  0000  X
00193  0182  841C               LDR     A4,A7
00194  0184  243F               ANK     A4,/3F
00195  0186  8820               AB,L(0) ERSO1           * ORDER =0
```

```
       0188  0046  R
00196  018A  EC20              CWK       A4,2
       018C  0002
00197  018E  5000  F           RF(0)     ITAB          * TABULATION
00198  0190  5200  F           RF(2)     SWITCH
00199  0192  EC20              CWK       A4,5
       0194  0005
00200  0196  8A20              AB,L(2)   ERSO1         * ORDER =3 OR 4
       0198  0046  R
00201  019A  EC20              CWK       A4,6
       019C  0006
00202  019E  5000  F           RF(0)     REMOVE
00203  01A0  5200  F           RF(2)     SWITCH
00204  01A2  EC20              CWK       A4,9
       01A4  0009
00205  01A6  5500  F           RF(5)     SWITC1
00206  01A8  EC20              CWK       A4,/14
       01AA  0014
00207  01AC  5000  F           RF(0)     IEOS
00208  01AE  EC20              CWK       A4,/16
       01B0  0016
00209  01B2  5000  F           RF(0)     IEOF
00210  01B4  EC20              CWK       A4,/26
       01B6  0026
00211  01B8  5000  F           RF(0)     OEOS
00212  01BA  EC20              CWK       A4,/22
       01BC  0022
00213  01BE  5000  F           RF(0)     OEOF
00214  01C0  EC20              CWK       A4,/31
       01C2  0031
00215  01C4  8A20              AB,L(2)   ERSO1
       01C6  0046  R
00216  01C8  EC20              CWK       A4,/38
       01CA  0038
00217  01CC  8920              AB,L(1)   ERSO1
       01CE  0046  R
00218  01D0  5700  F           RF        SWITCH
00219  01D2  8520        OEOF  LDK,L     A5,*+6
       01D4  01D8  R
00220  01D6  5700  F           RF        IFK7
00221  01D8  8120              LDK,L     A1,E:FECB
       01DA  0040  R
00222  01DC  5700  F           RF        OEOS+10
00223                    *
00224  01DE  8520        OEOS  LDK,L     A5,*+6
       01E0  01E4  R
00225  01E2  5700  F           RF        IFK7
00226  01E4  8120              LDK,L     A1,E:SECB
       01E6  003A  R
00227  01E8  0204              LDK       A2,4
```

stand. read
basic read

stand write
basic write

order = 7 or 8 or 9

skip to reset EOS

skip to reset

write EOS

write EOF

```
00228  01EA  0406          LDK       A4,6
00229  01EC  5700  F       RF(7)     SWITC1
00230                *
00231  01EE  8420          IEOS      LDK,L     A4,/8302    * SKIP TO EOS
       01F0  8302
00232  01F2  5700  F       RF(7)     SWITC1
00233                *
00234                       IEOF      EQU       *           SKIP TO EOF
00235  01F4  8520          LDK,L     A5,*+6
       01F6  01FA  R
00236  01F8  5700  F       RF        IFK7        DO NOT TREAT IF TC OR MT
00237  01FA  8420          LDK,L     A4,/8102    SET SKIP FLAG IN DWT(ORDER)
       01FC  8102
00238  01FE  5700  F       RF(7)     SWITC1
00239                       ITAB      EQU       *
00240  0200  8538          LDR*      A5,A6       IN CASE OF MAG. TAPE
00241  0202  ED20          CWK       A5,'MT'     DO NOT INITIALISE
       0204  4D54
00242  0206  5000  F       RF(0)     SWITC1      TABULATION IN DWT*22
00243  0208  8558          LD        A5,10,A6    (ECBO)
       020A  000A
00244  020C  8554          LD        A5,10,A5    tab tab addr
       020E  000A
00245  0210  8559          ST        A5,22,A6
       0212  0016
00246  0214  240F          ANK       A4,/F
00247  0216  5700  F       RF(7)     SWITC1
00248                *
00249                *  THIS SEQUENCE REMOVES THE TRAILING BLANKS
00250  0218  8520          REMOVE    LDK,L     A5,*+6
       021A  021E  R
00251  021C  5700  F       RF        IFK7
00252  021E  9108          ADR       A1,A2
00253  0220  1901          SUK       A1,1
00254  0222  E324          LCR       A3,A1
00255  0224  1101          ADK       A1,1
00256  0226  23FF          ANK       A3,/FF
00257  0228  1820          SUK       A3,/20
00258  022A  5400  F       RF(4)     REMOV1
00259
00260  022C  1902          REMOV2    SUK       A1,2
00261  022E  8324          LDR*      A3,A1
00262  0230  9820          SUK,L     A3,/2020
       0232  2020
00263  0234  5400  F       RF(4)     REMOV1
00264  0236  1A02          SUK       A2,2
00265  0238  590E          RB(1)     REMOV2
00266  023A  1202          ADK       A2,2
00267  023C  8142          REMOV1    LD        A1,2,A8
       023E  0002
```

```
00268  0240  5700  F           RF(7)     SWITC1
00269                  * SWITCH TO SPECIFIC MODULE
00270  0242  851C      SWITCH   LDR       A5,A7                    RETRY
00271  0244  2540               ANK       A5,/40       * KEEP STATUS BIT
00272  0246  0300      SWITC2   LDK       A3,0
00273  0248  EC20               CWK       A4,7
       024A  0007
00274  024C  5200  F            RF(2)     SWIBIS
00275  024E  8262               LD*       A2,2,A8
       0250  0002
00276  0252  22FF               ANK       A2,/FF
00277  0254  9208               ADR       A2,A2
00278  0256  1202               ADK       A2,2
00279  0258  BAD9      SWIBIS   MS        5,12,A6      * INITIALISE THE PARAMETERS TABLE
       025A  000C
00280  025C  24FF               ANK       A4,/FF
00281  025E  8F58               ABI(7)    6,A6         * SWITCH
       0260  0006
00282  0262  0500      SWITC1   LDK       A5,0
00283  0264  5F20               RB(7)     SWITC2
00284  0266  8338      IFK7     LDR*      A3,A6
00285  0268  EB20               CWK       A3,/5443     IS A CASSETTE TAPE ?   'TC'
       026A  5443
00286  026C  582C               RB(0)     SWITCH       YES - CASSETTE
00287  026E  EB20               CWK       A3,/4D54     IS A MAGNETIC TAPE ?   'MT'
       0270  4D54
00288  0272  5832               RB(0)     SWITCH       YES
00289  0274  8F14               ABR       A5           NO CASSETTE
00290                            END
```

SYMBOL TABLE

M:IORM	0052	R	E:FECB	0040	R	E:SECB	003A	R	E:S000		X
E:S015		X	E:S012		X	E:S011		X	F:CT		X
L:VCH		X	PCT61		X	DISPAT		X	PWAIT		X
FCASR	0005	A	ORD30	0000	R	ORD301	0030	R	ORD302	001E	R
ERS01	0046	R	NOTAS1	004A	R	NOTAS2	004E	R	IORM21	0090	R
IORM20	00CA	R	CASCAS	00A8	R	IORM22	00BE	R	IORM2	0146	R
CASPRT	00E6	R	IRMCAS	00D6	R	MESS	013C	R	NUMER	0104	R
SOTT1	0118	R	ECBMES	0132	R	IORM3	0176	R	ITAB	0200	R
SWITCH	0242	R	REMOVE	0218	R	SWITC1	0262	R	IEOS	01EE	R
IEOF	01F4	R	OEOS	01DE	R	OEOF	01D2	R	IFK7	0266	R
REMOV1	023C	R	REMOV2	022C	R	SWITC2	0246	R	SWIBIS	0258	R

ASS,ERR, 00000

ASM ENDIO
DATE 06 /04 /73 TIME 10H-08M-51S-
LABEL = SAGR DATE = 270273 PACK NBR = 102 BOMREL

```
00000                          IDENT    ENDIO
00001                        * THIS MODULE CONTAINS ALL THE OUTPUTS OF THE TO MODULES
00002                          ENTRY    E:NDIO
00003                          ENTRY    E:SO15
00004                          ENTRY    E:SO14
00005                          ENTRY    E:SO13
00006                          ENTRY    E:SO12
00007                          ENTRY    E:SO11
00008                          ENTRY    E:SO00
00009                          ENTRY    L:VCH
00010                          ENTRY    R:TURN
00011                          ENTRY    R:TUR1
00012                          ENTRY    R:TUR2
00013                          ENTRY    R:TUR3
00014                          ENTRY    R:TUR4
00015                          ENTRY    R:TUR5
00016                          EXTRN    DISPAT
00017                          EXTRN    PCT61
00018                        * THIS SEQUENCE RETURNS TO THE CALLING SEQUENCE WITH LEVEL 48
00019                        * ENTRY CONDITIONS
00020                        *        A1 = RETURN ADDRESS
00021                        *        ENTRY    AB,L(7)  L:VCH
00022  0000  20BF      L:VCH  INH
00023  0002  813F             STR      A1,A15
00024  0004  8120             LDK,L    A1,/C000
       0006  C000
00025  0008  813F             STR      A1,A15
00026  000A  F03E             RTN      A15
00027                        *
00028                        ********************************************************************************
00029                        *
00030                        * THIS SEQUENCE EXECUTES THE CIO HALT FOR PAPER EQUIPMENT
00031                        * ENTRY CONDITIONS
00032                        *        A6 = DWT ADDRESS
00033                        *        AB,L(7)  E:NDIO
00034  000C  8158      E:NDIO LD       A1,2,A6      * A1 = DEVICE ADDRESS
       000E  0002
00035  0010  9120             ADK,L    A1,/4280
       0012  4280
00036  0014  8141             ST       A1,*+4
       0016  0018  R
00037  0018  4280             CIO      A2,0,0       * STOP DEVICE
00038  001A  97A0             ADK,L    A15,4
       001C  0004
00039                        *
00040                        R:TURN EQU      *             RETURN TO INTERRUPTED PROG,
00041  001E  2840             ENB
00042  0020  0600             LDK      A6,0
00043  0022  8F20             AB,L     DISPAT
       0024  0000  X
```

```
00044                          *
00045                          ********************************************************************************
00046                          *
00047                          *
00048                          * END OF IO
00049                          *       A2 = STATUS
00050                          *
00051  0026  8158      R:TUR4  LD      A1,16,A6    * A1 = EFFECTIVE LENGTH
       0028  0010
00052  002A  8558              LD      A5,10,A6    * A5 = ECB ADDRESS
       002C  000A
00053  002E  5700  F           RF(7)   R:TUR1
00054                          *
00055  0030  0100      ERSOFT  LDK     A1,0
00056  0032  5702              RF(7)   *+4
00057                          *
00058  0034  8094      R:TUR1  LDR     A8,A5       * A8 = ECB ADDRESS
00059  0036  8720              LDK,L   A7,DISPAT
       0038  0000  X
00060                          *
00061  003A  0380      R:TUR5  LDK     A3,/80      * A3 = EVENT BYTE
00062  003C  E323              SCR     A3,A8
00063  003E  8943              MS      2,6,A8
       0040  0006
00064  0042  EA20              CWK     A2,/C001
       0044  C001
00065  0046  5000  F           RF(0)   RETU11
00066  0048  E379              SC*     A3,32,A6    * CONTROLLER STATUS
       004A  0020
00067  004C  8658              LD      A6,30,A6
       004E  001E
00068  0050  20BF      RETU11  INH
00069  0052  8120              LDK,L   A1,-1
       0054  FFFF
00070  0056  9141              AD,S    A1,PCT61
       0058  0000  X
00071  005A  801C      RETU13  LDR     0,A7
00072                          *
00073                          * THIS SEQUENSES GIVE STATUS FOR ERRORS
00074  005C  0200      E:S000  LDK     A2,0
00075  005E  0100              LDK     A1,0
00076  0060  8943              MS      2,6,A8
       0062  0006
00077  0064  0380              LDK     A3,/80
00078  0066  E323              SCR     A3,A8
00079  0068  8720              LDK,L   A7,DISPAT
       006A  0000  X
00080  006C  5F1E              RB      RETU11
00081  006E  8220      E:S011  LDK,L   A2,/C010    * FUNCTION
       0070  C010
```

```
00082  0072  5F44          RB(7)    ERSOFT
00083  0074  8220  E:SO12  LDK,L    A2,/C008    * BUFFER SIZE OR ADDRESS
       0076  C008
00084  0078  5F4A          RB(7)    ERSOFT
00085  007A  8220  E:SO13  LDK,L    A2,/C004    * ECB ADDRESS
       007C  C004
00086  007E  5F50          RB(7)    ERSOFT
00087  0080  8220  E:SO14  LDK,L    A2,/C002    * DEVICE ATTACHED
       0082  C002
00088  0084  5F56          RB(7)    ERSOFT
00089  0086  8220  E:SO15  LDK,L    A2,/C001    * FILE CODE
       0088  C001
00090  008A  5F5C          RB(7)    ERSOFT
00091                      *
00092                      * END OF IO * SOFTWARE
00093  008C  8558  R:TUR2  LD       A5,10,A6    * A5 = ECB ADDRESS
       008E  000A
00094  0090  8254  AGAIN   LD       A2,8,A5     ECB Status word
       0092  0008
00095  0094  5C70          RB(4)    R:TUR4      * SOFTWARE ERROR IN READING
00096                      *
00097  0096  8120  R:TUR3  LDK,L    A1,*+8      * CHANGE LEVEL
       0098  009E  R
00098  009A  8F20          AB,L(7)  L:VCH
       009C  0000  R
00099  009E  9882          SUR      A8,A8
00100  00A0  8158          LD       A1,18,A6    * IS IT ORDER 2 ?
       00A2  0012
00101  00A4  21FD          ANK      A1,/FD
00102  00A6  5400  F       RF(4)    SUITE
00103  00A8  89D8          ML       3,12,A6     * IS IT AN EOS OR EOF ?
       00AA  000C
00104  00AC  EB20          CWK      A3,4        * IS THERE 4 CHARACTER ?
       00AE  0004
00105  00B0  5400  F       RF(4)    FILL
00106  00B2  990C          SUR      A1,A3
00107  00B4  8424          LDR*     A4,A1
00108  00B6  EC20          CWK      A4,/3A45    * :E
       00B8  3A45
00109  00BA  5400  F       RF(4)    FILL
00110  00BC  8444          LD       A4,2,A1
       00BE  0002
00111  00C0  EC20          CWK      A4,/4F46    * OF
       00C2  4F46
00112  00C4  5400  F       RF(4)    FILL3
00113  00C6  0401          LDK      A4,/01
00114  00C8  5700  F       RF(7)    FILL4
00115  00CA  EC20  FILL3   CWK      A4,/4F53    * OS
       00CC  4F53
00116  00CE  5400  F       RF(4)    FILL
```

```
00117  00D0  0402            LDK       A4,/02
00118  00D2  8090     FILL4  LDR       A8,A4
00119  00D4  8158     FILL   LD        A1,12,A6
       00D6  000C
00120  00D8  8420            LDK,L     A4,/2020     * FILL THE BUFFER WITH BLANK
       00DA  2020
00121  00DC  9A0C            SUR       A2,A3
00122  00DE  5000  F         RF(0)     SUITE
00123  00E0  E425            SCR       A4,A1
00124  00E2  1101            ADK       A1,1
00125  00E4  1A01            SUK       A2,1
00126  00E6  5000  F         RF(0)     SUITE
00127  00E8  8425     FILL1  STR       A4,A1
00128  00EA  1102            ADK       A1,2
00129  00EC  1A02            SUK       A2,2
00130  00EE  5908            RB(1)     FILL1
00131  00F0  8158     SUITE  LD        A1,18,A6
       00F2  0012
00132  00F4  5200  F         RF(2)     AGAIN1
00133  00F6  8202     END3   LDR       A2,A8
00134  00F8  8158            LD        A1,16,A6
       00FA  0010
00135  00FC  5FCA            RB(7)     R:TUR1
00136  00FE  8102     AGAIN1 LDR       A1,A8        skip to :E0S or :E0F order
00137  0100  2103            ANK       A1,/03
00138  0102  E104            ECR       A1,A1
00139  0104  A158            AN        A1,18,A6
       0106  0012
00140  0108  5C14            RB(4)     END3         :E0S or :E0F read on skip to :E0S request if :E0F read on skip to :E0F request
00141  010A  0402     AGAIN3 LDK       A4,2         * ORDER 2   :E0S or :E0F not read
00142  010C  E459            SC        A4,19,A6
       010E  0013
00143  0110  B954     AGAIN4 ML        2,2,A5       * READ AGAIN
       0112  0002
00144  0114  0300            LDK       A3,0
00145  0116  B9D9            MS        3,12,A6
       0118  000C
00146  011A  0100            LDK       A1,0
00147  011C  0200            LDK       A2,0
00148  011E  B959            MS        2,24,A6
       0120  0018
00149  0122  B955            MS        2,6,A5
       0124  0006
00150  0126  8F58            AB,I(7)   6,A6
       0128  0006
00151                        END
```

SYMBOL TABLE

E:NDIO	000C	R	E:SO15	0086	R	E:SO14	0080	R	E:SO13	007A	R
E:SO12	0074	R	E:SO11	006E	R	E:SO00	005C	R	L:VCH	0000	R
R:TURN	001E	R	R:TUR1	0034	R	R:TUR2	008C	R	R:TUR3	0096	R
R:TUR4	0026	R	R:TUR5	003A	R	DISPAT		X	PCT61		X
ERSOFT	0030	R	RETU11	0050	R	RETU13	005A	R	AGAIN	0090	R
SUITE	00F0	R	FILL	00D4	R	FILL3	00CA	R	FILL4	00D2	R
FILL1	00E8	R	AGAIN1	00FE	R	END3	00F6	R	AGAIN3	010A	R
AGAIN4	0110	R									

ASS,ERR, 00000

```
ASM COMIO
DATE  06 /04 /73   TIME 10H-09M-09S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                           IDENT    COMIO
00001                       * THIS MODULE IS COMMON TO ALL DRIVERS
00002                           ENTRY    C:INPT
00003                           ENTRY    C:OUT
00004                           ENTRY    C:WAIT
00005                           ENTRY    S:TIO
00006                           ENTRY    H:LTIO
00007                           ENTRY    O:TRIO
00008                           ENTRY    I:NRIO
00009                           ENTRY    S:SST
00010                           ENTRY    M:TEX
00011                       *
00012                           EXTRN    I:NPUT
00013                           EXTRN    O:TPUT
00014                           EXTRN    R:TURN
00015                           EXTRN    PWAIT
00016                       * THIS SEQUENCE PUTS THE ASKING PROGRAM IN WAIT ON ECB
00017                       *       ENTRY CONDITIONS
00018                       *       A7 = ORDER
00019                       *       A8 = ECB ADDRESS
00020                       *       ENTRY  AB,L(7)  C:WAIT
00021                       *
00022  0000  811C       C:WAIT  LDR      A1,A7
00023  0002  2180               ANK      A1,/80
00024  0004  8820               AB,L(0)  R:TURN
       0006  0000  X
00025  0008  0600               LDK      A6,0
00026  000A  8F20               AB,L(7)  PWAIT
       000C  0000  X
00027                       *
00028                       ********************************************************************************
00029                       *
00030                       * THIS SEQUENCE EXECUTES AN INR INSTRUCTION
00031                       * ENTRY CONDITIONS
00032                       *       A6 = DWT ADDRESS
00033                       *       ENTRY  AB,L(7)  C:INPT
00034                       *
00035  000E  8158       C:INPT  LD       A1,2,A6     * A1 = DEVICE ADDRESS
       0010  0002
00036  0012  9120               ADK,L    A1,/4D00
       0014  4D00
00037  0016  8141               ST       A1,*+4      * STORE THE INR INSTRUCTION YO EXECUTE
       0018  001A  R
00038  001A  0000               DATA     0                     * INPUT    INR  A5,0,0
00039  001C  5400  F            RF(4)    C:OUT
00040  001E  F7A1               CF       A15,I:NPUT
       0020  0000  X
00041  0022  8F20       END     AB,L(7)  R:TURN
       0024  0000  X
00042                       *
```

```
00043                          ********************************************************************************
00044                          *
00045                          * THIS SEQUENCE EXECUTES AN OTR INSTRUCTION
00046                          * ENTRY CONDITIONS
00047                          *        A6 = DWT ADDRESS
00048                          *        ENTRY  AB,L(7)  C:OUT
00049                          *
00050  0026  8258             C:OUT    LD       A2,22,A6     * A2 = CHARACTER TO OUTPUT
       0028  0016
00051  002A  8158                      LD       A1,2,A6
       002C  0002
00052  002E  9120                      ADK,L    A1,/4200
       0030  4200
00053  0032  8141                      ST       A1,*+4       * STORE THE OTR INSTRUCTION TO EXECUTE
       0034  0036  R
00054  0036  0000                      DATA     0                         * OUTPUT     ØTR  A2,0,0
00055  0038  5000  F                   RF(0)    COOUT1
00056                          *                                 OUTPUT REFUSED
00057  003A  8F58                      ABI      36,A6            BACK TO INTERRUPT SEQUENCE
       003C  0024
00058  003E  F7A1             COOUT1   CF       A15,O:TPUT
       0040  0000  X
00059  0042  5F22                      RB(7)    END
00060                          *
00061                          *
00062                          *********  THIS SEQUENCE  CONSTRUCTS  AN 'I/O INSTRUCTION'
00063                          *********          A6 =  DEVICE WORK TABLE
00064                          *                  A3 =  RETURN ADDRESS
00065                          *
00066                          S:TIO    EQU      *
00067  0044  8420                      LDK,L    A4,/42C0     FOR CIO START --> CIØ  A2,1,0
       0046  42C0
00068  0048  5700  F                   RF       C:NSIO
00069                          *
00070                          *
00071                          H:LTIO   EQU      *
00072  004A  8420                      LDK,L    A4,/4280     FOR CIO HALT --> CIØ   A2,0,0
       004C  4280
00073  004E  5700  F                   RF       C:NSIO
00074                          *
00075                          *
00076                          O:TRIO   EQU      *
00077  0050  8420                      LDK,L    A4,/4100     FOR OTR INSTRUCTION --> ØTR A1,0,0
       0052  4100
00078  0054  5700  F                   RF       C:NSIO
00079                          *
00080                          *
00081                          I:NRIO   EQU      *
00082  0056  8420                      LDK,L    A4,/4900     FOR INR INSTRUCTION --> INR A1,0,0
       0058  4900
```

```
00083  005A  5700  F            RF       C:NSIO
00084                    *
00085                    *
00086                    *
00087                    *
00088                    S:SST    EQU      *
00089  005C  8420               LDK,L    A4,/4AC0    FOR SST --> SST A2,0
       005E  4AC0
00090  0060  8558               LD       A5,2,A6     TO CONSTRUCT
       0062  0002
00091  0064  253F               ANK      A5,/3F      THE SST
00092  0066  5700  F            RF       SONO
00093                    *
00094                    *
00095                    C:NSIO   EQU      *
00096  0068  20BF               INH
00097  006A  8558               LD       A5,2,A6     *  TO CONSTRUCT
       006C  0002
00098  006E  253F               ANK      A5,/3F
00099  0070  AD10               SONO     ORR      A5,A4      *  AND STORE THE
00100  0072  8541               ST       A5,I:NS    *  I/O INSTRUCTION
       0074  0000  F
00101  0076  8341               ST       A3,RETURN+2 RETURN ADDRESS
       0078  0000  F
00102  007A  BC3E               MLR      8,A15
00103  007C                     I:NS     RES      1
00104  007E  8F20               RETURN   AB,L     *
       0080  007E  R
00105                    *
00106                    *********   THIS ROUTINE COMPUTES AND RANGES THE CONTENTS
00107                    *********   OF THE MULTIPLEX DOUBLE WORD
00108                    *********   A1 AND A2 =MULTIPLEX DOUBLE WORD
00109                    *********   A3 = RETURN ADDRESS
00110                    *
00111                    M:TEX    EQU      *
00112  0082  8758               LD       A7,2,A6     * COMPUTES
       0084  0002
00113  0086  270F               ANK      A7,/F       * AND
00114  0088  3F42               SLL      A7,2        * STORES
00115  008A  1780               ADK      A7,128      * THE MULTIPLEX
00116  008C  B93D               MSR      2,A7        * DOUBLE WORD
00117  008E  8341               ST       A3,FIN+2    RETURN ADDRESS
       0090  0000  F
00118  0092  BC3E               MLR      8,A15
00119  0094  8F20               FIN      AB,L     *
       0096  0094  R
00120                            END
```

SYMBOL TABLE

C:INPT	000E	R	C:OUT	0026	R	C:WAIT	0000	R	S:TIO	0044	R
H:LTIO	004A	R	O:TRIO	0050	R	I:NRIO	0056	R	S:SST	005C	R
M:TEX	0082	R	I:NPUT		X	O:TPUT		X	R:TURN		X
PWAIT		X	END	0022	R	COOUT1	003E	R	C:NSIO	0068	R
SONO	0070	R	I:NS	007C	R	RETURN	007E	R	FIN	0094	R

ASS.ERR. 00000

```
ASM INPUT
DATE  06 /04 /73    TIME 10H-09M-24S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                IDENT    INPUT
00001                                ENTRY    I:NPUT
00002                                EXTRN    E:NDIO
00003                       * THIS SEQUENCE IS CALLED BY THE DRIVERS AND SWITCH TO SPECIFIC SEQUENCE
00004                       *                A5= CHARACTER WHICH HAS BEEN INPUT
00005                       *                A6= DEVICE WORK TABLE ADDRESS
00006  0000  BA58           I:NPUT   ML      4,12,A6      * INITIALISE THE REGISTERS
       0002  000C
00007                       *        A1 = CHARACTAR ADDRESS
00008                       *        A2 = REQUESTED LENGTH
00009                       *        A3 = EFFECTIVE LENGTH
00010                       *        A4 = ORDER
00011  0004  24FF                     ANK      A4,/FF
00012  0006  1C01                     SUK      A4,1
00013  0008  9410                     ADR      A4,A4
00014  000A  8F50                     ABI(7)   SWFUNI,A4
       000C  0000  F
00015  000E  0000  F    SWFUNI   DATA     BININP       * BASIC INPUT                order = 1
00016  0010  0000  F             DATA     ASCINP       * ASCII INPUT                      2
00017  0012  0000  F             DATA     OBJIN4       * STANDARD BINARY INPUT(4X4)       3
00018  0014  0000  F             DATA     OBJIN8       * STANDARD BINARY INPUT(8-8)       4
00019                       * THIS SEQUENCE STORES A CHARACTER IN THE USER BUFFER
00020                       *                A6= DEVICE WORK TABLE
00021                       *                A5= CHARACTER WHICH HAS BEEN INPUT
00022  0016  E525           BININP   SCR      A5,A1
00023  0018  1101                     ADK      A1,1
00024  001A  1301                     ADK      A3,1
00025  001C  EA0C                     CWR      A2,A3
00026  001E  5000  F                  RF(0)    ENDINP
00027  0020  B9D9           BINIEN    MS        3,12,A6     * RETURN TO CALLING OROGRAM
       0022  000C
00028  0024  F03E                     RTN      A15
00029                       * THIS SEQUENCE STORES A CHARACTER AND UPTATES THE ORDER
00030                       *                A6= DEVICE WORK TABLE
00031                       *                A5= CHARACTER WHICH HAS BEEN INPUT
00032  0026  257F           ASCINP   ANK      A5,/7F       * ANALYSE THE CHARACTER
00033  0028  8458                     LD       A4,26,A6     * HAS A DELETE CODE BEEN READ?
       002A  001A
00034  002C  5000  F                  RF(0)    ASCIN7       * NO
00035  002E  1D0D                     SUK      A5,/0D       * YES
00036  0030  5C12                     RB(4)    BINIEN       * IT IS NOT A CR
00037  0032  0400                     LDK      A4,0         * IT IS A CR
00038  0034  8459                     ST       A4,26,A6
       0036  001A
00039  0038  5F1A                     RB(7)    BINIEN
00040  003A  ED20           ASCIN7   CWK      A5,/20       * IS THE CHARACTER RANGING FROM 0 TO 1F
       003C  0020
00041  003E  5200  F                  RF(2)    ASCIN1
00042  0040  ED20                     CWK      A5,/5E
       0042  005E
```

```
00043  0044  5400  F           RF(4)    ASCIN2
00044  0046  990C              SUR      A1,A3        * VERTICAL ARROW
00045  0048  0300              LDK      A3,0
00046  004A  9059              IM       26,A6        * READ UP TO CR
       004C  001A
00047  004E  5F30       ASCIEN RB(7)    BINIEN       * RETURN TO INTERRUPT PROGRAM
00048                     *
00049  0050  ED20       ASCIN2 CWK       A5,/5F       * IS IT A HORIZONTAL ARROW ?
       0052  005F
00050  0054  5400  F           RF(4)    ASCIN3
00051  0056  1300              ADK      A3,0         * HORIZONTAL ARROW
00052  0058  580C              RB(0)    ASCIEN
00053  005A  1901              SUK      A1,1
00054  005C  1B01              SUK      A3,1
00055  005E  5F12              RB(7)    ASCIEN
00056                     *
00057  0060  ED20       ASCIN3 CWK       A5,/7F       * IS IT A DELETE CHARACTER ?
       0062  007F
00058  0064  5818              RB(0)    ASCIEN
00059  0066  EA0C              CWR      A2,A3
00060  0068  581C              RB(0)    ASCIEN
00061  006A  ED20       ASCIN6 CWK       A5,/5C       * IS IT A TAB CHARACTER ?
       006C  005C
00062  006E  5400  F           RF(4)    ASCI66       * NO
00063  0070  8458              LD       A4,22,A6     * YES
       0072  0016
00064  0074  5000  F           RF(0)    ASCI66       * NO TABULATION
00065  0076  E730              LCR      A7,A4                * A7 = NUMBER OF TABULATION
00066  0078  27FF              ANK      A7,/FF
00067  007A  5000  F           RF(0)    ASCI66               * NO TABULATION
00068  007C  1401       ASCI67 ADK      A4,1
00069  007E  1301              ADK      A3,1       INCREASE TEMPORARILY EFFECTIVE LENGTH
00070                     * TACKET STARTS AT 1 FOR FIRST CHARACTER IN BUFFER
00071  0080  EB31              CCR      A3,A4
00072  0082  5200  F           RF(2)    FILBLK       * IT IS POSSIBLE TO FILL WITH BLANK
00073  0084  1B01              SUK      A3,1       RESTORE A3
00074  0086  1F01              SUK      A7,1
00075  0088  5000  F           RF(0)    ASCI66
00076  008A  5F10              RB(7)    ASCI67
00077  008C  E430       FILBLK LCR      A4,A4
00078  008E  24FF              ANK      A4,/FF
00079  0090  1B01              SUK      A3,1       RESTORE A3
00080  0092  1C01              SUK      A4,1
00081  0094  EB10              CWR      A3,A4
00082  0096  584A              RB(0)    ASCIEN
00083  0098  0520              LDK      A5,/20
00084                     FILBL1 EQU      *
00085  009A  E525              SCR      A5,A1          STORE A SPACE IN BUFFER
00086  009C  1101              ADK      A1,1
00087  009E  1301              ADK      A3,1         * UPDATE POINTERS
```

```
00088  00A0  EB08          CWR     A3,A2
00089  00A2  5856          RB(0)   ASCIEN
00090  00A4  EB10          CWR     A3,A4
00091  00A6  5A0E          RB(2)    FILBL1          TABULATION NOT REACHED
00092  00A8  5F5C          RB      ASCIEN
00093  00AA  E525  ASCI66  SCR     A5,A1       * STORE CHARACTER
00094  00AC  1101          ADK     A1,1
00095  00AE  1301          ADK     A3,1
00096  00B0  5F64          RB(7)   ASCIEN
00097                       *
00098  00B2  1300  ASCIN1  ADK     A3,0        * SPECIAL CHARACTER
00099  00B4  5100  F       RF(1)   ASCIN5
00100  00B6  ED20          CWK     A5,/18
       00B8  0018
00101  00BA  5200  F       RF(2)   ASCIN4
00102  00BC  1D18          SUK     A5,/18
00103  00BE  0401           LDK      A4,1
00104  00C0  9459  ASCIN8   AD,S     A4,18,A6   * UPDATE ORDER
       00C2  0012
00105  00C4  5F1C          RB(7)   ASCI66
00106                       *
00107  00C6  ED20  ASCIN4  CWK     A5,/10
       00C8  0010
00108  00CA  5000  F       RF(0)   ASCIN9
00109  00CC  ED20          CWK     A5,/14
       00CE  0014
00110  00D0  5100  F       RF(1)   ASCIN9
00111  00D2  1500          ADK     A5,/0
00112  00D4  5888          RB(0)   ASCIEN
00113  00D6  ED20          CWK     A5,/4
       00D8  0004
00114  00DA  5100  F       RF(1)   ASCIN5
00115  00DC  250F  ASCIN9  ANK     A5,/F
00116  00DE  0402           LDK      A4,2
00117  00E0  5F22          RB(7)   ASCIN8
00118  00E2  ED20  ASCIN5  CWK     A5,/0D      *CARRIAGE RETURN
       00E4  000D
00119  00E6  5C9A          RB(4)   ASCIEN
00120  00E8  B9D9  ENDINP  MS      3,12,A6
       00EA  000C
00121  00EC  8F20          AB,L(7)  E:NDIO
       00EE  0000  X
00122                       * THIS SEQUENCE STORES THE HALF-CHARACTER AND PERFORMS CHECKSUN
00123                       *                A6 = DEVICE WORK TABLE
00124                       *                A5 = HALF CHARACTER
00125                       * THIS SEQUENCE USES OBJIN8
00126  00F0  250F  OBJIN4  ANK     A5,/F
00127  00F2  8458          LD      A4,26,A6
       00F4  001A
00128  00F6  5000  F       RF(0)   FIRST
```

```
00129  00F8  0400              LDK     A4,0
00130  00FA  8459              ST      A4,26,A6
       00FC  001A
00131  00FE  E424              LCR     A4,A1
00132  0100  9510              ADR     A5,A4
00133  0102  5700  F           RF(7)   OBJIN8
00134                    *
00135  0104  9059      FIRST    IM       26,A6
       0106  001A
00136  0108  3D44              SLL     A5,4
00137  010A  E525              SCR     A5,A1
00138  010C  5FC0              RB(7)   ASCIEN
00139                    * THIS SEQUENCE STORES THE CHARACTER AND PERFORMS CHECKSUM
00140                    *               A6 = DEVICE WORK TABLE
00141                    *               A5 = CHARACTER TO STORE
00142  010E  8458      OBJIN8  LD       A4,10,A6
       0110  000A
00143  0112  EB50              CW      A3,4,A4
       0114  0004
00144  0116  5600  F           RF(6)   OBJMOD
00145  0118  E525              SCR     A5,A1
00146  011A  1101              ADK     A1,1
00147  011C  1301      OBJMOD  ADK     A3,1
00148  011E  EB20              CWK     A3,2
       0120  0002
00149  0122  5000  F           RF(0)   OBJI81
00150  0124  B559              XR,S    A5,24,A6    * CHECKSUM
       0126  0018
00151  0128  EB08              CWR     A3,A2
00152  012A  5CDE              RB(4)   ASCIEN
00153  012C  8558              LD      A5,24,A6    * TEST IF CHECKSUM IS NULL
       012E  0018
00154  0130  584A              RB(0)   ENDINP
00155  0132  0504              LDK     A5,4
00156  0134  AD51              OR,S    A5,8,A4
       0136  0008
00157  0138  5F52              RB(7)   ENDINP
00158  013A  9514      OBJI81  ADR     A5,A5
00159  013C  1503              ADK     A5,3
00160  013E  8708              LDR     A7,A2
00161  0140  8214              LDR     A2,A5
00162  0142  ED1C              CWR     A5,A7
00163  0144  5DF8              RB(5)   ASCIEN
00164                    *
00165  0146  0508      OBJI83  LDK     A5,8        *ERROR OF LENGTH
00166  0148  AD51              OR,S    A5,8,A4
       014A  0008
00167  014C  8F20              AB,L    ASCIEN
       014E  004E  R
00168                           END
```

```
          SYMBOL TABLE

I;NPUT   0000  R    E;NDIO          X    SWFUNI   000E  R    BININP   0016  R
ASCINP   0026  R    OBJIN4   00F0   R    OBJIN8   010E  R    ENDINP   00E8  R
BINIEN   0020  R    ASCIN7   003A   R    ASCIN1   00B2  R    ASCIN2   0050  R
ASCIEN   004E  R    ASCIN3   0060   R    ASCIN6   006A  R    ASCI66   00AA  R
ASCI67   007C  R    FILBLK   008C   R    FILBL1   009A  R    ASCIN5   00E2  R
ASCIN4   00C6  R    ASCIN8   00C0   R    ASCIN9   00DC  R    FIRST    0104  R
OBJMOD   011C  R    OBJI81   013A   R    OBJI83   0146  R

          ASS,ERR,    00000
```

ASM OUTPUT
DATE 06 /04 /73 TIME 10H-09M-43S-
LABEL = SAGR DATE = 270273 PACK NBR = 102 BOMREL

```
00000                                IDENT    OUTPUT
00001                                ENTRY    O:TPUT
00002                                EXTRN    E:NDIO
00003                          * THIS SEQUENCE IS CALLED BY THE DRIVERS AND SWITCH TO SPECIFIC SEQUENCE
00004                          *                A6= DEVICE WORK TABLE
00005  0000  BA58      O:TPUT  ML       4,12,A6     * INITIALISE THE REGISTERS
       0002  000C
00006                          *        A1 = CHARACTAR ADDRESS
00007                          *        A2 = REQUESTED LENGTH
00008                          *        A3 = EFFECTIVE LENGTH
00009                          *        A4 = ORDER
00010  0004  0500              LDK      A5,0
00011  0006  1C05              SUK      A4,5
00012  0008  9410              ADR      A4,A4
00013  000A  8F50              ABI(7)   SWFUNO,A4
       000C  0000  F
00014  000E  0000  F  SWFUNO   DATA     BINOUT      * BASIC OUTPUT                order = 5
00015  0010  0000  F           DATA     ASCOUT      *ASCII OUTPUT                       6
00016  0012  0000  F           DATA     OBJOT4      *STANDARD BINARY OUTPUT(4X4)        7
00017  0014  0000  F           DATA     OBJOT8      *STANDARD BINARY OUTPUT(8X8)        8
00018                          * THIS SEQUENCE TAKES A CHARACTER IN BUFFER AND STORES IT IN OUTWORD
00019                          * OF DEVICE WORK TABLE
00020                          *                A6 = DEVICE WORK TABLE
00021  0016  EA0C      BINOUT  CWR      A2,A3
00022  0018  5000  F           RF(0)    BINOT2
00023                          *
00024  001A  E424      BINOT1  LCR      A4,A1       * IT IS NOT FINISHED
00025  001C  1101      BINOT4  ADK      A1,1
00026  001E  1301              ADK      A3,1
00027  0020  B9D9      BINOT5  MS       3,12,A6
       0022  000C
00028  0024  8459      BINOT3  ST       A4,22,A6    * PUT IN OUTWORD
       0026  0016
00029  0028  F03E              RTN      A15
00030                          *
00031  002A  8F20      BINOT2  AB,L(7)  E:NDIO
       002C  0000  X
00032                          * THIS SEQUENCE TAKES A CHARACTER AND,AT THE END,OUTPUTS X-OFF,CR,LF,
00033                          *                A6= DEVICE WORK TABLE
00034  002E  EA0C      ASCOUT  CWR      A2,A3       * IS IT THE LAST CHARACTER ?
00035  0030  5918              RB(1)    BINOT1      * NO
00036  0032  8438              LDR*     A4,A6
00037  0034  EC20              CWK      A4,/5450    TEST 'TP'
       0036  5450
00038  0038  5000  F           RF(0)    ASRTP0
00039  003A  8258              LD       A2,26,A6    * YES
       003C  001A
00040  003E  1A05              SUK       A2,5
00041  0040  5200  F           RF(2)    ASC001
00042  0042  8438              LDR*     A4,A6
```

```
00043  0044  EC20              CWK     A4,/5459 → TY
       0046  5459
00044  0048  5820              RB(0)   BINOT2
00045                ASC000    EQU     *
00046  004A  8420              LDK,L   A4,/1D0A    SUK  A5,10
       004C  1D0A
00047  004E  5700  F           RF(7)   OBJ083-4
00048  0050  1206        ASC001 ADK     A2,6
00049  0052  E448              LC      A4,ASCBUF,A2
       0054  0000  F
00050  0056  9059              IM      26,A6
       0058  001A
00051  005A  5F38              RB(7)   BINOT3
00052  005C  8258        ASRTP0 LD      A2,26,A6
       005E  001A
00053  0060  1A0A              SUK     A2,10
00054  0062  583A              RB(0)   BINOT2
00055  0064  1207              ADK     A2,7
00056                                                TEST TAPE OFF
00057  0066  581E              RB(0)   ASC000      INSERT SPACES BEFORE IT
00058  0068  5200  F            RF(2)  ASRTP1
00059  006A  8258              LD      A2,26,A6
       006C  001A
00060  006E  1A09              SUK     A2,9        * TEST
00061  0070  5C28              RB(4)   ASC000      LAST SPACE
00062  0072  0204              LDK     A2,4         A2 = POSITION OF 'TAPE OFF'
00063  0074  5F24              RB(7)   ASC001+2    IN ASCBUF
00064  0076  1A02        ASRTP1 SUK     A2,2
00065  0078  5F2A              RB(7)   ASC001
00066  007A  000A        ASCBUF DATA    /A          0  LF
00067  007C  130D              DATA    /130D       X0FF  CR
00068  007E  14FF              DATA    /14FF       T0FF  DEL
00069                      * THIS SEQUENCE TAKES A CHARACTER IN BUFFER,PERFORMS A CHECKSUM,
00070                      *                       A6= DEVICE WORK TABLE
00071  0080  E424        OBJOT8 LCR     A4,A1
00072  0082  EB20              CWK     A3,1
       0084  0001
00073  0086  586C              RB(0)   BINOT4
00074  0088  5200  F           RF(2)   OBJ081
00075  008A  EA0C              CWR     A2,A3
00076  008C  5000  F           RF(0)   OBJ083-8
00077  008E  B459              XR,S    A4,24,A6
       0090  0018
00078  0092  5F78              RB(7)   BINOT4      * GO TO STOTE THE CHARACTER TO OUTPUT
00079                      *
00080  0094  8420              LDK,L   A4,/1D06    SUK A5,6
       0096  1D06
00081  0098  8441              ST      A4,OBJ087+2
       009A  0000  F
00082  009C  8458        OBJ083 LD      A4,24,A6    * LAST CHARACTER
```

```
        009E  0018
00083   00A0  8558              LD      A5,26,A6
        00A2  001A
00084   00A4  9059              IM      26,A6
        00A6  001A
00085   00A8  1500              ADK     A5,0
00086   00AA  5888              RB(0)   BINOT3
00087   00AC  0400      OBJ087  LDK     A4,0
00088                   ********************************************************************************
00089   00AE  1D06              SUK     A5,6        WARNING DYNAMIC INSTRUCTION
00090                   ********************************************************************************
00091   00B0  5C8E              RB(4)   BINOT3
00092   00B2  8459              ST      A4,24,A6
        00B4  0018
00093   00B6  5F8E              RB(7)   BINOT2
00094                   * THIS SEQUENCE TAKES A CHARACTER IN BUFFER,PERFORMS A CHECKSUM AND
00095                   * OUTPUTS X-OFF(4X4 FORMAT
00096                   *                   A6 = DEVICE WORK TABLE
00097   00B8  E424      OBJOT4  LCR     A4,A1
00098   00BA  EB20              CWK     A3,1
        00BC  0001
00099   00BE  5000  F           RF(0)   OBJ042
00100   00C0  5200  F           RF(2)   OBJ041
00101   00C2  EA0C              CWR     A2,A3
00102   00C4  5000  F           RF(0)   OBJ043
00103   00C6  8558              LD      A5,26,A6
        00C8  001A
00104   00CA  5100  F           RF(1)   OBJ044
00105   00CC  B459              XR,S    A4,24,A6    * FIRST-HALF CHARACTER
        00CE  0018
00106   00D0  9059      OBJ045  IM      26,A6
        00D2  001A
00107   00D4  3C64              SRL     A4,4
00108   00D6  5700  F           RF(7)   CONVE4
00109                   *
00110   00D8  0500      OBJ044  LDK     A5,0        * SECOND-HALF CHARACTER
00111   00DA  8559              ST      A5,26,A6
        00DC  001A
00112   00DE  5700  F           RF(7)   OBJ081
00113                   * THIS SEQUENCE CONVERTS THE CHARACTERS
00114   00E0  1408      OBJ041  ADK     A4,/8       * FIRST CHARACTER
00115   00E2  1301      OBJ081  ADK     A3,1
00116   00E4  1101              ADK     A1,1
00117   00E6  240F      CONVE4  ANK     A4,/F       * CONVERSION TO AVOID TROUBLING CHARACTER
00118   00F8  5000  F           RF(0)   CONVE5
00119   00EA  EC20              CWK     A4,/5
        00EC  0005
00120   00EE  5200  F           RF(2)   CONVE6
00121   00F0  2C10      CONVE5  ORK     A4,/10
00122   00F2  5FD4      CONVE6  RB(7)   BINOT5
```

```
00123                          *
00124  00F4  8558       OBJ042  LD      A5,26,A6    * SECOND CHARACTER
       00F6  001A
00125  00F8  582A              RB(0)   OBJ045
00126  00FA  5924              RB(1)   OBJ044
00127                          *
00128  00FC  8458       OBJ043  LD      A4,24,A6    * LAST CHARACTER
       00FE  0018
00129  0100  8558              LD      A5,26,A6
       0102  001A
00130  0104  5836              RB(0)   OBJ045
00131  0106  9059              IM      26,A6
       0108  001A
00132  010A  1D02              SUK     A5,2        * TEST IF THE SECOND PART OF CHECKSUM
00133                          *                   * IS OUTPUT
00134  010C  5A28              RB(2)   CONVE4
00135  010E  5000  F           RF(0)   OUTXOF
00136  0110  8420              LDK,L   A4,/1D06    SUK A5,6
       0112  1D06
00137  0114  8441              ST      A4,OBJ087+2
       0116  00AE  R
00138  0118  ED20              CWK     A5,6
       011A  0006
00139  011C  5A72              RB(2)   OBJ087              * OUTPUT NULL CODES
00140  011E  5000  F           RF(0)   OUTTOF              * OUTPUT TAPE OFF
00141  0120  ED20              CWK     A5,7
       0122  0007
00142  0124  59FC              RB(1)   BINOT2              * END OF IO
00143  0126  04FF              LDK     A4,/FF              * OUTPUT RUB OUT
00144  0128  5F38              RB(7)   CONVE6
00145  012A  0413       OUTXOF LDK     A4,/13              * X OFF
00146  012C  5F3C              RB(7)   CONVE6
00147  012E  0414       OUTTOF LDK     A4,/14               * TAPE OFF
00148  0130  5F40              RB(7)   CONVE6
00149                          END
```

SYMBOL TABLE

O;TPUT	0000	R	E;NDIO		X	SWFUNO	000E	R	BINOUT	0016	R
ASCOUT	002E	R	OBJOT4	00B8	R	OBJOT8	0080	R	BINOT2	002A	R
BINOT1	001A	R	BINOT4	001C	R	BINOT5	0020	R	BINOT3	0024	R
ASRTP0	005C	R	ASC001	0050	R	ASC000	004A	R	OBJ083	009C	R
ASCBUF	007A	R	ASRTP1	0076	R	OBJ081	00E2	R	OBJ087	00AC	R
OBJ042	00F4	R	OBJ041	00E0	R	OBJ043	00FC	R	OBJ044	00D8	R
OBJ045	00D0	R	CONVE4	00E6	R	CONVE5	00F0	R	CONVE6	00F2	R
OUTXOF	012A	R	OUTTOF	012E	R						

ASS,ERR, 00000

```
ASM DRIY01
DATE  06 /04 /73    TIME 10H-10M-01S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                          IDENT    DRIY01
00001                          ENTRY    D:RAS1
00002                          ENTRY    D:RAS2
00003                          ENTRY    D:RAS3
00004                          ENTRY     I:ASR
00005                    *
00006                          EXTRN    C:INPT
00007                          EXTRN    C:NASR
00008                          EXTRN    C:WAIT
00009                          EXTRN    D:WAS1
00010                          EXTRN    D:WAS2
00011                          EXTRN    D:WAS3
00012                          EXTRN    E:SECB
00013                          EXTRN    E:FECB
00014                          EXTRN    E:SO11
00015                          EXTRN    I:NPUT
00016                          EXTRN    L:VCH
00017                          EXTRN    O:TPUT
00018                          EXTRN    R:TUR1
00019                          EXTRN    R:TUR2
00020                          EXTRN    R:TUR4
00021                          EXTRN    R:TURN
00022                          EXTRN    S:TIO
00023                          EXTRN    O:TRIO
00024                          EXTRN    H:LTIO
00025                          EXTRN    S:SST
00026                    *
00027                    *
00028                    * THIS SEQUENCE ACTIVATES THE ASR KEYBOARD IN INPUT OR OUTPUT
00029  0000  0581        D:RAS1   LDK      A5,/81
00030  0002  E541                 SC       A5,C:NASR+1
       0004  0001  X
00031  0006  8641                 ST       A6,C:NASR+2 * DWT ADDRESS
       0008  0002  X
00032  000A  1C05                 SUK      A4,5
00033  000C  5200  F              RF(2)    DRASIN
00034  000E  5000  F              RF(0)    DRASO3
00035  0010  8458                  LD      A4,12,A6
       0012  000C
00036  0014  EC20                 CWK      A4,E:SECB   *ISIT EOS?
       0016  0000  X
00037  0018  5006                 RF(0)    *+8
00038  001A  EC20                 CWK      A4,E:FECB *ISITEOF?
       001C  0000  X
00039  001E  5400  F              RF(4)    DRASO2
00040  0020  0406                 LDK      A4,6
00041  0022  8459                 ST       A4,14,A6
       0024  000E
00042  0026  0405                 LDK      A4,5
00043  0028  8459                 ST       A4,18,A6
```

```
        002A  0012
00044   002C  5700  F            RF(7)     DRASO3
00045   002E  8478       DRASO2  LD*       A4,12,A6     * CONVERT THE CONTROL CODE
        0030  000C
00046   0032  0202                LDK       A2,2
00047   0034  9259                AD,S      A2,12,A6
        0036  000C
00048   0038  9259                AD,S      A2,16,A6
        003A  0010
00049   003C  24FE                ANK       A4,/FE
00050   003E  EC20                CWK       A4,/30
        0040  0030
00051   0042  5400  F             RF(4)     DRASO3
00052   0044  010A                LDK       A1,/0A
00053   0046  5700  F             RF(7)     DRASO1
00054   0048  0100       DRASO3  LDK       A1,0
00055   004A  5700  F             RF(7)     DRASO1
00056   004C  20BF       DRASOT  INH
00057   004E  F7A1                CF        A15,0:TPUT
        0050  0000  X
00058   0052  8158                LD        A1,22,A6
        0054  0016
00059   0056  0200       DRASO1  LDK       A2,0
00060   0058  20BF                INH
00061   005A  BC3F                MSR       8,A15        *  CALL THE SEQUENCE WHO
00062   005C  8320                LDK,L     A3,*+8       *  CONSTRUCTS AN ' I/O INSTRUCTION '
        005E  0064  R
00063   0060  8F20                AB,L      S:TIO
        0062  0000  X
00064   0064  BC3F                MSR       8,A15        *  CALL THE SEQUENCE WHO
00065   0066  8320                LDK,L     A3,*+8       *  CONSTRUCTS AN ' I/O INSTRUCTION '
        0068  006E  R
00066   006A  8F20                AB,L      0:TRIO
        006C  0000  X
00067   006E  F7A1                CF        A15,0:TPUT
        0070  0000  X
00068   0072  8F20       WAITTS  AB,L(7)   C:WAIT
        0074  0000  X
00069                     ********************************************************************************
00070   0076  0201       DRASIN  LDK       A2,1
00071   0078  20BF                INH
00072   007A  BC3F                MSR       8,A15        *  CALL THE SEQUENCE WHO
00073   007C  8320                LDK,L     A3,*+8       *  CONSTRUCTS AN ' I/O INSTRUCTION '
        007E  0084  R
00074   0080  8F20                AB,L      S:TIO
        0082  0000  X
00075   0084  2840                ENB
00076   0086  5F16                RB(7)     WAITTS
00077                     * THIS SEQUENCE ACTIVATES THS ASR READER
00078   0088  0582       D:RAS2  LDK       A5,/82
```

```
00079  008A  E541          SC      A5,C:NASR+1
       008C  0001  X
00080  008E  8641          ST      A6,C:NASR+2 * DWT ADDRESS
       0090  0002  X
00081  0092  1C04          SUK     A4,4
00082  0094  8920          AB,L(1) E:SO11
       0096  0000  X
00083  0098  0111          LDK     A1,/11              * X=ON
00084  009A  0200          LDK     A2,0
00085  009C  20BF           INH
00086  009E  BC3F          MSR     8,A15       *  CALL THE SEQUENCE WHO
00087  00A0  8320          LDK,L   A3,*+8      *  CONSTRUCTS AN ' I/O INSTRUCTION '
       00A2  00A8  R
00088  00A4  8F20          AB,L    S:TIO
       00A6  0000  X
00089  00A8  BC3F          MSR     8,A15       *  CALL THE SEQUENCE WHO
00090  00AA  8320          LDK,L   A3,*+8      *  CONSTRUCTS AN ' I/O INSTRUCTION '
       00AC  00B2  R
00091  00AE  8F20          AB,L    O:TRIO
       00B0  0000  X
00092  00B2  BC3F          MSR     8,A15       *  CALL THE SEQUENCE WHO
00093  00B4  8320          LDK,L   A3,*+8      *  CONSTRUCTS AN ' I/O INSTRUCTION '
       00B6  00BC  R
00094  00B8  8F20          AB,L    H:LTIO
       00BA  0000  X
00095  00BC  2840           ENB
00096  00BE  5F4E          RB(7)   WAITTS
00097                  * THIS SEQUENCE ACTIVATES THE ASR PUNCH
00098  00C0  0581    D:RAS3 LDK    A5,/81
00099  00C2  E541          SC      A5,C:NASR+1
       00C4  0001  X
00100  00C6  8641          ST      A6,C:NASR+2 * DWT ADDRESS
       00C8  0002  X
00101  00CA  1C05          SUK     A4,5
00102  00CC  8A20          AB,L(2) E:SO11
       00CE  0000  X
00103  00D0  5886          RB(0)   DRASOT
00104  00D2  1C03          SUK     A4,3
00105  00D4  5206          RF(2)   *+8
00106  00D6  0407          LDK     A4,7
00107  00D8  E459          SC      A4,19,A6
       00DA  0013
00108  00DC  0112          LDK     A1,/12              * TAPE=ON
00109  00DE  5F8A          RB(7)   DRASO1
00110                  * THIS SEQUENCE PERFORMS THE ASR INTERRUPT
00111  00E0  BC3F    I:ASR MSR     8,A15
00112  00E2  8640          LD      A6,C:NASR+2  * DWT ADDRESS
       00E4  0002  X
00113                  S:ASR EQU     *
00114  00E6  8140          LD      A1,C:NASR
```

```
       00E8  0000  X
00115  00EA  21FF              ANK       A1,/FF
00116  00EC  E920              CWK       A1,/82
       00EE  0082
00117  00F0  5400  F           RF(4)     I:ASR1
00118  00F2  BC3F              MSR       8,A15          * CALL THE
00119  00F4  8320              LDK,L     A3,*+8         * SEQUENCE WHO
       00F6  00FC  R
00120  00F8  8F20              AB,L      S:SST          * CONSTRUCTS A ' SST INSTRUCTION '
       00FA  0000  X
00121  00FC  0281              LDK       A2,/81
00122  00FE  E241              SC        A2,C:NASR+1
       0100  0001  X
00123  0102  0201              LDK       A2,1
00124  0104  BC3F              MSR       8,A15          *  CALL THE SEQUENCE WHO
00125  0106  8320              LDK,L     A3,*+8         *  CONSTRUCTS AN ' I/O INSTRUCTION '
       0108  010E  R
00126  010A  8F20              AB,L      S:TIO
       010C  0000  X
00127  010E  BC3E              MLR       8,A15
00128  0110  F03E              RTN       A15
00129                  I:ASR1   EQU       *
00130  0112  BC3F              MSR       8,A15          *  CALL THE SEQUENCE WHO
00131  0114  8320              LDK,L     A3,*+8         *  CONSTRUCTS AN ' I/O INSTRUCTION '
       0116  011C  R
00132  0118  8F20              AB,L      S:SST
       011A  0000  X
00133  011C  8C20              AB,L(4)   C:INPT         * SST REFUSED
       011E  0000  X
00134  0120  8120              LDK,L     A1,*+8
       0122  0128  R
00135  0124  8F20              AB,L(7)   L:VCH
       0126  0000  X
00136  0128  8138              LDR*      A1,A6
00137  012A  E920              CWK       A1,'TR'
       012C  5452
00138  012E  5400  F           RF(4)     I:ASR2
00139  0130  0100              LDK       A1,0
00140  0132  1101              ADK       A1,1
00141  0134  5C04              RB(4)     *-2
00142  0136  1101              ADK       A1,1
00143  0138  5C04              RB(4)     *-2
00144                  I:ASR2   EQU       *
00145  013A  8158              LD        A1,20,A6       * TEST STATUS BIT
       013C  0014
00146  013E  8820              AB,L(0)   R:TUR2
       0140  0000  X
00147  0142  8F20              AB,L(7)   R:TUR4
       0144  0000  X
00148                          END
```

SYMBOL TABLE

D:RAS1	0000	R	D:RAS2	0088	R	D:RAS3	00C0	R	I:ASR	00E0	R
C:INPT		X	C:NASR		X	C:WAIT		X	D:WAS1		X
D:WAS2		X	D:WAS3		X	E:SECB		X	E:FECB		X
E:SO11		X	I:NPUT		X	L:VCH		X	O:TPUT		X
R:TUR1		X	R:TUR2		X	R:TUR4		X	R:TURN		X
S:TIO		X	O:TRIO		X	H:LTIO		X	S:SST		X
DRASIN	0076	R	DRASO3	0048	R	DRASO2	002E	R	DRASO1	0056	R
DRASOT	004C	R	WAITTS	0072	R	S:ASR	00E6	R	I:ASR1	0112	R
I:ASR2	013A	R									

ASS,ERR, 00000

ASM DRP018
DATE 06 /04 /73 TIME 10H-10M-21S-
LABEL = SAGR DATE = 270273 PACK NBR = 102 BOMREL

```
00000                           IDENT    DRP018
00001                    *
00002                    * THIS MODULE CONTAINS SPECIFIC OPERATIONS FOR PAPER PUNCH
00003                           ENTRY    D:RPTP
00004                           ENTRY    I:PP
00005                    *
00006                           EXTRN    D:WPTP
00007                           EXTRN    C:OUT
00008                           EXTRN    C:WAIT
00009                           EXTRN    E:SO11
00010                           EXTRN    L:VCH
00011                           EXTRN    M:RETR
00012                           EXTRN    O:TPUT
00013                           EXTRN    R:TUR4
00014                           EXTRN    S:TIO
00015                           EXTRN    S:SST
00016                    *
00017                    *
00018                    * THIS SEQUENCE ACTIVATES THE HIGH SPEED PAPER TAPE PUNCH
00019                    * ENTRY CONDITIONS
00020                    *       A6 = DWT ADDRESS
00021                    *       A4 = ORDER
00022                    *
00023  0000  1C05       D:RPTP  SUK      A4,5          * CHECK ORDER
00024  0002  8A20              AB,L(2)  E:SO11
       0004  0000  X
00025  0006  208F              INH
00026  0008  F7A1              CF       A15,O:TPUT
       000A  0000  X
00027  000C  208F              INH
00028  000E  BC3F              MSR      8,A15         *  CALL THE SEQUENCE WHO
00029  0010  8320              LDK,L    A3,*+8        *  CONSTRUCTS AN ' I/O INSTRUCTION '
       0012  0018  R
00030  0014  8F20              AB,L     S:TIO
       0016  0000  X
00031  0018  2840              ENB
00032  001A  8F20              AB,L(7)  C:WAIT
       001C  0000  X
00033                    * THIS SEQUENCE PERFORMS THE PTP INTERRUPT
00034  001E  BC3F       I:PP    MSR      8,A15
00035  0020  8620              LDK,L    A6,D:WPTP
       0022  0000  X
00036                    S:PP    EQU      *
00037  0024  BC3F              MSR      8,A15         * CALL THE
00038  0026  8320              LDK,L    A3,*+8        * SEQUENCE WHO
       0028  002E  R
00039  002A  8F20              AB,L     S:SST         * CONSTRUCTS A ' SST INSTRUCTION '
       002C  0000  X
00040  002E  8C20              AB,L(4)  C:OUT
       0030  0000  X
```

```
00041  0032  8120                    LDK,L     A1,*+8
       0034  003A  R
00042  0036  8F20                    AB,L(7)   L:VCH
       0038  0000  X
00043  003A  22FF                    ANK       A2,/FF
00044  003C  5000  F                 RF(0)     I:PP1
00045  003E  8358                    LD        A3,20,A6     * TEST STATUS BIT
       0040  0014
00046  0042  5100  F                 RF(1)     I:PP2
00047  0044  0100                    LDK       A1,0         * GO TO M:RETR
00048  0046  8408                    LDR       A4,A2
00049  0048  2401                    ANK       A4,/1
00050  004A  5100  F                 RF(1)     I:PP3
00051  004C  0101                    LDK       A1,1
00052  004E  8F20          I:PP3     AB,L(7)   M:RETR
       0050  0000  X
00053  0052  AA20          I:PP2     ORK,L     A2,/8000     * HARDWARE STATUS
       0054  8000
00054  0056  8F20          I:PP1     AB,L(7)   R:TUR4       * END OF IO
       0058  0000  X
00055                               END
```

SYMBOL TABLE

D:RPTP	0000	R	I:PP	001E	R	D:WPTP		X	C:OUT		X
C:WAIT		X	E:S011		X	L:VCH		X	M:RETR		X
O:TPUT		X	R:TUR4		X	S:TIO		X	S:SST		X
S:PP	0024	R	I:PP1	0056	R	I:PP2	0052	R	I:PP3	004E	R

ASS.ERR. 00000

ASM DRPR38
DATE 06 /04 /73 TIME 10H-10M-30S-
LABEL = SAGR DATE = 270273 PACK NBR = 102 BOMREL

```
00000                          IDENT    DRPR38
00001                  *
00002                  * THIS MODULE CONTAINS SPECIFIC OPERATIONS FOR PAPER RAEDER
00003                          ENTRY    D:RPTR
00004                          ENTRY    I:PR
00005                  *
00006                          EXTRN    D:WPTR
00007                          EXTRN    C:INPT
00008                          EXTRN    C:WAIT
00009                          EXTRN    E:SO11
00010                          EXTRN    L:VCH
00011                          EXTRN    M:RETR
00012                          EXTRN    R:TUR2
00013                          EXTRN    R:TUR4
00014                          EXTRN    S:TIO
00015                          EXTRN    S:SST
00016                  *
00017                  *
00018                  *THIS SEQUENCE ACTIVATES THE HIGH SPEED PAPER TAPE PUNCH
00019                  * ENTRY CONDITIONS
00020                  *        A6 = DWT ADDRESS
00021                  *        A4 = ORDER
00022                  *
00023  0000  1C04     D:RPTR   SUK      A4,4          * CHECK ORDER
00024  0002  8920              AB,L(1)  E:SO11
       0004  0000  X
00025  0006  208F              INH
00026  0008  BC3F              MSR      8,A15         *  CALL THE SEQUENCE WHO
00027  000A  8320              LDK,L    A3,*+8        *  CONSTRUCTS AN ' I/O INSTRUCTION '
       000C  0012  R
00028  000E  8F20              AB,L     S:TIO
       0010  0000  X
00029  0012  2840              ENB
00030  0014  8F20              AB,L(7)  C:WAIT
       0016  0000  X
00031                  * THIS SEQUENCE PERFORMS THE PTR INTERRUPT
00032  0018  BC3F     I:PR     MSR      8,A15
00033  001A  8620              LDK,L    A6,D:WPTR
       001C  0000  X
00034                  S:PR     EQU      *
00035  001E  BC3F              MSR      8,A15         * CALL THE
00036  0020  8320              LDK,L    A3,*+8        * SEQUENCE WHO
       0022  0028  R
00037  0024  8F20              AB,L     S:SST         * CONSTRUCTS A ' SST INSTRUCTION '
       0026  0000  X
00038  0028  8C20              AB,L(4)  C:INPT
       002A  0000  X
00039  002C  8120              LDK,L    A1,*+8
       002E  0034  R
00040  0030  8F20              AB,L(7)  L:VCH
```

```
        0032  0000  X
00041   0034  22FF              ANK       A2,/FF
00042   0036  8820              AB,L(0)   R:TUR2      * HARDWARE STATUS = 0
        0038  0000  X
00043   003A  8358              LD        A3,20,A6    * TEST STATUS BIT
        003C  0014
00044   003E  5100  F           RF(1)     I:PR1
00045   0040  0100              LDK       A1,0
00046   0042  8F20              AB,L(7)   M:RETR
        0044  0000  X
00047   0046  AA20      I:PR1   ORK,L     A2,/8000
        0048  8000
00048   004A  8F20              AB,L(7)   R:TUR4      * HARDWARE STATUS # 0
        004C  0000  X
00049                           END
```

SYMBOL TABLE

D:RPTR	0000	R	I:PR	0018	R	D:WPTR		X	C:INPT		X
C:WAIT		X	E:S011		X	L:VCH		X	M:RETR		X
R:TUR2		X	R:TUR4		X	S:TIO		X	S:SST		X
S:PR	001E	R	I:PR1	0046	R						

ASS.ERR. 00000

```
ASM DRLP
DATE  06 /04 /73   TIME 10H-10M-39S-
LABEL = SAGR              DATE =  270273          PACK NBR = 102     BOMREL
```

```
00000                          IDENT    DRLP
00001                  *
00002                          ENTRY    D:RLP
00003                          ENTRY    I:LP
00004                  *
00005                          EXTRN    C:NLP
00006                          EXTRN    C:WAIT
00007                          EXTRN    D:WLP
00008                          EXTRN    E:SECB
00009                          EXTRN    E:FECB
00010                          EXTRN    E:SO11
00011                          EXTRN    L:VCH
00012                          EXTRN    M:RETR
00013                          EXTRN    R:TUR1
00014                          EXTRN    R:TUR4
00015                          EXTRN    M:TEX
00016                          EXTRN    S:TIO
00017                          EXTRN    S:SST
00018                  *
00019                  * THIS SEQUENCE PREPARES THE MULTIPLEX AND ACTIVATES IT
00020                  *
00021                  *
00022                  *       A4 = ORDER
00023                  *       A6 = DWT ADDRESS
00024  0000            MULTIC  RES      2
00025                  *
00026  0004  1C05      D:RLP   SUK      A4,5          * CHECK ORDER
00027  0006  8A20              AB,L(2)  E:SO11
       0008  0000  X
00028  000A  1C01              SUK      A4,1
00029  000C  5000  F           RF(0)    DRLP02        stand write
00030  000E  8920              AB,L(1)  E:SO11
       0010  0000  X
00031  0012  8258      DRLP1B  LD       A2,12,A6      bas write buff addr
       0014  000C
00032  0016  8158              LD       A1,14,A6              req length
       0018  000E
00033  001A  A120      DRLP01  ANK,L    A1,/FFF
       001C  0FFF
00034  001E  9204              ADR      A2,A1
00035  0020  1A01              SUK      A2,1
00036  0022  F904              C1R      A1,A1
00037  0024  1101              ADK      A1,1
00038  0026  A120              ANK,L    A1,/FFF
       0028  0FFF
00039  002A  A920              ORK,L    A1,/8000              * FUNCTION CHARACTER OUTPUT
       002C  8000
00040  002E  B941              MS       2,MULTIC
       0030  0000  R
00041  0032  20BF              INH
```

```
00042  0034  BC3F          MSR       8,A15        * CALL
00043  0036  8320          LDK,L     A3,*+8       * THE SEQUENCE
       0038  003E  R
00044  003A  8F20          AB,L      M:TEX        * WHO LOADS MULTIPLEX DOUBLE WORD
       003C  0000  X
00045  003E  BC3F          MSR       8,A15        * CALL THE SEQUENCE WHO
00046  0040  8320          LDK,L     A3,*+8       * CONSTRUCTS AN ' I/O INSTRUCTION '
       0042  0048  R
00047  0044  8F20          AB,L      S:TIO
       0046  0000  X
00048  0048  2840          ENB
00049  004A  8F20          AB,L(7)   C:WAIT       * EN DOF ACTIVATION
       004C  0000  X
00050                  *
00051  004E  8458      DRLP02  LD        A4,12,A6
       0050  000C
00052  0052  EC20          CWK       A4,E:SECB    * IS IT EOS ?
       0054  0000  X
00053  0056  5006          RF(0)     *+8
00054  0058  EC20          CWK       A4,E:FECB    * IS IT EOF ?
       005A  0000  X
00055  005C  5400  F       RF(4)     DRLP2B
00056  005E  1C01          SUK       A4,1
00057  0060  8459          ST        A4,12,A6
       0062  000C
00058  0064  8130          LDR*      A1,A4        * SAVE CONTROL CODE
00059  0066  8159          ST        A1,26,A6
       0068  001A
00060  006A  0406          LDK       A4,6
00061  006C  8459           ST       A4,14,A6
       006E  000E
00062  0070  9041          IM        C:NLP+2      * NUMBER OD LINES +1
       0072  0002  X
00063  0074  0405          LDK       A4,5
00064  0076  8459          ST        A4,18,A6
       0078  0012
00065  007A  5F6A          RB(7)     DRLP1B
00066  007C  8558      DRLP2B  LD        A5,12,A6     * PUT A CR-LF EACH N CHARACTERS
       007E  000C
00067  0080  8458          LD        A4,4,A6
       0082  0004
00068  0084  8358          LD        A3,14,A6
       0086  000E
00069  0088  8220          LDK,L     A2,/0A0D
       008A  0A0D
00070  008C  A320          ANK,L     A3,/FFF
       008E  0FFF
00071  0090  EB10      DRLP04  CWR       A3,A4
00072  0092  5500  F       RF(5)     DRLP03
00073  0094  9510          ADR       A5,A4
```

```
00074  0096  9810          SUR     A3,A4
00075  0098  8235          STR     A2,A5
00076  009A  9041          IM      C:NLP+2     * NUMBER OD LINES +1
       009C  0002  X
00077  009E  5F10          RB(7)   DRLP04
00078                *
00079  00A0  950C    DRLP03 ADR    A5,A3
00080  00A2  E134          LCR     A1,A5
00081  00A4  E159          SC      A1,24,A6            SAVE LAST CHARACTER OF BUFFER
       00A6  0018
00082  00A8  E235          SCR     A2,A5
00083  00AA  8558          LD      A5,12,A6
       00AC  000C
00084  00AE  8134          LDR*    A1,A5       * SAVE THE CONTROL CODE
00085  00B0  8159          ST      A1,26,A6
       00B2  001A
00086  00B4  21FF          ANK     A1,/FF
00087  00B6  E920          CWK     A1,/31
       00B8  0031
00088  00BA  5000  F       RF(0)   PAGE                * CONVERT THE CONTROL CODE
00089  00BC  E920          CWK     A1,/30
       00BE  0030
00090  00C0  5000  F       RF(0)   TWOLIN
00091  00C2  E920          CWK     A1,/2B
       00C4  002B
00092  00C6  5000  F       RF(0)   SUPERP
00093  00C8  8220          LDK,L   A2,/0D0A    * ONE LINE
       00CA  0D0A
00094  00CC  9041          IM      C:NLP+2     * NUMBER OD LINES +1
       00CE  0002  X
00095  00D0  5600  F       RF(6)   PAGE
00096  00D2  5700  F       RF(7)   DRLP05
00097                *
00098  00D4  8220    SUPERP LDK,L  A2,/0D0D            * SUPERPOSITION
       00D6  0D0D
00099  00D8  5700  F       RF(7)   DRLP05
00100                *
00101  00DA  8220    TWOLIN LDK,L  A2,/0A0A            * SKIP TWO LINES
       00DC  0A0A
00102  00DE  9041          IM      C:NLP+2     * NUMBER OD LINES +1
       00E0  0002  X
00103  00E2  9041          IM      C:NLP+2     * NUMBER OD LINES +1
       00E4  0002  X
00104  00E6  5200  F       RF(2)   DRLP05
00105                *
00106  00E8  8220    PAGE   LDK,L  A2,/0D0C            * SKIP TO TOP OF PAGE
       00EA  0D0C
00107  00EC  8120          LDK,L   A1,-50
       00EE  FFCE
00108  00F0  8141          ST      A1,C:NLP+2
```

```
                00F2  0002  X
00109           00F4  8235        DRLP05    STR       A2,A5
00110           00F6  9059                  IM        14,A6
                00F8  000E
00111           00FA  5FEA                  RB(7)     DRLP1B
00112                             *
00113                             ********************************************************************************
00114                             *
00115           00FC  BC3F        I:LP      MSR       8,A15
00116           00FE  8620                  LDK,L     A6,D:WLP
                0100  0000  X
00117                             S:LP      EQU       *
00118           0102  BC3F                  MSR       8,A15          * CALL THE
00119           0104  8320                  LDK,L     A3,*+8         * SEQUENCE WHO
                0106  010C  R
00120           0108  8F20                  AB,L      S:SST          * CONSTRUCTS A ' SST INSTRUCTION '
                010A  0000  X
00121           010C  8120                  LDK,L     A1,*+8
                010E  0114  R
00122           0110  8F20                  AB,L(7)   L:VCH
                0112  0000  X
00123           0114  22FF                  ANK       A2,/FF         * TEST STATUS
00124           0116  5000  F               RF(0)     ENDLP2
00125           0118  8158                  LD        A1,20,A6       * TEST RETRY BIT
                011A  0014
00126           011C  5100  F               RF(1)     ENDLP1
00127           011E  8308                  LDR       A3,A2
00128           0120  B940                  ML        2,MULTIC       * RESTORE MULTIPLEX
                0122  0000  R
00129           0124  20BF                  INH
00130           0126  BC3F                  MSR       8,A15          *  CALL
00131           0128  8320                  LDK,L     A3,*+8         *  THE SEQUENCE
                012A  0130  R
00132           012C  8F20                  AB,L      M:TEX          *  WHO LOADS MULTIPLEX DOUBLE WORD
                012E  0000  X
00133           0130  2840                  ENB
00134           0132  820C                  LDR       A2,A3
00135           0134  0100                  LDK       A1,0
00136           0136  0300                  LDK       A3,0           * GO TO RETRY
00137           0138  8F20                  AB,L(7)   M:RETR
                013A  0000  X
00138                             * END OF IO
00139           013C  AA20        ENDLP1    ORK,L     A2,/8000
                013E  8000
00140           0140  8458        ENDLP2    LD        A4,26,A6             * RESTORE CONTROL CODE
                0142  001A
00141           0144  8558                  LD        A5,12,A6             * BUFFER ADDRESS
                0146  000C
00142           0148  8158                  LD        A1,18,A6             ORDER
                014A  0012
```

```
00143   014C   1906                    SUK       A1,6
00144   014E   5200  F                 RF(2)     ENDLP3     BASIC WRITE
00145   0150   8435                    STR       A4,A5
00146   0152   E158                     LC       A1,24,A6
        0154   0018
00147   0156   8358                    LD        A3,14,A6
        0158   000E
00148   015A   1B01                    SUK       A3,1
00149   015C   9314                    ADR       A3,A5
00150   015E   E12D                    SCR       A1,A3
00151   0160   8F20        ENDLP3      AB,L(7)   R:TUR4
        0162   0000  X
00152                                  END
```

SYMBOL TABLE

D:RLP	0004	R	I:LP	00FC	R	C:NLP		X	C:WAIT		X
D:WLP		X	E:SECB		X	E:FECB		X	E:SO11		X
L:VCH		X	M:RETR		X	R:TUR1		X	R:TUR4		X
M:TEX		X	S:TIO		X	S:SST		X	MULTIC	0000	R
DRLP02	004E	R	DRLP1B	0012	R	DRLP01	001A	R	DRLP2B	007C	R
DRLP04	0090	R	DRLP03	00A0	R	PAGE	00E8	R	TWOLIN	00DA	R
SUPERP	00D4	R	DRLP05	00F4	R	S:LP	0102	R	ENDLP2	0140	R
ENDLP1	013C	R	ENDLP3	0160	R

ASS.ERR. 00000

ASM DRCR
DATE 06 /04 /73 TIME 10H-10M-59S-
LABEL = SAGR DATE = 270273 PACK NBR = 102 BOMREL

```
00000                           IDENT   DRCR
00001                   *
00002                           ENTRY   D:RCR
00003                           ENTRY   I:CR
00004                   *
00005                           EXTRN   C:WAIT
00006                           EXTRN   D:WCR
00007                           EXTRN   E:S011
00008                           EXTRN   L:VCH
00009                           EXTRN   M:RETR
00010                           EXTRN   R:TUR1
00011                           EXTRN   R:TUR3
00012                           EXTRN   M:TEX
00013                           EXTRN   S:TIO
00014                           EXTRN   S:SST
00015                   *
00016                   *
00017                   ********************************************************************************
00018                   *
00019                   * THIS SEQUENCE CHECKS THE PARAMETERS,PREPARES AND ACTIVATES THE MULTIPL
00020                   *
00021  0000  1C02       D:RCR   SUK     A4,2            * CHEHK ORDER
00022  0002  8920               AB,L(1) E:S011
       0004  0000  X
00023  0006  5200  F            RF(2)   DRCR1
00024  0008  8158               LD      A1,4,A6
       000A  0004
00025  000C  E958               CW      A1,14,A6
       000E  000E
00026  0010  5100  F            RF(1)   DRCR1
00027  0012  8159               ST      A1,14,A6
       0014  000E
00028                   DRCR1   EQU     *
00029  0016  8220               LDK,L   A2,CRBUFF+158
       0018  0000  F
00030  001A  8120               LDK,L   A1,/4F60
       001C  4F60
00031  001E  20BF               INH
00032  0020  BC3F               MSR     8,A15           *  CALL
00033  0022  8320               LDK,L   A3,*+8          *  THE SEQUENCE
       0024  002A  R
00034  0026  8F20               AB,L    M:TEX           *  WHO LOADS MULTIPLEX DOUBLE WORD
       0028  0000  X
00035  002A  BC3F               MSR     8,A15           *  CALL THE SEQUENCE WHO
00036  002C  8320               LDK,L   A3,*+8          *  CONSTRUCTS AN ' I/O INSTRUCTION '
       002E  0034  R
00037  0030  8F20               AB,L    S:TIO
       0032  0000  X
00038  0034  2840               ENB
00039  0036  8F20               AB,L(7) C:WAIT
```

```
      0038  0000  X
00040                     *
00041                     * SYSTEM BUFFER
00042  003A               CRBUFF   RES      80
00043                     *
00044  00DA               STATUS   RES      1
00045                     *
00046                     * THIS SEQUENCE IS ENTERED BY AN INTERRUPT
00047                     *
00048                     * CHECK IF STATUS IS NULL
00049  00DC  BC3F         I:CR     MSR      8,A15        * SAVE REGISTERS
00050  00DE  8620                  LDK,L    A6,D:WCR
      00E0  0000  X
00051                     S:CR     EQU      *
00052  00E2  BC3F                  MSR      8,A15        * CALL THE
00053  00E4  8320                  LDK,L    A3,*+8       * SEQUENCE WHO
      00E6  00EC  R
00054  00E8  8F20                  AB,L     S:SST        * CONSTRUCTS A ' SST INSTRUCTION '
      00EA  0000  X
00055  00EC  8120                  LDK,L    A1,*+8
      00EE  00F4  R
00056  00F0  8F20                  AB,L(7)  L:VCH
      00F2  0000  X
00057  00F4  0100                  LDK      A1,0
00058  00F6  8141                  ST       A1,STATUS
      00F8  00DA  R
00059                     * THIS SEQUENCE SWITCHES BY ORDER
00060  00FA  8158                  LD       A1,18,A6
      00FC  0012
00061  00FE  21FD                  ANK      A1,/FD               * ORDER 2 ?
00062  0100  8C20                  AB,L(4)  ITCR5                * NO
      0102  0000  F
00063  0104  220F                  ANK      A2,/F                * FEEP USEFUL BITS
00064  0106  5000  F               RF(0)    ITCR11
00065  0108  8120         ITCR2    LDK,L    A1,/4F60
      010A  4F60
00066  010C  8308                  LDR      A3,A2
00067  010E  8220                  LDK,L    A2,CRBUFF+158
      0110  00D8  R
00068  0112  208F                  INH
00069  0114  BC3F                  MSR      8,A15        *  CALL
00070  0116  8320                  LDK,L    A3,*+8       *  THE SEQUENCE
      0118  011E  R
00071  011A  8F20                  AB,L     M:TEX        *  WHO LOADS MULTIPLEX DOUBLE WORD
      011C  0000  X
00072  011E  2840                  ENB
00073  0120  820C                  LDR      A2,A3
00074                     * GO TO RETRY MODULE
00075  0122  0100         RETRY    LDK      A1,0
00076  0124  0300                  LDK      A3,0
```

```
00077  0126  8F20          AB,L(7)  M:RETR
       0128  0000  X
00078  012A  8520    ITCR11  LDK,L    A5,CRBUFF
       012C  003A  R
00079  012E  0700            LDK      A7,0
00080  0130  80D8            LD       A8,14,A6
       0132  000E
00081  0134  8458            LD       A4,12,A6
       0136  000C
00082  0138  8134    HOLCR8  LDR*     A1,A5      * TRANSLATION
00083  013A  5100  F         RF(1)    HOLCR1
00084  013C  0320            LDK      A3,/20     * H=CODE=0 - A=CODE = 20
00085  013E  5700  F         RF(7)    HOLCR9
00086                *
00087  0140  0300    HOLCR1  LDK      A3,0       * SCAN FOR THE FIRST HOLE
00088  0142  1301    HOLCR2  ADK      A3,1
00089  0144  3941            SLL      A1,1
00090  0146  5906            RB(1)    HOLCR2
00091  0148  1B04            SUK      A3,4
00092  014A  A120            ANK,L    A1,/7FFF   * FIRST HOLF
       014C  7FFF
00093  014E  5400  F         RF(4)    HOLLET
00094  0150  1B01            SUK      A3,1       * SWITCH
00095  0152  510A            RF(1)    *+12
00096  0154  5004            RF(0)     *+6
00097  0156  0326            LDK      A3,/26     * $
00098  0158  5700  F         RF(7)    HOLCR9     * STORF
00099  015A  032D            LDK      A3,/2D     * -
00100  015C  5700  F         RF(7)    HOLCR9     * STORF
00101  015E  132F            ADK      A3,/2F     * DIGIT
00102  0160  5700  F         RF(7)    HOLCR9     * STORF
00103                *
00104  0162          HOLFST  RES      1
00105  0164          HOLSND  RES      1
00106                *
00107  0166  8341    HOLLET  ST       A3,HOLFST  * SAVE FIRST HOLE POSITION
       0168  0162  R
00108  016A  1301            ADK      A3,1
00109  016C  3941            SLL      A1,1
00110                *
00111  016E  5906            RB(1)    *-4
00112  0170  8341            ST       A3,HOLSND  * SAVE SECOND HOFE POSITION
       0172  0164  R
00113  0174  A120            ANK,L    A1,/7FFF
       0176  7FFF
00114  0178  5400  F         RF(4)    HOLBIZ
00115  017A  8140            LD       A1,HOLFST  * SWITCH
       017C  0162  R
00116  017E  E920            CWK      A1,3
       0180  0003
```

```
00117  0182  5600  F          RF(6)    HOLLE1
00118  0184  9104             ADR      A1,A1          * FIRST HOLE = 12 =11=0
00119  0186  8144             LD       A1,TABLE1,A1 * CHOOSE THE TABLE
       0188  0000  F
00120  018A  8240             LD       A2,HOLSND
       018C  0164  R
00121                    *
00122  018E  1A03             SUK      A2,3
00123  0190  5200  F          RF(2)    HOLCR3
00124  0192  9108             ADR      A1,A2
00125  0194  E324             LCR      A3,A1          * CHOOSE THE LETTER IN THE TABLE
00126  0196  5700  F          RF(7)    HOLCR9
00127  0198  5000  F  HOLLE1  RF(0)    HOLCR3
00128  019A  1904             SUK      A1,4
00129  019C  E920             CWK       A1,5
       019E  0005
00130  01A0  5100  F          RF(1)    HOLCR3
00131  01A2  8240             LD       A2,HOLSND
       01A4  0164  R
00132  01A6  1A0A             SUK      A2,10
00133  01A8  5400  F          RF(4)    HOLCR3
00134  01AA  E344             LC       A3,TABL1,A1 * CHOOSE CHARACTER IN THE TABLE
       01AC  0000  F
00135  01AE  5700  F          RF(7)    HOLCR9          * STORF
00136                    *
00137  01B0  3A23       TABL1  DATA     /3A23
00138  01B2  4027             DATA     /4027
00139  01B4  3D22             DATA     /3D22
00140                    *
00141  01B6  8340       HOLBIZ LD       A3,HOLFST    * THREE HOLES
       01B8  0162  R
00142  01BA  1B02             SUK      A3,2
00143  01BC  5100  F          RF(1)    HOLCR3
00144  01BE  8340             LD       A3,HOLSND
       01C0  0164  R
00145  01C2  1B04             SUK      A3,4
00146  01C4  5200  F          RF(2)    HOLCR3
00147  01C6  1B05             SUK      A3,5
00148  01C8  5100  F          RF(1)    HOLCR3
00149  01CA  1309             ADK      A3,9           * THIRO HOLE = HOLE EIGHT
00150  01CC  1301             ADK      A3,1
00151  01CE  3941             SLL      A1,1
00152  01D0  5906             RB(1)    *-4
00153  01D2  1B0A             SUK      A3,10
00154  01D4  5400  F          RF(4)    HOLCR3
00155  01D6  3941             SLL      A1,1
00156  01D8  5400  F          RF(4)    HOLCR3
00157  01DA  8140             LD       A1,HOLFST    *
       01DC  0162  R
00158  01DE  9104             ADR      A1,A1
```

```
00159  01E0  8144          LD      A1,TABLE2,A1
       01E2  0000  F
00160  01E4  9140          AD      A1,HOLSND
       01E6  0164  R
00161  01E8  1904          SUK     A1,4
00162  01EA  E324          LCR     A3,A1
00163  01EC  5700  F        RF(7)   HOLCR9
00164                  * STOR   E ASCII CODE
00165  01EE  E331      HOLCR9  SCR     A3,A4
00166  01F0  1401          ADK     A4,1
00167  01F2  1502          ADK     A5,2
00168  01F4  1701          ADK     A7,1
00169  01F6  EF02          CWR     A7,A8
00170  01F8  5CC2          RB(4)   HOLCR8
00171  01FA  8759          ST      A7,16,A6
       01FC  0010
00172                  *
00173                  * THIS SEQUENCE PERFORMS THE END OF TRANSFERT
00174  01FE  8140      HOLEND  LD      A1,STATUS
       0200  00DA  R
00175  0202  2101          ANK     A1,/1
00176  0204  5000  F        RF(0)    HOLEN2
00177  0206  0204          LDK     A2,/4       * GO TO RETRY WITH DATA FAULT
00178  0208  8F20          AB,L(7) ITCR2
       020A  0108  R
00179  020C  8459      HOLEN2  ST      A4,12,A6
       020E  000C
00180  0210  9C1C          SUR     A4,A7       BUFFER ADDRESS
00181  0212  B930          MLR     2,A4
00182  0214  E920          CWK     A1,/3A45    *:E
       0216  3A45
00183  0218  5400  F        RF(4)   HOLEN1
00184  021A  EA20          CWK     A2,/4F46    *OF
       021C  4F46
00185  021E  5000  F        RF(0)   HOLEN0
00186  0220  EA20          CWK     A2,/4F53    *OS
       0222  4F53
00187  0224  5400  F        RF(4)   HOLEN1
00188  0226  1404      HOLEN0  ADK     A4,4
00189  0228  8459          ST      A4,12,A6
       022A  000C
00190  022C  0404          LDK     A4,4
00191  022E  8459          ST      A4,16,A6
       0230  0010
00192  0232  8558      HOLEN1  LD      A5,10,A6
       0234  000A
00193  0236  8F20          AB,L(7) R:TUR3
       0238  0000  X
00194                  *
00195                  * ERROR DATAS FAULT
```

```
00196  023A  0301      HOLCR3  LDK       A3,1          * UNKNOWN CHARACTER
00197  023C  AB41              OR,S      A3,STATUS
       023E  00DA  R
00198  0240  0320              LDK       A3,/20
00199  0242  5F56              RB(7)     HOLCR9
00200                   * CONVERSION TABLE
00201  0244  0000  F   TABLE1   DATA      TABI12
00202  0246  0000  F           DATA      TABI11
00203  0248  0000  F           DATA      TABI10
00204  024A  4142      TABI12  DATA      'ABCDEFGHI '
       024C  4344
       024E  4546
       0250  4748
       0252  4920
00205  0254  4A4B      TABI11  DATA      'JKLMNOPQR '
       0256  4C4D
       0258  4E4F
       025A  5051
       025C  5220
00206  025E  2F53      TABI10  DATA      '/STUVWXYZ '
       0260  5455
       0262  5657
       0264  5859
       0266  5A20
00207  0268  0000  F   TABLE2  DATA      TABLE3
00208  026A  0000  F           DATA      TABLE4
00209  026C  0000  F           DATA      TABLE5
00210  026E  5B2E      TABLE3  DATA      /5B2E          * 12-2-12-3
00211  0270  3C28              DATA      /3C28        * 12-4-12-5
00212  0272  2B5E              DATA      /2B5E        * 12-6-12-7
00213  0274  2124      TABLE4  DATA      /2124        * 11-2-11-3
00214  0276  2A29              DATA      /2A29        * 11-4-11-5
00215  0278  3B5D              DATA      /3B5D        * 11-6-11-7
00216  027A  5C2C      TABLE5  DATA      /5C2C        * 10-2-10-3
00217  027C  255F              DATA      /255F        *10-4-10-5
00218  027E  3E3F              DATA      /3E3F        * 10-6-10-7
00219                   ITCR5   EQU       *
00220  0280  220F              ANK       A2,/0F     * KEEP BITS 12,14,15
00221  0282  5000  F           RF(0)     ITCR51                * STATUS = 0
00222  0284  8158              LD        A1,20,A6   * STATUS # 0
       0286  0014
00223  0288  8D20              AB,L(5)   ITCR2                 * GO TO RETRY
       028A  0108  R
00224  028C  AA20              ORK,L     A2,/8000
       028E  8000
00225  0290  0100              LDK       A1,0       * USER WANTS HARDWARE STATUS
00226  0292  8558      ITCR53  LD        A5,10,A6
       0294  000A
00227  0296  8F20              AB,L(7)   R:TUR1
       0298  0000  X
```

```
00228                          * THIS SEQUENCE PUTS CHARACTERS IN USER BUFFER IF STATUS = 0
00229  029A  8558       ITCR51  LD      A5,12,A6        * USER BUFFER ADDRESS
       029C  000C
00230  029E  8458               LD      A4,14,A6        * REQUESTED
       02A0  000E
00231  02A2  0100               LDK     A1,0            * EFFECTIVE LENGTH
00232  02A4  8220               LDK,L   A2,CRBUFF       * SYSTEM BUFFER ADDRESS
       02A6  003A  R
00233  02A8  EC20               CWK     A4,160
       02AA  00A0
00234  02AC  5202               RF(2)   *+4
00235  02AE  04A0               LDK     A4,160
00236  02B0  8328       ITCR52  LDR*    A3,A2
00237  02B2  8335               STR     A3,A5
00238  02B4  1502               ADK     A5,2
00239  02B6  1102               ADK     A1,2
00240  02B8  1202               ADK     A2,2
00241  02BA  1C02               SUK     A4,2
00242  02BC  590E               RB(1)   ITCR52
00243  02BE  0200               LDK     A2,0
00244  02C0  E920               CWK     A1,160
       02C2  00A0
00245  02C4  5002               RF(0)   *+4
00246  02C6  0208               LDK     A2,8
00247  02C8  5F38               RB(7)   ITCR53
00248                          END
```

SYMBOL TABLE

D:RCR	0000	R	I:CR	00DC	R	C:WAIT		X	D:WCR		X			
E:SO11		X	L:VCH		X	M:RETR		X	R:TUR1		X			
R:TUR3		X	M:TEX		X	S:TIO		X	S:SST		X			
DRCR1	0016	R	CRBUFF	003A	R	STATUS	00DA	R	S:CR	00E2	R			
ITCR5	0280	R	ITCR11	012A	R	ITCR2	0108	R	RETRY	0122	R			
HOLCR8	0138	R	HOLCR1	0140	R	HOLCR9	01EE	R	HOLCR2	0142	R			
HOLLET	0166	R	HOLFST	0162	R	HOLSND	0164	R	HOLBIZ	01B6	R			
HOLLE1	0198	R	TABLE1	0244	R	HOLCR3	023A	R	TABL1	01B0	R			
TABLE2	0268	R	HOLEND	01FE	R	HOLEN2	020C	R	HOLEN1	0232	R			
HOLEN0	0226	R	TABI12	024A	R	TABI11	0254	R	TABI10	025E	R			
TABLE3	026E	R	TABLE4	0274	R	TABLE5	027A	R	ITCR51	029A	R			
ITCR53	0292	R	ITCR52	0280	R									

ASS,ERR, 00000

```
ASM D:MT
DATE  06 /04 /73    TIME 10H-11M-27S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                IDENT    D:MT
00001                                ENTRY    D:MT
00002                                ENTRY    I:MT
00003                                ENTRY    S:MT
00004                                EXTRN    L:VCH
00005                                EXTRN    C:WAIT
00006                                EXTRN    E:SO11
00007                                EXTRN    R:TUR4
00008                                EXTRN    M:RETR
00009                                EXTRN    R:TURN
00010                                EXTRN    M:TEX
00011                                EXTRN    S:TIO
00012                                EXTRN    S:SST
00013                                EXTRN     C:ONMT
00014                          OFLINE EQU      /60
00015                          REWIND EQU      /64
00016                          WRITE  EQU      3
00017                          WREDIT EQU      /B
00018                          WRFM   EQU      /51
00019                          READ   EQU      2
00020                          SFMFOR EQU      /50
00021                          SFMBAC EQU      /54
00022                          FORSPB EQU      /40
00023                          BACSPB EQU      /44
00024                          BASPED EQU      /4C
00025                          ERASE  EQU      /59
00026                          *
00027                          *
00028                          ********* MAGNETIC TAPE DRIVER **********************************
00029                          *
00030                          *
00031                          D:MT   EQU      *
00032  0000  0505                     LDK      A5,5          SET CURRENT RY
00033  0002  AD59                     ORS      A5,8,A6       IN SOFT STATUS
       0004  0008
00034  0006  841C                     LDR      A4,A7         SUPPRESS BITS RY AND
00035  0008  243F                     ANK      A4,/3F        WAIT IN ORDER
00036  000A  EC20                     CWK      A4,9          ORDER ANALYSE
       000C  0009
00037  000E  5100  F                  RF(1)    DMTA          > 9
00038  0010  EC20                     CWK      A4,2
       0012  0002
00039  0014  5500  F                  RF(5)    DMTB          READ ORDER
00040  0016  EC20                     CWK      A4,7
       0018  0007
00041  001A  5200  F                  RF(2)    DMTC          WRITE ORDER
00042  001C  EC20                     CWK      A4,8
       001E  0008
00043  0020  5000  F                  RF(0)    DMTD          OBJECT 8-8 WRITE
00044  0022  EC20                     CWK      A4,9
```

```
          0024  0009
00045     0026  5000  F           RF(0)     DMTE          WRITE EDIT ORDER
00046     0028  8F20              AB,L      E:SO11        ERROR
          002A  0000  X
00047                       *
00048                       *
00049     002C  EC20        DMTA  CWK       A4,/16
          002E  0016
00050     0030  5000  F           RF(0)     DMTF          SEARCH FILE MARK (EOF) FORWARD
00051     0032  EC20              CWK       A4,/22
          0034  0022
00052     0036  5000  F           RF(0)     DMTG          WRITE EOF
00053     0038  EC20              CWK       A4,/26
          003A  0026
00054     003C  5000  F           RF(0)     DMTH          WRITE EOS
00055     003E  EC20              CWK       A4,/31
          0040  0031
00056     0042  5000  F           RF(0)     DMTI          REWIND ORDER
00057     0044  EC20              CWK       A4,/33
          0046  0033
00058     0048  5000  F           RF(0)     DMTJ          SPACE BLOCK BACKWARD ORDER
00059     004A  EC20              CWK       A4,/34
          004C  0034
00060     004E  5000  F           RF(0)     DMTK          SPACE BLOCK FORWARD ORDER
00061     0050  EC20              CWK       A4,/36
          0052  0036
00062     0054  5000  F           RF(0)     DMTL          SEARCH FILE MARK BACKWARD (EOF)
00063     0056  EC20              CWK       A4,/38
          0058  0038
00064     005A  5000  F           RF(0)     DMTM          OFF LINE ORDER
00065     005C  8F20              ABL       E:SO11        ERROR
          005E  0000  X
00066                       *
00067                       *
00068                       DMTB  EQU       *             READ ORDER
00069     0060  0202              LDK       A2,READ
00070     0062  5700  F           RF        EXEC
00071                       *
00072                       *
00073                       DMTC  EQU       *             WRITE ORDER
00074     0064  0203        DMTC1 LDK       A2,WRITE
00075     0066  5700  F           RF        EXEC
00076                       *
00077                       *
00078                       DMTD  EQU       *             OBJECT 8-8 WRITE
00079     0068  8578              LD*       A5,12,A6      * COMPUTE
          006A  000C
00080     006C  25FF              ANK       A5,/FF        * THE
00081     006E  1501              ADK       A5,1          * BUFFER LENGTH
00082     0070  3D41              SLL       A5,1          * AND STORE IT
```

```
00083  0072  8559              ST       A5,14,A6    * IN DWT (IN CHARACTERS)
       0074  000E
00084  0076  5F14              RB       DMTC1
00085                    *
00086                    *
00087                    DMTE    EQU      *           WRITE EDIT ORDER
00088  0078  8520              LDK,L    A5,/6000    SET BACKSPACE EDIT AND
       007A  6000
00089  007C  AD59              OR,S     A5,8,A6     WRITE EDIT IN SOFT STATUS
       007E  0008
00090  0080  024C              LDK      A2,BASPED   BACKSPACE EDIT ORDER
00091  0082  5700  F           RF       EXEC2
00092                    *
00093                    *
00094                    DMTF    EQU      *           SEARCH FILE MARK (EOF) FORWARD
00095  0084  0250              LDK      A2,SFMFOR
00096  0086  5700  F           RF       EXEC2
00097                    *
00098                    *
00099                    DMTG    EQU      *           WRITE EOF
00100  0088  0251              LDK      A2,WRFM
00101  008A  5700  F           RF       EXEC2
00102                    *
00103                    *
00104                    DMTH    EQU      *
00105  008C  8120              LDK,L    A1,BUFEOS   BUFFER EOS ADDRESS
       008E  0000  F
00106  0090  020C              LDK      A2,12       AND LENGTH IN
00107  0092  B959              MS       2,12,A6     DWT
       0094  000C
00108  0096  0203              LDK      A2,WRITE    WRITE ORDER
00109  0098  5700  F           RF       EXEC
00110                    *
00111                    *
00112                    DMTI    EQU      *           REWIND ORDER
00113  009A  8520              LDKL     A5,/8000
       009C  8000
00114  009E  AD79              ORS*     A5,32,A6    CONTROLLER = FREE
       00A0  0020
00115  00A2  8558              LD       A5,32,A6    SAVE THE
       00A4  0020
00116  00A6  8559              ST       A5,26,A6    CONTROLLER STATUS ADDRESS
       00A8  001A
00117  00AA  0508              LDK      A5,8        PUT THE
00118  00AC  9518              ADR      A5,A6       SOFTWARE STATUS ADDRESS
00119  00AE  8559              ST       A5,32,A6    IN THE CONTROLLER STATUS ADDRESS
       00B0  0020
00120  00B2  0500              LDK      A5,0        PUT THE
00121  00B4  8559              ST       A5,8,A6     UNIT BUSY
       00B6  0008
```

```
00122  00B8  0264          LDK     A2,REWIND
00123  00BA  5700  F       RF      EXEC2
00124                *
00125                *
00126                DMTJ    EQU     *           SPACE BLOCK FORWARD ORDER
00127  00BC  0244          LDK     A2,BACSPB
00128  00BE  5700  F       RF      EXEC2
00129                *
00130                *
00131                DMTK    EQU     *           SPACE BLOCK FORWARD ORDER
00132  00C0  0240          LDK     A2,FORSPB
00133  00C2  5700  F       RF      EXEC2
00134                *
00135                *
00136                DMTL    EQU     *           SEARCH FILE MARK BACKWARD ORDER
00137  00C4  0254          LDK     A2,SFMBAC
00138  00C6  5700  F       RF      EXEC2
00139                *
00140                *
00141                DMTM    EQU     *           OFF LINE ORDER
00142  00C8  0260          LDK     A2,OFLINE
00143                DMTN    EQU     *
00144  00CA  20BF          INH
00145  00CC  BC3F          MSR     8,A15       CALL THE SEQUENCE
00146  00CE  8320          LDK,L   A3,*+8      CONSTRUCTING AN
       00D0  00D6  R
00147  00D2  8F20          AB,L    S:TIO       'OFF LINE' I/O INSTRUCTION
       00D4  0000  X
00148  00D6  5C0E          RB(4)   DMTN
00149  00D8  8220          LDK,L   A2,/7FFF    RESET BIT READY
       00DA  7FFF
00150  00DC  A259          AN,S    A2,8,A6     OF DRIVER
       00DE  0008
00151  00E0  2840          ENB
00152  00E2  0200          LDK     A2,0
00153  00E4  8F20          AB,L    R:TUR4
       00E6  0000  X
```

```
00154                                  EJECT
00155  00E8  A120        EXEC4   ANKL    A1,/8FFF    FOR FIRST MULTIPLEX WORD IN OUTPUT
       00EA  8FFF
00156  00EC  5700  F             RF      EXEC5
00157                     EXEC    EQU     *
00158  00EE  8558                LD      A5,14,A6    REQUESTED LENGTH
       00F0  000E
00159  00F2  ED58                CW      A5,4,A6     > MAXI LENGTH ?
       00F4  0004
00160  00F6  8920                ABL(1)  E:S011      YES (ERROR)
       00F8  0000  X
00161  00FA  1D0C                SUK     A5,12
00162  00FC  5600  F             RF(6)   EXEC6       LENGTH < 12
00163  00FE  050C                LDK     A5,12       UPDATE THE
00164  0100  8559                ST      A5,14,A6    LENGTH IN DWT
       0102  000E
00165  0104  8508        EXEC6   LDR     A5,A2        SAVE ORDER
00166  0106  0100                LDK     A1,0        = REQUESTED
00167  0108  9958                SU      A1,14,A6     LENGTH
       010A  000E
00168  010C  EA20                CWK     A2,WRITE    IS A WRITE ORDER ?
       010E  0003
00169  0110  582A                RB(0)   EXEC4       YES
00170  0112  0200                LDK     A2,0        IN READ THE REAL REQUESTED
00171  0114  E258                LC      A2,22,A6    LENGTH = THE REQUESTED
       0116  0016
00172  0118  9908                SUR A1,A2           LENGTH + ' CONTROL CHARACTERS '
00173  011A  A120                ANKL    A1,/CFFF    UPDATE THE LENGTH FOR FIRST MULTIP WORD
       011C  CFFF
00174  011E  9259                ADS     A2,14,A6    AND IN THE ECB
       0120  000E
00175  0122  8258        EXEC5   LD       A2,12,A6   * COMPUTES
       0124  000C
00176  0126  9258                AD      A2,14,A6    * ENDING BUFFER
       0128  000E
00177  012A  1A01                 SUK     A2,1       * ADDRESS
00178  012C  20BF                INH
00179  012E  BC3F                MSR     8,A15       CALL THE SEQUENCE
00180  0130  8320                LDK,L   A3,*+8      LOADING THE
       0132  0138  R
00181  0134  8F20                AB,L    M:TEX
       0136  0000  X
00182                     *
00183  0138  8214                LDR     A2,A5       RESTORE ORDER
00184  013A  AA58        EXEC2   OR      A2,22,A6
       013C  0016
00185                     EXEC3   EQU     *
00186  013E  20BF                INH
00187  0140  BC3F                MSR     8,A15       CALL THE SEQUENCE
00188  0142  8320                LDK,L   A3,*+8
```

```
        0144   014A  R
00189   0146   8F20                AB,L      S:TIO
        0148   0000  X
00190   014A   5C0E                RB(4)     EXEC3
00191   014C   2840                ENB
00192   014E   8259                ST        A2,24,A6      SAVE HARDWARE ORDER
        0150   0018
00193   0152   8F20                AB,L      C:WAIT
        0154   0000  X
```

```
00194                                EJECT
00195                          ERROR EQU     *
00196  0156  8508                    LDR     A5,A2
00197  0158  A520                    ANKL    A5,/201     IS NOT OPERABLE OR WRITE UNABLE ?
       015A  0201
00198  015C  5000  F                 RF(0)   ERROR7      NO
00199  015E  8358                    LD      A3,24,A6    RESTORE HARDWARE ORDER
       0160  0018
00200  0162  8120                    LDK,L   A1,/8000      FLAG RY IN DWT
       0164  8000
00201  0166  A959                    OR,S    A1,18,A6
       0168  0012
00202  016A  0100                    LDK     A1,0        PARAM FOR PRINT THE MESSAGE ' RY '
00203  016C  8C20                    ABL(4)  M:RETR       YES
       016E  0000  X
00204  0170  8558              ERROR7 LD      A5,8,A6
       0172  0008
00205  0174  250F                    ANK     A5,/F       IS CURRENT RY =0?
00206  0176  5400  F                 RF(4)   ERROR2      NO
00207  0178  AA20              ERROR1 ORK,L   A2,/8000    I/O ERROR
       017A  8000
00208  017C  8F20                    ABL     IMT10
       017E  0000  F
00209                          *
00210  0180  8558              ERROR2 LD      A5,18,A6    ORDER
       0182  0012
00211  0184  1D05                    SUK     A5,5        IS A READ ORDER ?
00212  0186  5200  F                 RF(2)   ERROR3      YES
00213  0188  1D04                    SUK     A5,4        IS A WRITE ORDER ?
00214  018A  5200  F                 RF(2)   ERROR4      YES
00215  018C  5916                    RB(1)   ERROR1      ERROR
00216                          *
00217                          *     AN ERROR HAS BEEN FOUND ON TO WRITE EDIT
00218  018E  8520                    LDK,L   A5,/6000    SET BACKSPACE EDIT AND
       0190  6000
00219  0192  AD59                    OR,S    A5,8,A6     WRITE EDIT IN SOFT STATUS
       0194  0008
00220  0196  024C                    LDK     A2,BASPED   BACKSPACE EDIT
00221  0198  8520              ERROR5 LDK,L   A5,-1
       019A  FFFF
00222  019C  9559                    AD,S    A5,8,A6     CURRENT RY = CURRENT RY -1
       019E  0008
00223  01A0  5FB4                    RB      EXEC
00224                          *
00225                          *
00226                          ERROR3 EQU     *
00227  01A2  8520                    LDK,L   A5,/1800    SET BACKSPACE AND
       01A4  1800
00228  01A6  AD59                    OR,S    A5,8,A6     READ IN SOFT STATUS
       01A8  0008
```

```
00229  01AA  0244      ERROR6   LDK       A2,BACSPB   BACKSPACE ORDER
00230  01AC  5F16               RB        ERROR5
00231                   *
00232                   *
00233                   ERROR4   EQU       *
00234  01AE  8520               LDK,L     A5,/0700    SET BACKSPACE,ERASE AND
       01B0  0700
00235  01B2  AD59               OR,S      A5,8,A6     WRITE ORDER IN SOFT STATUS
       01B4  0008
00236  01B6  5F0E               RB        ERROR6
00237                   ********************************************************************************
00238                   *
00239                   *********   THIS SEQUENCE TREATS A MAGNETIC TAPE INTERRUPT
00240                   *
00241                   ********************************************************************************
```

```
00242                                  EJECT
00243                          I:MT    EQU     *
00244  01B8  BC3F                     MSR     8,A15       SYSGEN
00245  01BA  8620                     LDK,L   A6,C:ONMT   SYSGEN
       01BC  0000  X
00246                          *
00247                          S:MT    EQU     *
00248  01BE  8418                     LDR     A4,A6       MAGNETIC TAPE TABLE ADDRESS
00249  01C0  8658                     LD      A6,2,A6     ADDRESS OF THE FIRST MAGNETIC TAPE
       01C2  0002
00250  01C4  BC3F                     MSR     8,A15       * CALL THE
00251  01C6  8320                     LDK,L   A3,*+8      * SEQUENCE
       01C8  01CE  R
00252  01CA  8F20                     AB,L    S:SST       * CONSTRUCTING  A 'SST INSTRUCTION'
       01CC  0000  X
00253  01CE  5000  F                  RF(0)   IMT1
00254  01D0  207F                     HLT
00255                          *
00256                          IMT1    EQU     *
00257  01D2  8120                     LDK,L   A1,*+8      PREPARE RETURN ADDRESS FROM
       01D4  01DA  R
00258  01D6  8F20                     ABL     L:VCH       THE 'CHANGE TO LEVEL 48' ROUTINE
       01D8  0000  X
00259  01DA  8308                     LDR     A3,A2       TWICE NUMERO
00260  01DC  3B65                     SRL     A3,5        OF MAGNETIC TAPE
00261  01DE  2306                     ANK     A3,6        IN A3
00262  01E0  9310                     ADR     A3,A4       COMPUTES THE
00263  01E2  864C                     LD      A6,2,A3     DWT ADDRESS
       01E4  0002
00264  01E6  8508                     LDR     A5,A2       KEEP ORIGINAL STATUS IN A2
00265  01E8  A520                     ANKL    A5,/4400    IS READY OR LOAD POINT ?
       01EA  4400
00266  01EC  5000  F                  RF(0)   IMT3        NO
00267                          *
00268                          *       PROCESS THE READY STATUS
00269  01EE  8558                     LD      A5,18,A6    LOAD THE ORDER
       01F0  0012
00270  01F2  5100  F                  RF(1)   IMTB        IT IS NOT A RY INTERRUPT
00271  01F4  8520                     LDK,L   A5,/7FFE    RESET
       01F6  7FFE
00272  01F8  A559                     AN,S    A5,18,A6      FLAG  RY IN DWT
       01FA  0012
00273  01FC  8F20                     AB,L    R:TURN
       01FE  0000  X
00274                          IMTB    EQU     *
00275  0200  1D31                     SUK      A5,/31     IS A REQUIRED REWIND ?
00276  0202  5000  F                  RF(0)   IMTA         YES
00277  0204  1531                     ADK     A5,/31      IS A USER REQUEST ?
00278  0206  5400  F                  RF(4)   IMT10       YES
00279  0208  8520                     LDK,L   A5,/8000    SET BIT READY
```

```
       020A  8000
00280  020C  8559                ST        A5,8,A6      IN DWT
       020E  0008
00281  0210  8F20                AB,L      R:TURN
       0212  0000  X
00282  0214  8558       IMTA     LD        A5,26,A6     RESTORE THE REAL ADDRESS OF
       0216  001A
00283  0218  8559                ST        A5,32,A6     THE CONTROLLER STATUS
       021A  0020
00284  021C  0500                 LDK       A5,0         ERASE THE
00285  021E  8559                 ST        A5,18,A6     ORDER IN DWT
       0220  0012
00286  0222  0580                LDK       A5,/80       PUT THE
00287  0224  E559                SC        A5,8,A6      PHYSICAL UNIT READY
       0226  0008
00288  0228  5700  F              RF        IMT9
00289  022A  8508       IMT3     LDR       A5,A2
00290  022C  3D4A                SLL       A5,10        IS AND END OF TAPE ?
00291  022E  5600  F             RF(6)     IMT2         NO
00292  0230  0160                LDK       A1,OFLINE    OFF LINE ORDER
00293                     IMT4     EQU       *
00294  0232  20BF                INH
00295  0234  BC3F                MSR       8,A15        CALL THE
00296  0236  8320                LDK,L     A3,*+8       * SEQUENCE CONSTRUCTING
       0238  023E  R
00297  023A  8F20                AB,L      S:TIO        * AN 'OFF LINE INSTRUCTION'
       023C  0000  X
00298  023E  5C0E                RB(4)     IMT4
00299  0240  8520                LDK,L     A5,/7FFF     SET THE DRIVER
       0242  7FFF
00300  0244  A559                AN,S      A5,8,A6      NO READY (MT=OFF)
       0246  0008
00301  0248  2840                ENB
00302  024A  3A43                SLL       A2,3         IS A TAPE MARK ?
00303  024C  5200  F             RF(2)     IMT34         YES
00304  024E  8558                LD        A5,8,A6      IS IT DURING A
       0250  0008
00305  0252  A520                ANKL      A5,/7FF8     ERROR RECOVERY ?
       0254  7FF8
00306  0256  5000  F             RF(0)     IMT9         NO
00307  0258  8220                LDKL      A2,/8000     RESET
       025A  8000
00308  025C  8259                ST        A2,8,A6      THE SOFT STATUS
       025E  0008
00309  0260  5700  F             RF        IMT10        AND SET 'I/O ERROR ' FOR R:TUR4
00310                     *
00311  0262  8508       IMT2     LDR       A5,A2
00312  0264  3D43                SLL       A5,3         IS A FILE MARK ?
00313  0266  5600  F             RF(6)     IMT5         NO
00314  0268  0201       IMT34    LDK       A2,1         SET EOF IN STATUS
```

```
00315  026A  5700  F          RF       IMT10
00316                   *
00317  026C  8508       IMT5  LDR      A5,A2
00318  026E  A520             ANKL     A5,/217     ERRORS ?
       0270  0217
00319  0272  8C20             AB,L(4)  ERROR           YES
       0274  0156  R
00320  0276  0508             LDK      A5,8
00321  0278  A508             ANR      A5,A2       IS A WRONG LENGTH ?
00322  027A  5000  F          RF(0)    IMT8        NO
00323  027C  8578             LD*      A5,12,A6    FIRST WORD OF BUFFER
       027E  000C
00324  0280  ED20             CWK      A5,'↑E'     IS AN EOS MARK ?
       0282  3A45
00325  0284  5400  F          RF(4)    IMT6        NO
00326  0286  8558             LD       A5,12,A6    IS
       0288  000C
00327  028A  8554             LD       A5,2,A5     AN
       028C  0002
00328  028E  ED20             CWK      A5,'OS'     EOS MARK ?
       0290  4F53
00329  0292  5000  F          RF(0)    IMT7        YES
00330  0294  8558       IMT6  LD       A5,2,A6     * COMPUTES
       0296  0002
00331  0298  250F             ANK      A5,/F       * THE MULTIPLEX
00332  029A  3D42             SLL      A5,2        * WORDS
00333  029C  1580             ADK      A5,128      * ADDRESS
00334  029E  8534             LDR*     A5,A5       IS A
00335  02A0  A520             ANK,L    A5,/1FFF    REAL
       02A2  1FFF
00336  02A4  ED20             CWK      A5,/1000    WRONG LENGTH ?
       02A6  1000
00337  02A8  8920             ABL(1)   ERROR       YES
       02AA  0156  R
00338  02AC  AD20             ORK,L    A5,/F000    * COMPUTES THE EFFECTIVE
       02AE  F000
00339  02B0  0200       IMT67 LDK      A2,0        * COMPUTES
00340  02B2  E258             LC       A2,22,A6    * THE
       02B4  0016
00341  02B6  9D08             SUR      A5,A2       * EFFECTIVE
00342  02B8  9558             AD       A5,14,A6    * LENGTH AND STORE IT IN
       02BA  000E
00343  02BC  8559             ST       A5,16,A6    * THE DWT
       02BE  0010
00344  02C0  5700  F          RF       IMT9
00345                   *
00346                   *      AN EOS MARK HAS BEEN FOUND
00347                   *
00348  02C2  0202       IMT7  LDK      A2,2
00349  02C4  5700  F          RF       IMT10
```

```
00350                        *
00351                        *
00352  02C6  8558            IMT8     LD       A5,8,A6
       02C8  0008
00353  02CA  A520                     ANKL     A5,/7FF8    SOFT STATUS =0?
       02CC  7FF8
00354  02CE  5400  F                  RF(4)    IMT11       NO
00355  02D0  8558                     LD       A5,18,A6    IS A
       02D2  0012
00356  02D4  ED20                     CWK      A5,2        READ ORDER ?
       02D6  0002
00357  02D8  5100  F                  RF(1)    IMT9        NO
00358  02DA  0500                     LDK      A5,0
00359  02DC  5F2E                     RB       IMT67
00360  02DE  0200            IMT9     LDK      A2,0        I/O CORRECT
00361  02E0  0500            IMT10    LDK      A5,0
00362  02E2  8559                     ST       A5,18,A6
       02E4  0012
00363  02E6  8F20                     ABL      R:TUR4
       02E8  0000  X
00364                        *
00365                        *
00366  02EA  0400            IMT11    LDK      A4,0        * THIS
00367  02EC  8758                     LD       A7,8,A6     SAVE FLAGS OF
       02EE  0008
00368  02F0  A720                     ANKL     A7,/8007    THE SOFTWARE STATUS
       02F2  8007
00369  02F4  20BF                     INH                  * SEQUENCE
00370  02F6  1401            IMT12    ADK      A4,1        * RESET
00371  02F8  3D41                     SLL      A5,1        * THE LEFT
00372  02FA  5E06                     RB(6)    IMT12       *  IT OF
00373  02FC  A520                     ANK,L    A5,/7FFF    * SOFT
       02FE  7FFF
00374  0300  8310                     LDR      A3,A4       * STATUS
00375  0302  2C60                     ORK      A4,/60      * AND
00376  0304  E441                     SC       A4,*+5      * TEST
       0306  0309  R
00377  0308  3D60                     SRL      A5,0        * IF
00378  030A  AD1C                     ORR      A5,A7       * SOFT
00379  030C  8559                     ST       A5,8,A6     * STATUS
       030E  0008
00380  0310  2840                     ENB                  *
00381  0312  A520                     ANKL     A5,/FFF8
       0314  FFF8
00382  0316  ED20                     CWK      A5,/8000    * =0 ?
       0318  8000
00383  031A  583E                     RB(0)    IMT9        YES
00384  031C  3B41                     SLL      A3,1          LOAD
00385  031E  824C                     LD       A2,ORTAB,A3 THE NEXT ORDER
       0320  0000  F
```

```
00386  0322  8F20          ABL     EXEC
       0324  00EE  R
00387                  *
00388                  *     TABLES
00389                  *
00390  0326  004C    ORTAB   DATA    BASPED    BACKSPACE EDIT
00391  0328  000B            DATA    WREDIT    WRITE EDIT
00392  032A  0044            DATA    BACSPB    BACKSPACE
00393  032C  0002            DATA    READ      READ
00394  032E  0044            DATA    BACSPB    BACKSPACE
00395  0330  0059            DATA    ERASE     ERASE
00396  0332  0003            DATA    WRITE     WRITE
00397  0334  3A45    BUFEOS  DATA    ':EOS      '
       0336  4F53
       0338  2020
       033A  2020
       033C  2020
       033E  2020
00398                         END
```

SYMBOL TABLE

D:MT	0000	R	I:MT	01B8	R	S:MT	01BE	R	L:VCH		X
C:WAIT		X	E:S011		X	R:TUR4		X	M:RETR		X
R:TURN		X	M:TEX		X	S:TIO		X	S:SST		X
C:ONMT		X	OFLINE	0060	A	REWIND	0064	A	WRITE	0003	A
WREDIT	000B	A	WRFM	0051	A	READ	0002	A	SFMFOR	0050	A
SFMBAC	0054	A	FORSPB	0040	A	BACSPB	0044	A	BASPED	004C	A
ERASE	0059	A	DMTA	002C	R	DMTB	0060	R	DMTC	0064	R
DMTD	0068	R	DMTE	0078	R	DMTF	0084	R	DMTG	0088	R
DMTH	008C	R	DMTI	009A	R	DMTJ	00BC	R	DMTK	00C0	R
DMTL	00C4	R	DMTM	00C8	R	EXEC	00EE	R	DMTC1	0064	R
EXEC2	013A	R	BUFEOS	0334	R	DMTN	00CA	R	EXEC4	00E8	R
EXEC5	0122	R	EXEC6	0104	R	EXEC3	013E	R	ERROR	0156	R
ERROR7	0170	R	ERROR2	0180	R	ERROR1	0178	R	IMT10	02E0	R
ERROR3	01A2	R	ERROR4	01AE	R	ERROR5	0198	R	ERROR6	01AA	R
IMT1	01D2	R	IMT3	022A	R	IMTB	0200	R	IMTA	0214	R
IMT9	02DE	R	IMT2	0262	R	IMT4	0232	R	IMT34	0268	R
IMT5	026C	R	IMT8	02C6	R	IMT6	0294	R	IMT7	02C2	R
IMT67	02B0	R	IMT11	02EA	R	IMT12	02F6	R	ORTAB	0326	R

ASS,ERR, 00000

```
ASM M:RETR
DATE  06 /04 /73   TIME 10H-12M-12S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                IDENT    M:RETR
00001                          * THIS MODULE PROCESSES THREE FUNCTIONS:
00002                          *                * PRINT OF RETRY MESSAGE
00003                          *                * PROCESS OF RY FUNCTION
00004                          *                * PROCESS OF RD FUNCTION
00005                          *
00006                                   ENTRY    M:RETR
00007                                   ENTRY    RYPRO
00008                                   ENTRY    RDPRO
00009                          *
00010                          * ENTRY CONDITIONS FOR M:RETR
00011                          *                * A6 = DWT ADDRESS
00012                          *                * A2 = STATUS
00013                          *                * A1 = FLAG RY OR NOT ; IF 0, RY
00014                          *                * A3 = REQUEST (Right byte)
00015                          * ENTRY CONDITIONS FOR RYPRO OR RDRRO
00016                          *                * A5=  INHCP ADDRESS (IMR A5)
00017                          *                * MESSAGE ECB =ECBCP = BUFCP
00018                          *                * IF ERROR,GO TO ERHB
00019                          *
00020                                   EXTRN    CPRTN
00021                                   EXTRN    CPRTN1
00022                                   EXTRN    ERHB
00023                                   EXTRN    ECBCP
00024                                   EXTRN    BUFCP
00025                                   EXTRN    HB
00026                                   EXTRN    R:TURN
00027                                   EXTRN    R:TUR4
00028                                   EXTRN    R:TUR5
00029                          *
00030  0000  1100          M:RETR   ADK      A1,0
00031  0002  5400  F               RF(4)    RETRY1
00032  0004  8420          RETRY3   LDK,L    A4,TABLE1+2 * PUT IN TABLE
       0006  0000  F
00033  0008  8530                   LDR*     A5,A4       * SEARCH FOR AN EMPTY WORD,
00034  000A  5000  F                RF(0)    RETRY2
00035  000C  1404                   ADK      A4,4
00036  000E  EC20                   CWK      A4,TABLE2
       0010  0000  F
00037  0012  5910                   RB(1)    RETRY3
00038  0014  5F0E                   RB(7)    RETRY3+4
00039                          *
00040  0016  8631          RETRY2   STR      A6,A4
00041  0018  1C02                   SUK      A4,2
00042  001A  E30C                   ECR      A3,A3
00043  001C  E358                   LC       A3,3,A6
       001E  0003
00044  0020  8331                   STR      A3,A4
00045  0022  8338          RETRY1   LDR*     A3,A6       *PUT DN IN BUFFER
00046  0024  8341                   ST       A3,BUFRY+4
```

```
        0026  0000  F
00047   0028  8358          LD        A3,2,A6              * PUT DA IN BUFFER
        002A  0002
00048   002C  233F          ANK       A3,/3F
00049   002E  840C          LDR       A4,A3
00050   0030  3C64          SRL       A4,4
00051   0032  1430          ADK       A4,/30
00052   0034  E410          ECR       A4,A4
00053   0036  230F          ANK       A3,/F
00054   0038  1330          ADK       A3,/30
00055   003A  EB20          CWK       A3,/3A
        003C  003A
00056   003E  5202          RF(2)     *+4
00057   0040  1307          ADK       A3,/7
00058   0042  940C          ADR       A4,A3
00059   0044  8441          ST        A4,BUFRY+6
        0046  0000  F
00060   0048  0430          LDK       A4,/30       * PUT STATUS IN BUFFER
00061   004A  E441          SC        A4,BUFRY+9
        004C  0000  F
00062   004E  E441          SC        A4,BUFRY+10
        0050  0000  F
00063   0052  8308          LDR       A3,A2
00064   0054  3B64          SRL       A3,4
00065   0056  230F          ANK       A3,/F
00066   0058  1330          ADK       A3,/30
00067   005A  E341          SC        A3,BUFRY+11
        005C  0000  F
00068   005E  220F          ANK       A2,/F
00069   0060  1230          ADK       A2,/30
00070   0062  EA20          CWK       A2,/3A
        0064  003A
00071   0066  5202          RF(2)     *+4
00072   0068  1207          ADK       A2,7
00073   006A  E241          SC        A2,BUFRY+12
        006C  0000  F
00074   006E  020F          LDK       A2,15
00075   0070  1100          ADK       A1,0
00076   0072  5402          RF(4)     *+4
00077   0074  1203          ADK       A2,3
00078   0076  8241          ST        A2,ECBRY+4
        0078  0000  F
00079   007A  0706          LDK       A7,6
00080   007C  80A0          LDK,L     A8,ECBRY
        007E  0000  F
00081   0080  2840          ENB
00082   0082  2804          LKM
00083   0084  0001          DATA      1
00084   0086  1100          ADK       A1,0
00085   0088  8820          AB,L(0)   RETURN       *RY* RETURN TO INTERRUPTED PROGRAM
```

```
        008A  0000  X
00086   008C  0200                LDK       A2,0
00087   008E  8F20                AB,L(7)   R;TUR4       * NO RY * END OF IO
        0090  0000  X
00088   0092  0000       TABLE1   DATA      0            * REQUEST= DA
00089   0094  0000                DATA      0            * DWT ADDRESS
00090   0096  0000                DATA      0
00091   0098  0000                DATA      0
00092   009A  0000                DATA      0
00093   009C  0000                DATA      0
00094   009E  0000                DATA      0
00095   00A0  0000                DATA      0
00096   00A2  0000                DATA      0
00097   00A4  0000                DATA      0
00098   00A6  0000                DATA      0
00099   00A8  0000                DATA      0
00100   00AA  0000       TABLE2   DATA      0
00101   00AC  0000                DATA      0
00102   00AE  0000                DATA      0
00103   00B0  2050       BUFRY    DATA      ' PU,DNXX,STAT,RY'
        00B2  552C                          1   4  6  9   14
        00B4  444E
        00B6  5858
        00B8  2C53
        00BA  5441
        00BC  542C
        00BE  5259
00104   00C0  0005       ECBRY    DATA      5
00105   00C2  00AE  R              DATA      BUFRY=2
00106   00C4                       RES       3
00107                      * THIS SEQUENCE PROCESSES RY AND RD
00108   00CA  9035         RYPRO   IMR       A5           * SEARCH FOR THE DEVICE ADDRESS
00109                      RDPRO   EQU       RYPRO
00110                      * GO TO HB MODULE
00111                      * A1 = CHARACTER ADDRESS
00112   00CC  F6A1                 CF        A14,HB
        00CE  0000  X
00113                      * RETURN A2 = BINARY RESULT
00114   00D0  EA20                 CWK       A2,/3F
        00D2  003F
00115   00D4  8920       PRO1     AB,L(1)   ERHB         * ERROR IN THE STATEMENT
        00D6  0000  X
00116   00D8  8308                 LDR       A3,A2        * A3 = DEVICE ADDRESS
00117   00DA  8420                 LDK,L     A4,TABLE1+1  * SEARCH IN TABLE
        00DC  0093  R
00118   00DE  EB31       PRO6     CCR       A3,A4
00119   00E0  5000  F              RF(0)     PRO5
00120   00E2  1404                 ADK       A4,4
00121   00E4  EC20                 CWK       A4,TABLE2
        00E6  00AA  R
```

```
00122  00E8  5916          RB(1)    PRO1
00123  00EA  5F0E          RB(7)    PRO6
00124                *
00125  00EC  1C01    PRO5  SUK      A4,1          * IS IT RD OR RY
00126  00EE  8140          LD       A1,BUFCP
       00F0  0000  X
00127  00F2  E920          CWK      A1,/5244      * RD
       00F4  5244
00128  00F6  5000  F       RF(0)    PRO7
00129  00F8  9320          ADK,L    A3,/41C0      * RY
       00FA  41C0
00130  00FC  8650          LD       A6,2,A4
       00FE  0002
00131  0100  8558          LD       A5,10,A6
       0102  000A
00132  0104  8158          LD       A1,18,A6      *SET ORDER
       0106  0012
00133  0108  21FF          ANK      A1,/FF
00134  010A  1903          SUK      A1,3
00135  010C  5200  F       RF(2)    PROA2
00136  010E  1902          SUK      A1,2
00137  0110  5600  F       RF(6)    PROA2
00138  0112  0102          LDK      A1,2
00139  0114  E159          SC       A1,19,A6
       0116  0013
00140  0118  20BF    PROA2 INH
00141  011A  8341          ST       A3,EXE
       011C  0000  F
00142  011E  8154          LD       A1,2,A5              * RESTORE PARAMETERS
       0120  0002
00143  0122  8159          ST       A1,12,A6
       0124  000C
00144  0126  0100          LDK      A1,0
00145  0128  8159          ST       A1,16,A6
       012A  0010
00146  012C  0200          LDK      A2,0
00147  012E  8338          LDR*     A3,A6
00148  0130  EB20          CWK      A3,/4C50      /4C50=LP  IF YES DO NOT DESTROY
       0132  4C50
00149  0134  5000  F       RF(0)    PROA3         DWT 24 26
00150  0136  EB20          CWK      A3,'MT'     ******************
       0138  4D54
00151  013A  5000  F       RF(0)    PROA3       ******************
00152  013C  B959          MS       2,24,A6
       013E  0018
00153                PROA3 EQU      *
00154  0140  B955          MS       2,6,A5
       0142  0006
00155  0144  E130          LCR      A1,A4
00156  0146  213F          ANK      A1,/3F    ********************
```

```
00157  0148                EXE     RES     1           * CIO START
00158  014A  0100                 LDK     A1,0
00159  014C  8131                 STR     A1,A4       * CLEAR THE RY REQUEST
00160  014E  8151                 ST      A1,2,A4
       0150  0002
00161  0152  2840                 ENB
00162  0154  8F20         PRO8    AB,L(7) CPRTN       * END ,
       0156  0000  X
00163                      *
00164                      ********************************************************************************
00165  0158  8650         PRO7    LD      A6,2,A4     *RD
       015A  0002
00166  015C  0100                 LDK     A1,0
00167  015E  8151                 ST      A1,2,A4     * CLEAR THE REQUEST
       0160  0002
00168  0162  8131                 STR     A1,A4
00169  0164  80D8                 LD      A8,10,A6
       0166  000A
00170  0168  8220                 LDK,L   A2,/8000    UPDATE STATUS
       016A  8000
00171  016C  8720                  LDK,L  A7,CPRTN1     ENTRY TO CPRTN FOR ENDIO
       016E  0000  X
00172                                                  POSSIBILITY TO SCHED, A LAB, AFTER RD
00173  0170  8F20                 AB,L(7) R:TUR5      * UPDATE EVENT
       0172  0000  X
00174                      *
00175                      END
```

SYMBOL TABLE

M;RETR	0000	R	RYPRO	00CA	R	RDPRO	00CA	R	CPRTN		X
CPRTN1		X	ERHB		X	ECBCP		X	BUFCP		X
HB		X	R;TURN		X	R;TUR4		X	R;TUR5		X
RETRY1	0022	R	RETRY3	0004	R	TABLE1	0092	R	RETRY2	0016	R
TABLE2	00AA	R	BUFRY	00B0	R	ECBRY	00C0	R	PRO1	00D4	R
PRO6	00DE	R	PRO5	00EC	R	PRO7	0158	R	PROA2	0118	R
EXE	0148	R	PROA3	0140	R	PRO8	0154	R			

ASS,ERR, 00000

```
ASM M:ASPR
DATE  06 /04 /73   TIME 10H-12M-33S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102    BOMREL
```

```
00000                                  IDENT    M:ASPR
00001                                  ENTRY    M:ASPR
00002                                  EXTRN    CPRTN
00003                                  EXTRN    HB
00004                                  EXTRN    ERHB
00005                                  EXTRN    P:DWLG        LENGTH OF ONE DWT BLOCK
00006                                  EXTRN    D:WT          DEVICE WORK TABLE
00007                                  EXTRN    F:CT          FILE  CODE TABLE
00008                                  EXTRN    D:WTEN        END OF  DWT
00009                           FCTY   EQU      5
00010  0000  9035               M:ASPR IMR      A5
00011  0002  F6A1                      CF       A14,HB
       0004  0000  X
00012  0006  8308                      LDR      A3,A2         A3=FCODE
00013  0008  EB20                      CWK      A3,FCTY
       000A  0005
00014  000C  8820                      AB,L(0)  ERHB          ASSAGN ON TY FILE CODE FORBIDDEN
       000E  0000  X
00015  0010  3B41                      SLL      A3,1          A3= FCT INDEX
00016  0012  EB40                      CW       A3,F:CT       NOT REFERENCED FILE CODE
       0014  0000  X
00017  0016  8920               ERROR  AB,L(1)  ERHB
       0018  0000  X
00018  001A  1101                      ADK      A1,1
00019  001C  E424                      LCR      A4,A1
00020  001E  3C48                      SLL      A4,8
00021  0020  1101                      ADK      A1,1
00022  0022  E424                      LCR      A4,A1          A4 = DEVICE NAME
00023  0024  1101                      ADK      A1,1
00024  0026  EC20                      CWK      A4,/4E4F       <- 'N0'
       0028  4E4F
00025  002A  5400  F                   RF(4)    ASPR1A
00026  002C  0500                      LDK      A5,0
00027  002E  5700  F                   RF       ASPR2A
00028                           *
00029  0030  1F03               ASPR1A SUK      A7,3
00030  0032  8610                      LDR      A6,A4
00031  0034  F6A1                      CF       A14,HB
       0036  0000  X
00032                           *                              A2= XX  DEVICE ADDRESS
00033  0038  8520                      LDK,L    A5,D:WT
       003A  0000  X
00034  003C  EE34               ASPR01 CWR*     A6,A5
00035  003E  5400  F                   RF(4)    ASPR02        NAME  NOT  FOUND
00036  0040  EA54                      CW       A2,2,A5
       0042  0002
00037  0044  5400  F                   RF(4)    ASPR02        ADDRESS NOT FOUND
00038  0046  854D               ASPR2A ST       A5,F:CT,A3    PERFORM  THE ASSAGN
       0048  0000  X
00039  004A  8F20                       AB,L    CPRTN
```

```
        004C  0000  X
00040                     *
00041                     *
00042   004E  9520        ASPRO2    ADK,L     A5,P:DWLG
        0050  0000  X
00043   0052  ED20                  CWK       A5,D:WTEN
        0054  0000  X
00044   0056  5A1C                  RB(2)     ASPRO1        LOOP
00045   0058  8F20                  AB,L      ERHB          THE NAME DOES NOT EXIST  IN  TABLE
        005A  0000  X
00046                               END
```

SYMBOL TABLE

```
M:ASPR  0000  R   CPRTN          X   HB             X   ERHB           X
P:DWLG        X   D:WT           X   F:CT           X   D:WTEN         X
FCTY    0005  A   ERROR   0016   R   ASPR1A  0030   R   ASPR2A  0046   R
ASPR01  003C  R   ASPR02  004E   R
```

ASS.ERR. 00000

```
ASM MANCT
DATE  06 /04 /73    TIME 10H=12M=42S=
LABEL = SAGR                DATE =  270273          PACK NBR =  102      BOMREL
```

```
00000                                  IDENT    MANCT
00001                                  ENTRY    MANCT
00002                                  EXTRN    F:CT
00003                                  EXTRN    ERHB
00004                                  EXTRN    CPRTN
00005                           *
00006                           FICOD  EQU      5            FILE CODE FOR ASR
00007                           *
00008  0000  9035              MANCT  IMR      A5
00009  0002  1101                     ADK      A1,1         FIRST CHARACTER ADDRESS
00010  0004  F6A1                     CF       A14,HEXBIN
       0006  0000  F
00011  0008  EC20                     CWK      A4,0
       000A  0000
00012  000C  8A20                     AB,L(2)  ERHB         INVALID FILE CODE
       000E  0000  X
00013  0010  E441                     SC       A4,ECBMC+1   FILE CODE IN ECB
       0012  0000  F
00014  0014  3C41                     SLL      A4,1
00015  0016  EC40                     CW       A4,F:CT
       0018  0000  X
00016  001A  8920                     AB,L(1)  ERHB         INVALID FILE CODE
       001C  0000  X
00017                           *
00018  001E  F6A1                     CF       A14,HEXBIN
       0020  0000  F
00019  0022  EC20                     CWK      A4,/31       ORDER ANALYSE ?
       0024  0031
00020  0026  5200  F                  RF(2)    LIT
00021  0028  EC20                     CWK      A4,/38
       002A  0038
00022  002C  8920                     AB,L(1)  ERHB         INVALID ORDER
       002E  0000  X
00023  0030  EC20                     CWK      A4,/32
       0032  0032
00024  0034  5000  F                  RF(0)    ER           INVALID ORDER
00025  0036  EC20                     CWK      A4,/35
       0038  0035
00026  003A  5000  F                  RF(0)    ER           INVALID ORDER
00027  003C  8710              ZAP    LDR      A7,A4         LOAD ORDER
00028  003E  80A0                     LDK,L    A8,ECBMC     ECB ADDRESS
       0040  0000  F
00029  0042  2804                     LKM
00030  0044  0001                     DATA     1
00031  0046  8722                     LDR*     A7,A8        IS THE I/O FINISHED ?
00032  0048  5E04                     RB(6)    *-2          NO
00033  004A  80C0                     LD       A8,ECBMC+8   TEST STATUS
       004C  0000  F
00034  004E  8E20                     AB,L(6)  CPRTN
       0050  0000  X
```

```
00035  0052  80A0          LDK,L    A8,ECBERR   I/O ERROR
       0054  0000  F
00036  0056  0706          LDK      A7,6        ASCII WRITE
00037  0058  2804          LKM
00038  005A  0001          DATA     1           PRINT 'I/O ERROR ' ONTO ASR
00039  005C  8722          LDR*     A7,A8       IS THE I/O FINISHED ?
00040  005E  5E04          RB(6)    *-2         NO
00041  0060  8F20          AB,L     CPRTN       YES
       0062  0000  X
00042                       *
00043                       *
00044  0064  EC20          LIT      CWK         A4,/16      * IS A VALID
       0066  0016
00045  0068  582E          RB(0)    ZAP         *  ORDER
00046  006A  8F20          ER       AB,L        ERHB        INVALID ORDER
       006C  0000  X
00047                       *
00048  006E  0005          ECBERR   DATA        FICOD
00049  0070  0000  F               DATA        BUFERR-2
00050  0072  000E                  DATA        14
00051  0074                        RES         2
00052                       *
00053  0078  0D0A          BUFERR   DATA        /0D0A
00054  007A  492F                   DATA        'I/O ERROR '
       007C  3020
       007E  4552
       0080  524F
       0082  5220
00055                       *
00056                       *
00057  0084                ECBMC    RES         1
00058  0086  008E  R               DATA        ECBMC+10
00059  0088  0002                  DATA        2
00060  008A                        RES         3
```

```
00061                          EJECT
00062                  * THIS ROUTINE CONVERTS A HEXA DECIMAL NUMBER CODED ASCII              *
00063                  *                                                                     *
00064                  *         A1 =      BUFFER ADDRESS                                    *
00065                  *         A7 =      CHARACTER NUMBER                                  *
00066                  * EXIT WHEN A NON HEXADECIMAL VALUE IS DETECTED ON A CHARACTER,OR      *
00067                  *  A7= 0                                                              *
00068                  *         A4 =      BINARY RESULT                                     *
00069                  ***************************************************************************
00070                  HEXBIN    EQU       *
00071  0090  0400                LDK       A4,0          INITIALIZATION
00072  0092  0300                LDK       A3,0
00073                  *
00074                  LOOP      EQU       *
00075  0094  E324                LCR       A3,A1         LOAD A CHARACTER
00076  0096  EB21                CCK       A3,/3030
       0098  3030
00077  009A  5200  F             RF(2)     RTN           SPECIAL CHARACTER
00078  009C  EB21                CCK       A3,/4646
       009E  4646
00079  00A0  5100  F             RF(1)     RTN           ALPHA CH ,>F
00080  00A2  EB21                CCK       A3,/4040
       00A4  4040
00081  00A6  5100  F             RF(1)     ALPHA
00082  00A8  EB21                CCK       A3,/3939
       00AA  3939
00083  00AC  5100  F             RF(1)     RTN           SPECIAL CHARACTER
00084                  *
00085  00AE  230F                ANK       A3,/F         NUMERIC CHARACTER
00086  00B0  3C44        ZOUP    SLL       A4,4
00087  00B2  AC0C                ORR       A4,A3
00088  00B4  1101                ADK       A1,1
00089  00B6  1F01                SUK       A7,1          UPDATE CHARACTER NUMBER
00090  00B8  5C26                RB(4)     LOOP
00091                  *
00092                  RTN       EQU       *
00093  00BA  1101                ADK       A1,1          FOR NEXT CHARACTER
00094  00BC  F03A                RTN       A14
00095                  ALPHA     EQU       *
00096  00BE  1B37                SUK       A3,/37
00097  00C0  5F12                RB        ZOUP
00098                             END
```

SYMBOL TABLE

MANCT	0000	R	F$CT		X	ERHB		X	CPRTN		X
FICOD	0005	A	HEXBIN	0090	R	ECBMC	0084	R	LIT	0064	R
ER	006A	R	ZAP	003C	R	ECBERR	006E	R	BUFERR	0078	R
LOOP	0094	R	RTN	00BA	R	ALPHA	00BE	R	ZOUP	00B0	R

ASS.ERR. 00000

```
ASM INTCP
DATE  06 /04 /73    TIME 10H-12M-56S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102      BOMREL
```

```
00000                           IDENT    INTCP
00001                   *
00002                   *
00003                   *
00004                   * INTERRUPT  MODULE  FOR  CONTROL  PANEL
00005                   * SEND CHARACTERS M: ON ASR AND ASK  FOR THE COMMAND
00006                   * GO TO PROCESSOR  WHEN  COMMAND  IS READ
00007                   *        UPON ENTRY  A1,A2  ARE ALREADY  IN  STACK
00008                   ********************************************************************************
00009                   *
00010                           ENTRY    I:ITCP
00011                           ENTRY    INHCP
00012                           ENTRY    INHST
00013                           ENTRY    ERHB
00014                           ENTRY    BUFCP,CPRTN
00015                           ENTRY    CPRTN1
00016                           ENTRY    ECBCP
00017                           ENTRY    BH
00018                   *
00019                   ********************************************************************************
00020                           EXTRN    HB
00021                           EXTRN    DISPAT
00022                           EXTRN    CVTSTB
00023                           EXTRN    CHLEV
00024                           EXTRN    LOADER
00025                           EXTRN    LDFLAG
00026                           EXTRN    PCT61
00027                           EXTRN    M:CMAD
00028                           EXTRN    RYPRO
00029                           EXTRN    RDPRO
00030                           EXTRN    M:ASPR
00031                           EXTRN    ABORT
00032                           EXTRN    PAUSE
00033                           EXTRN    RSTART
00034                           EXTRN    MANCT
00035                   *
00036                   ********************************************************************************
00037                   STADR   EQU      -4
00038  0000  0000       INHCP   DATA     0            IF AN UNTERRUPT  CONTROL PANEL IS
00039  0002                      RES      5
00040  000C  0000       ZON14   DATA     0
00041                   *                             BEING PROCESSED  ,ONLY  HT MSG IS PERMITED
00042                   *
00043  000E  444D       CSTAB1  DATA     'DM'
00044  0010  0000  F             DATA     DMH
00045  0012  4D43                DATA     'MC'
00046  0014  0000  X             DATA      MANCT
00047  0016  4844       CSTAB2  DATA     'HD'
00048  0018  0000  F             DATA     HT
00049  001A  574D                DATA     'WM'
```

```
00050  001C  0000  F          DATA    WM
00051  001E  4C44             DATA    'LD'
00052  0020  0000  X          DATA    LOADER
00053  0022  5354             DATA    'ST'
00054  0024  0000  F          DATA    START
00055  0026  5259             DATA    'RY'
00056  0028  0000  X          DATA    RYPRO
00057  002A  5244             DATA    'RD'
00058  002C  0000  X          DATA    RDPRO
00059  002E  4153             DATA    'AS'
00060  0030  0000  X          DATA    M:ASPR
00061  0032  4142             DATA    'AB'
00062  0034  0000  X          DATA    ABORT
00063  0036  5053             DATA    'PS'
00064  0038  0000  X          DATA    PAUSE
00065  003A  5253             DATA    'RS'
00066  003C  0000  X          DATA    RSTART
00067  003E  0000             DATA    0
00068                    *
00069  0040  BC3F       I:ITCP MSR     8,A15
00070  0042  20DF             RIT     /0F
00071  0044  8520             LDK.L   A5,INHCP     A5= INHCP
       0046  0000  R
00072  0048  8634             LDR*    A6,A5
00073  004A  FE20             CWK     A6,2
       004C  0002
00074  004E  5204             RF(2)   *+6
00075  0050  0600             LDK     A6,0         NO SCHED LAB
00076  0052  5700  F          RF      NOP
00077  0054  0131             LDK     A1,49
00078  0056  F7A1             CF      A15,CHLEV
       0058  0000  X
00079                    *WE ARE NOW AT LEVEL 49 ,ENB,MASTER MODE
00080  005A  1600             ADK     A6,0
00081  005C  5100  F          RF(1)   BUSY
00082  005E  86C1             ST      A14,USER14
       0060  0000  F
00083  0062  86A0             LDK.L   A14,ZON14
       0064  000C  R
00084  0066  1602       BUSY  ADK     A6,2
00085  0068  8635             STR     A6,A5
00086  006A  0705             LDK     A7,5
00087  006C  80A0             LDK.L   A8,ECBCT
       006E  0000  F
00088  0070  2804             LKM
00089  0072  0001             DATA    1
00090  0074  8122             LDR*    A1,A8        WAIT UNTIL OUTPUT
00091  0076  5E04             RB(6)   *-2          IS FINISHED
00092  0078  0702             LDK     A7,2
00093  007A  80A0             LDK.L   A8,ECBCP     INPUT IN BUFCP
```

```
                007C  0000  F
00094           007E  2804                LKM
00095           0080  0001                DATA      1
00096           0082  8122                LDR*      A1,A8
00097           0084  5E04                RB(6)     *-2
00098           0086  1E02                SUK       A6,2
00099           0088  8635                STR       A6,A5
00100           008A  0100                LDK       A1,0
00101           008C  8141                ST        A1,STOPFG
                008E  0000  F
00102           0090  8120                LDK,L     A1,BUFCP
                0092  0000  F
00103           0094  8424                LDR*      A4,A1
00104           0096  1102                ADK       A1,2
00105           0098  8740                LD        A7,ECBCP+6      -> eff length
                009A  0000  F
00106           009C  1F02                SUK       A7,2
00107           009E  8234                LDR*      A2,A5
00108           00A0  5400  F             RF(4)     INTCP1
00109           00A2  0200                LDK       A2,CSTAB1-CSTAB1
00110           00A4  5702                RF        *+4
00111           00A6  0208      INTCP1     LDK      A2,CSTAB2-CSTAB1
00112           00A8  8348      INTCP2     LD       A3,CSTAB1,A2
                00AA  000E  R
00113           00AC  5000  F             RF(0)      INTCP3
00114           00AE  EC0C                CWR       A4,A3
00115           00B0  8848                ABI(0)    CSTAB1+2,A2
                00B2  0010  R
00116           00B4  1204                ADK       A2,4
00117           00B6  5F10                RB        INTCP2
00118           00B8  9041      INTCP3    IM        FAULT
                00BA  0000  F
00119           00BC  8F20                AB,L(7)   ERHB
                00BE  0000  F
00120           00C0  9041      HT        IM        STOPFG
                00C2  0000  F
00121           00C4  9035                IMR       A5
00122                         CPRTN       EQU       *
00123           00C6  0600                LDK       A6,0          NO SCHED. LAB.
00124                         CPRTN1      EQU       *             ENTRY FROM RELEASE DEVICE MODULE
00125                                                             POSSIBILITY TO SCHED. A LABEL
00126           00C8  8120                LDK,L      A1,FAULT-FAULT
                00CA  0000  F
00127                         FAULT       EQU       *-2
00128           00CC  5400  F             RF(4)     ERRET
00129           00CE  8140                LD        A1,INHCP
                00D0  0000  R
00130           00D2  E920                CWK       A1,2
                00D4  0002
00131           00D6  5000  F             RF(0)     SECOND
```

```
00132  00D8  86A0      MAINRT   LDK,L    A14,USER14
       00DA  0000  F
00133                  USER14   EQU      *-2
00134  00DC  8140      RETURN   LD       A1,INHCP
       00DE  0000  R
00135                  SECOND   EQU      RETURN
00136  00E0  1901               SUK      A1,1
00137  00E2  8141               ST       A1,INHCP
       00E4  0000  R
00138  00E6  0100                LDK      A1,0
00139  00E8  8141                ST       A1,FAULT
       00EA  00CA  R
00140                  NOP      EQU      *
00141  00EC  8F20               AB,L     DISPAT
       00EE  0000  X
00142  00F0  9035      ERRET    IMR      A5
00143  00F2  8134               LDR*     A1,A5
00144  00F4  F920               CWK      A1,2
       00F6  0002
00145  00F8  581E               RB(0)    SECOND
00146  00FA  5F24               RB       MAINRT
00147                  ************
00148                  ************                                        *
00149  00FC  0005      ECBCT    DATA     5
00150  00FE  0000  F            DATA     BUFCT
00151  0100  0002               DATA     2
00152  0102                     RES      3
00153                  *                                                   *
00154                  ************                                        *
00155  0108  4D3A      BUFCT     DATA     /4D3A        'M:'
00156                  ************
00157  010A  0005      ECBCP    DATA     5
00158  010C  0000  F            DATA     BUFCP
00159  010E  0048               DATA     72
00160  0110  0000               DATA     0
00161  0112  0000               DATA     0
00162  0114  0020               DATA     X'0020'
00163  0116            BUFCP    RES      40
00164                  *
00165                  *
00166                  ********************************************************************************
```

```
00167                          EJECT
00168                  ********************************************************************************
00169                  *
00170                  ********************************************************************************
00171                  *  WRITE MEMORY
00172                  *
00173                  *   CONTENT  OF  BUFFER : WH ABCD  VAL0 VAL1 VAL2 ---- ----
00174                  *
00175                  *
00176                  ********************************************************************************
00177                  ********************************************************************************
00178  0166  9035      WM        IMR       A5
00179  0168  F6A1                CF        A14,HB
       016A  0000  X
00180  016C  F6A1                CF        A14,M:CMAD   GO COMPARE ADDRESS
       016E  0000  X
00181  0170  8308                LDR          A3,A2   A36 ADDRESS WHERE TO WRITE
00182  0172  1700                ADK       A7,0
00183  0174  8820                AB,L(0)   ERHB
       0176  0000  F
00184  0178  1700      WM0       ADK       A7,0
00185  017A  5000  F             RF(0)     WM1          NOTHING  MORE  IN  BUFFER
00186  017C  F6A1                CF        A14,HB
       017E  0000  X
00187  0180  822D                STR       A2,A3        WRITE ONTO MEMORY
00188  0182  1302                ADK       A3,2
00189  0184  5F0E                RB(7)     WM0
00190  0186  5FC2      WM1       RB(7)     CPRTN
00191                  *
00192                  *
00193                  *
00194                  ********************************************************************************
```

```
00195                          EJECT
00196                 ********************************************************************************
00197                 *
00198                 * HEXADECIMAL   MEMORY  DUMP
00199                 *        THIS MODULE  OUTPUT THE  CONTENT OF CORE MEMORY
00200                 *        ON ASR  , BETWEEN  TWO  GIVEN  ADDRESS
00201                 *
00202                 *        SYNTAX    OF   THE  COMMAND LINE  #DH VAL1 VAL2
00203                 *             WHERE  VAL1 AND VAL2  ARE TWO HEXADECIMAL ADDRESSES
00204                 *
00205                 *
00206                 *        USE OF REGISTERS : A1 THRU A7
00207                 *
00208                 *        DMH  USES  A1,A2,A3,A4,A5,A6,A7
00209                 *        BH   USES  A4,A5,A6,A7,A1
00210                 *
00211                 *
00212                 ********* VAL1,VAL2  ARE  ALREADY IN BUFCP
00213                 *
00214                 *
00215                 *
00216                 ********************************************************************************
00217  0188  9035     DMH      IMR      A5
00218  018A  F6A1              CF       A14,HB
       018C  0000  X
00219  018E  F6A1              CF       A14,M:CMAD   GO COMPARE ADDRESS
       0190  0000  X
00220  0192  8308              LDR      A3,A2         A3 =FIRST ADDRESS
00221  0194  A320              ANK,L    A3,/FFF0
       0196  FFF0
00222  0198  F6A1              CF       A14,HB
       019A  0000  X
00223  019C  F6A1              CF       A14,M:CMAD   GO COMPARE ADDRESS
       019E  0000  X
00224  01A0  2A0E              ORK      A2,/E
00225  01A2  1202              ADK      A2,2
00226  01A4  3A61              SRL      A2,1
00227  01A6  3B61              SRL      A3,1
00228  01A8  EB08              CWR      A3,A2
00229                             AB,L(1)  ERHB
00230  01AA  3A41              SLL      A2,1
00231  01AC  3B41              SLL      A3,1
00232  01AE  0131              LDK      A1,/31
00233  01B0  8141              ST       A1,BUFCP-2
       01B2  0114  R
00234  01B4  0600              LDK      A6,0
00235  01B6  F6A1              CF       A14,CIO
       01B8  0000  F
00236  01BA  0120              LDK      A1,/20
00237  01BC  8141              ST       A1,BUFCP-2
```

```
        01BE  0114  R
00238   01C0  8620        DMH0    LDK,L   A6,BUFCP    A6= ADDRESS WHERE TO STORE CHARACTERS
        01C2  0116  R
00239   01C4  8120                LDK,L   A1,/2020
        01C6  2020
00240   01C8  870C                LDR     A7,A3
00241   01CA  F6A1                CF      A14,BH       BH  CONVERTS  NUMBER A7 AND STORES
        01CC  0000  F
00242                     *                            IT  IN  BUFCP
00243   01CE  8139                STR     A1,A6                STORE TWO MORE BLANKS
00244   01D0  1602                ADK     A6,2
00245                     *
00246                     *
00247   01D2  0500                LDK     A5,0         COUNT  OF WORDS
00248   01D4  872C                LDR*    A7,A3       TAKE FIRST WORD
00249                     *
00250   01D6  1501        DMH1    ADK     A5,1
00251   01D8  1302                ADK     A3,2
00252   01DA  EB08                CWR     A3,A2       IS IT FINISH
00253   01DC  5000  F             RF(0)   DMHA
00254   01DE  842C                LDR*    A4,A3       A4=NEXT WORD
00255   01E0  EC1C                CWR     A4,A7       IS IT THE SAME THAN FIRST WORD
00256   01E2  580E                RB(0)   DMH1        YES,LOOP
00257                     *
00258   01E4  ED20                CWK     A5,7        NO  ARE WE STILL ON FIRST LINE
        01E6  0007
00259   01E8  5100  F             RF(1)   DMHA             NO  GO  TO PRINT  BLANKS
00260   01EA  0400                LDK     A4,0             UES  ,PREPARE  THE LINE
00261   01EC  F6A1        DMH2    CF      A14,BH           CONVERT AND STORE  THE FIRST WORD
        01EE  0000  F
00262   01F0  F6A1                CF      A14,STOINT  STORE INTEPRATION
        01F2  0000  F
00263   01F4  1401                ADK     A4,1
00264   01F6  ED10                CWR     A5,A4
00265   01F8  590E                RB(1)    DMH2
00266                     *
00267   01FA  872C        DMH3    LDR*    A7,A3
00268   01FC  1302                ADK     A3,2
00269   01FE  F6A1                CF      A14,BH           CONVERT AND STORE  THE
        0200  0000  F
00270   0202  F6A1                CF      A14,STOINT  REMAIN  OF  THE  LINE
        0204  0000  F
00271   0206  1401                ADK     A4,1
00272   0208  EC20                CWK     A4,8
        020A  0008
00273   020C  5A14                RB(2)   DMH3
00274   020E  0648                LDK     A6,72
00275   0210  F6A1        DMH5    CF      A14,CIO     CALL OUTPUT FUNCTION
        0212  0000  F
00276   0214  EB08                CWR     A3,A2
```

```
00277  0216  5C58              RB(4)    DMH0    NO LOOP TO BEGIN
00278  0218  8F20              AB,L(7)  CPRTN       RETURN
       021A  00C6  R
00279  021C  0002      ECBDH   DATA     2           LISTING STANDARD
00280  021E  0114  R           DATA     BUFCP-2
00281  0220  0049              DATA     73
00282  0222                    RES      3
00283                  ** THIS IS THE CASE  WHERE  ALL THE NUMBERS OF  THE  LINE
00284                  **                  ARE DENTICAL
00285  0228  F6A1      DMHA    CF       A14,BH       CONVERT  AND STORE  FIRST  WORD
       022A  0000  F
00286  022C  A320              ANK,L    A3,/FFF0
       022E  FFF0
00287  0230  060C              LDK      A6,12        NUMBER OF CHARACTER IN BUFCP
00288  0232  5F24              RB(7)    DMH5
00289                  *
00290                  *
00291                  ********************************************************************************
00292                  ********************************************************************************
00293                  *
00294                  *
00295  0234  8720      CIO     LDK,L    A7,STOPFG
       0236  0000  F
00296                  STOPFG  EQU      *-2
00297  0238  5004              RF(0)    *+6
00298  023A  8F20              AB,L     CPRTN
       023C  00C6  R
00299  023E  1602              ADK      A6,2
00300  0240  8641              ST       A6,ECBDH+4
       0242  0220  R
00301  0244  80A0              LDK,L    A8,ECBDH
       0246  021C  R
00302  0248  0706              LDK      A7,6
00303  024A  2804              LKM
00304  024C  0001              DATA     1
00305  024E  8722              LDR*     A7,A8
00306  0250  5E04              RB(6)    *-2
00307  0252  F03A              RTN      A14
00308                  *
00309                  ********************************************************************************
00310                  ********************************************************************************
00311                  *  STORE INTEPRATION ROUTINE
00312                  * A7 CONTAINS THE CHARACTERS TO BE STORED
00313                  *
00314                  *
00315  0254  823B      STOINT  STR      A2,A14
00316  0256  9EA0              SUK,L    A14,2
       0258  0002
00317  025A  873B              STR      A7,A14
00318  025C  3C41              SLL      A4,1
```

```
00319  025E  0200                    LDK       A2,0
00320  0260  E09C                    ECR       A8,A7
00321  0262  27FF          DMH2C     ANK       A7,/FF
00322  0264  EF20                    CWK       A7,/20
       0266  0020
00323  0268  5200  F                 RF(2)     DMH2A
00324  026A  EF20                    CWK       A7,/60
       026C  0060
00325  026E  5200  F                 RF(2)     DMH2B
00326  0270  0720          DMH2A     LDK       A7,/20
00327  0272  1200          DMH2B     ADK       A2,0
00328  0274  5100  F                 RF(1)     DMH2D
00329  0276  E751                    SC        A7,BUFCP+57,A4
       0278  014F  R
00330  027A  8702                    LDR       A7,A8
00331  027C  1201                    ADK       A2,1
00332  027E  5F1E                    RB(7)     DMH2C
00333  0280  E751          DMH2D     SC        A7,BUFCP+56,A4
       0282  014E  R
00334  0284  3C61                    SRL       A4,1
00335  0286  873A                    LDR*      A7,A14
00336  0288  96A0                    ADK.L     A14,2
       028A  0002
00337  028C  823A                    LDR*      A2,A14
00338  028E  F03A                    RTN       A14
00339                      *
00340                      *
00341                      ********************************************************************************
00342                      ********************************************************************************
00343                      *
00344                      ********************************************************************************
```

```
00345                                   EJECT
00346                   ********************************************************************************
00347                   * BH SUBROUTINE    CONVERT THE NUMBER GIVEN IN A7
00348                   *         INTO      HEXADECIMAL  CHARACTERS , AND STORE IN BUFCP
00349                   *         AFTER  THAT PUT A BLANK LOCATION IN  BUFCP
00350                   *
00351                   *
00352                   *         UPON  ENTRY      A7=  NUMBER (BINARY) TO  CONVERT)
00353                   *                          A6=  ADDRESS OF STORING AREA
00354                   *                          A1=  BLANKS (=/XX20)
00355                   *
00356                   *         UPON  EXIT       A6  IS  UPDATED
00357                   *                          A7  NOT  DESTROYED
00358                   *
00359                   *
00360                   ********************************************************************************
00361                   ********************************************************************************
00362  0290  853B       BH          STR       A5,A14
00363  0292  9EA0                   SUK,L     A14,2
       0294  0002
00364  0296  843B                   STR       A4,A14
00365  0298  0404                   LDK       A4,4
00366  029A  3FEC       BH0         SRC       A7,12
00367  029C  050F                   LDK       A5,X'F'         CONVERT
00368  029E  A51C                   ANR       A5,A7
00369  02A0  1530                   ADK       A5,X'30'
00370  02A2  ED20                   CWK       A5,X'3A'
       02A4  003A
00371  02A6  5200  F                RF(2)     BH2
00372  02A8  1507                   ADK       A5,X'7'
00373  02AA  E539       BH2         SCR       A5,A6           STORE VIA  A6
00374  02AC  1601                   ADK       A6,1
00375  02AE  1C01                   SUK       A4,1
00376  02B0  EC20                   CWK       A4,0            IS IT FINISHED
       02B2  0000
00377  02B4  591C                   RB(1)     BH0
00378  02B6  E139                   SCR       A1,A6
00379  02B8  1601                   ADK       A6,1
00380  02BA  E139                   SCR       A1,A6
00381  02BC  1601                   ADK       A6,1
00382  02BE  843A                   LDR*      A4,A14
00383  02C0  96A0                   ADK,L     A14,2
       02C2  0002
00384  02C4  853A                   LDR*      A5,A14
00385  02C6  F03A                   RTN       A14
00386                   ********************************************************************************
```

```
00387                                   EJECT
00388                    ********************************************************************************
00389                    ********************************************************************************
00390  02C8  9035        START     IMR       A5
00391  02CA  8120                  LDK,L      A1,0
       02CC  0000
00392                    INHST     EQU       *-2
00393  02CE  5100  F               RF(1)     ERHB
00394  02D0  8140                  LD        A1,LDFLAG
       02D2  0000  X
00395  02D4  5000  F               RF(0)     ERHB
00396  02D6  8140                  LD        A1,PCT61+STADR
       02D8  FFFC  X
00397  02DA  5000  F               RF(0)     ERHB
00398  02DC  9041                  IM        INHST
       02DE  02CC  R
00399  02E0  8F20                  AB,L      CPRTN
       02E2  00C6  R
00400                    *
00401                    ********************************************************************************
00402                    ********************************************************************************
00403                    *
00404  02E4  80A0        ERHB      LDK,L     A8,ECBER
       02E6  0000  F
00405  02E8  0706                  LDK       A7,6
00406  02EA  2804                  LKM
00407  02EC  0001                  DATA      1
00408  02EE  8122                  LDR*      A1,A8
00409  02F0  5E04                  RB(6)     *-2
00410  02F2  8F20                  AB,L      CPRTN
       02F4  00C6  R
00411                    *
00412                    ********************************************************************************
00413  02F6  0005        ECBER     DATA      5
00414  02F8  0000  F               DATA      ERMSG-2
00415  02FA  0004                   DATA      4
00416  02FC                        RES       3
00417  0302  0000                  DATA      0
00418                    *
00419  0304  4552        ERMSG     DATA      'ER'
00420                    *
00421                               END
```

SYMBOL TABLE

I:ITCP	0040	R	INHCP	0000	R	INHST	02CC	R	ERHB	02E4	R
BUFCP	0116	R	CPRTN	00C6	R	CPRTN1	00C8	R	ECBCP	010A	R
BH	0290	R	HB		X	DISPAT		X	CVTSTB		X
CHLEV		X	LOADER		X	LDFLAG		X	PCT61		X
M:CMAD		X	RYPRO		X	RDPRO		X	M:ASPR		X
ABORT		X	PAUSE		X	RSTART		X	MANCT		X
STADR	FFFC	A	ZON14	000C	R	CSTAB1	000E	R	DMH	0188	R
CSTAB2	0016	R	HT	00C0	R	WM	0166	R	START	02C8	R
NOP	00EC	R	BUSY	0066	R	USER14	00DA	R	ECBCT	00FC	R
STOPFG	0236	R	INTCP1	00A6	R	INTCP2	00A8	R	INTCP3	0088	R
FAULT	00CA	R	ERRET	00F0	R	SECOND	00DC	R	MAINRT	00D8	R
RETURN	00DC	R	BUFCT	0108	R	WM0	0178	R	WM1	0186	R
CIO	0234	R	DMH0	01C0	R	DMH1	01D6	R	DMHA	0228	R
DMH2	01EC	R	STOINT	0254	R	DMH3	01FA	R	DMH5	0210	R
ECBDH	021C	R	DMH2C	0262	R	DMH2A	0270	R	DMH2B	0272	R
DMH2D	0280	R	BH0	029A	R	BH2	02AA	R	ECBER	02F6	R
ERMSG	0304	R									

ASS.ERR. 00000

```
ASM ABORT
DATE  06 /04 /73   TIME 10H-13M-37S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                          IDENT    ABORT
00001                      * THIS MODULE PROCESS THE ABORT  CALL ,FROM ANY
00002                      *     INTERRUPT OR MACRO PROCESSOR
00003                      *
00004                      *   AND  THE 'BRANCH ON LABEL IN CASE OF ABORT' MACRO
00005                      *
00006                           ENTRY    ABADR
00007                           ENTRY    SYSAB
00008                           ENTRY    ABORT
00009                           ENTRY    MCABFL
00010                           EXTRN    PCT61
00011                           EXTRN    DISPAT
00012                           EXTRN    MAINEX     **********************************
00013                           EXTRN    BH
00014                           EXTRN    CHLEV
00015                      *                                                          *
00016                      STATUS   EQU      0
00017                      ABLEV    EQU      50
00018                      *                                                          *
00019                      **       ABORT    PROCESSING
00020                      *
00021                      *            IF A MACRO ABADR HAS BEEN SEND  , GIVE CONTROL TO
00022                      *            USER VIA PARAMETERS  BLOCK.
00023                      *
00024                      *            IF NOT  SEND   MESSAGE  ABORT  CODE  ADDR
00025                      *
00026                      *
00027                      *            IF ABORT FROM  OPERATOR ,  BRANCH TO RINIT
00028  0000                            RES      4
00029                      ZON14    EQU      *-2
00030  0008  0005          ECBAB    DATA     5
00031  000A  0000  F                 DATA     ABBUF
00032  000C  0010                    DATA     16
00033  000E                          RES      2
00034  0012  0030          ABBUF    DATA     /0030
00035  0014  4142                    DATA     'AB  '
       0016  2020
00036  0018  4344          CODE     DATA     'CD  '
       001A  2020
00037  001C  4144          ADDR     DATA     'ADDR'
       001E  4452
00038  0020  0000                    DATA     0
```

```
00039                          EJECT
00040                  *   MACRO  ABADR  PROCESSING  :
00041                  *
00042                  *        UPON ENTRY      A8=LABEL  → user abort addr on which to branch
00043                  *                        A7=ADDRESS OF A 3-WORDS BLOCK WHICH WILL CONTAIN
00044                  *                               ABORT PARAMETERS : 1ST WORD: ABORT CODE
00045                  *                                                  2ND WORD: ABORTED PSW
00046                  *                                                  3TH WORD: ABORTED ADDR
00047                  *
00048                  *      *** WARNING  : THIS  SEQUENCE  IS NOT A SCHEDULED LABEL SEQUENCE
00049                  *
00050                  *
00051  0022  8741      ABADR   ST      A7,CTRLBL            CBA
       0024  0000  F
00052  0026  80C1              ST      A8,CTRLBL+2          LABEL
       0028  0000  F
00053  002A  9041              IM      MCABFL
       002C  0000  F
00054  002E  0700              LDK     A7,0
00055  0030  875F              ST      A7,4,A15             NORMAL RETURN
       0032  0004
00056  0034  8F20              AB,L    DISPAT
       0036  0000  X
00057  0038  0000      CTRLBL  DATA    0
00058  003A  0000              DATA    0
00059  003C  1600      SYSAB   ADK     A6,0          ANY SCHED. LABEL.  → entry: {A2 = abort code
00060  003E  5000  F           RF(0)   SYSAB1        NO                          {A3 = Adr. of abortion
00061  0040  8120              LDK,L   A1,-1
       0042  FFFF
00062  0044  9141              AD,S    A1,PCT61+STATUS DECR. EV. COUNT
       0046  0000  X
00063  0048  8120      SYSAB1  LDK,L    A1,0
       004A  0000
00064                  MCABFL  EQU     *-2
00065  004C  5000  F           RF(0)   ABRT1
00066  004E  8740              LD      A7,CTRLBL    TAKE  CONTROL BLOCK ADDRESS
       0050  0038  R
00067  0052  823D              STR     A2,A7        STORE CODE IN  BLOCK+0
00068  0054  825E              LD      A2,18,A15    interrupted PSW
       0056  0012
00069  0058  825D              ST      A2,2,A7              STORE USER PSW IN BLOCK+2
       005A  0002
00070  005C  835D              ST      A3,4,A7      STORE ABORTED ADDRESS IN BLOCK+4
       005E  0004
00071  0060  8740              LD      A7,CTRLBL+2  TAKE USER ABORT ADDRESS
       0062  003A  R
00072  0064  875F              ST      A7,20,A15
       0066  0014
00073  0068  0600              LDK     A6,0         NO SCHEDULED LABEL
00074  006A  8641              ST      A6,MCABFL
```

```
        006C  004A  R
00075   006E  8F20              AB,L      DISPAT
        0070  0000  X
```

```
00076                                   EJECT
00077  0072  86C1        ABRT1   ST      A14,SAV14
       0074  0000  F
00078  0076  86A0                LDK,L   A14,ZON14
       0078  0006  R
00079  007A  0132                LDK     A1,ABLEV
00080  007C  20BF                INH
00081  007E  F7A1                CF      A15,CHLEV       LEVEL  48, ENB  ,C,PANEL INTERRUPT
       0080  0000  X
00082                                                    CANT GO THRU
00083  0082  0120                LDK     A1,/20
00084  0084  9220                ADK,L   A2,/2030
       0086  2030
00085  0088  8241                ST      A2,CODE         PUT  MESSAGE IN
       008A  0018  R
00086  008C  870C                LDR     A7,A3           BUFFER
00087  008E  8620                LDK,L   A6,ADDR
       0090  001C  R
00088  0092  F6A1                CF      A14,BH
       0094  0000  X
00089                           *
00090                           *
00091  0096  80A0                LDK,L   A8,ECBAB        OUTPUT  MESSAGE
       0098  0008  R
00092  009A  0706                LDK     A7,6
00093  009C  2804                LKM
00094  009E  0001                DATA    1
00095                           *
00096  00A0  8122                LDR*    A1,A8
00097  00A2  5E04                RB(6)   *-2
00098                           *
00099  00A4  86A0                LDK,L   A14,SAV14
       00A6  0000  F
00100                           SAV14   EQU     *-2
00101                           *
00102  00A8  20BF               ABORT    INH
00103  00AA  0132                LDK     A1,ABLEV        CHANGE LEVEL TO WAIT END OF IO
00104  00AC  F7A1                CF      A15,CHLEV
       00AE  0000  X
00105  00B0  0140                LDK     A1,/40
00106  00B2  A941                OR,S    A1,PCT61+STATUS         SET ABORT BIT IN PCT
       00B4  0000  X
00107                           *
00108  00B6  8140                ABWT    LD      A1,PCT61+STATUS
       00B8  0000  X
00109  00BA  213F                ANK     A1,/3F
00110  00BC  5C08                RB(4)   ABWT            WAIT UNTIL EVENT IS NULL
00111  00BE  8F20                ABL     MAINEX      **********************************
       00C0  0000  X
00112                           END
```

SYMBOL TABLE

ABADR	0022	R	SYSAB	003C	R	ABORT	00A8	R	MCABFL	004A	R
PCT61		X	DISPAT		X	MAINEX		X	BH		X
CHLEV		X	STATUS	0000	A	ABLEV	0032	A	ZON14	0006	R
ECBAB	0008	R	ABBUF	0012	R	CODE	0018	R	ADDR	001C	R
CTRLBL	0038	R	SYSAB1	0048	R	ABRT1	0072	R	SAV14	00A6	R
ABWT	00B6	R									

ASS.ERR. 00000

```
ASM PAUSE
DATE  06 /04 /73    TIME 10H-13M-53S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102    BOMREL
```

```
00000                                    IDENT    PAUSE
00001                                    ENTRY    PAUSE
00002                                    ENTRY    PSMAC
00003                                    EXTRN    CPRTN
00004                                    EXTRN    INHST
00005                                    EXTRN    ERHB
00006                                    EXTRN    DISPAT
00007                                    EXTRN    PCT61
00008                                    EXTRN    CHLEV
00009                          STATUS    EQU      0
00010  0000  9035              PAUSE     IMR      A5
00011  0002  8140                        LD       A1,INHST
       0004  0000  X
00012  0006  8820                        AB.L(0)  ERHB
       0008  0000  X
00013  000A  8120              PAUSE1    LDK.L    A1,/4000
       000C  4000
00014  000E  A941                        OR.S     A1,PCT61+STATUS
       0010  0000  X
00015  0012  8F20                        AB.L     CPRTN
       0014  0000  X
00016                          *
00017                          *                                        *
00018                          *                                        *
00019  0016  0130              PSMAC     LDK      A1,48
00020  0018  F7A1                        CF       A15,CHLEV
       001A  0000  X
00021  001C  821C                        LDR      A2,A7
00022  001E  8102                        LDR      A1,A8
00023  0020  A941                        MS       2,ECBMES+2
       0022  0000  F
00024  0024  80A0                        LDK.L    A8,ECBMES
       0026  0000  F
00025  0028  0706                        LDK      A7,6
00026  002A  2804                        LKM
00027  002C  0001                        DATA     1
00028  002E  8122                        LDR*     A1,A8
00029  0030  5E04                        RB(6)    *-2
00030  0032  8120                         LDK.L   A1,/4000
       0034  4000
00031  0036  A941                        OR.S     A1,PCT61+STATUS
       0038  0000  X
00032  003A  8F20                        AB.L     DISPAT
       003C  0000  X
00033                          *                                        *
00034                          *                                        *
00035                          *                                        *
00036                          *                                        *
00037  003E  00EF              ECBMES    DATA     /EF
00038  0040  0000                        DATA     0
```

```
00039  0042  0000              DATA    0
00040  0044                    RES     2
00041  0048  0000              DATA    0
00042                  *
00043                          END
```

```
          SYMBOL TABLE

PAUSE    0000  R    PSMAC    0016  R    CPRTN          X    INHST          X
ERHB           X    DISPAT          X    PCT61          X    CHLEV          X
STATUS   0000  A    PAUSE1   000A  R    ECBMES   003E  R

          ASS.ERR.     00000
```

```
ASM RSTART
DATE  06 /04 /73    TIME 10H-14M-01S-
LABEL = SAGR                DATE =  270273          PACK NBR =  102    BOMREL
```

```
00000                                    IDENT    RSTART
00001                                    ENTRY    RSTART
00002                                    EXTRN    CPRTN
00003                                    EXTRN    PCT61
00004                                    EXTRN    ERHB
00005                                    EXTRN    HB
00006                            STATUS  EQU      0
00007  0000  9035               RSTART  IMR      A5
00008  0002  8620                       LDK,L    A6,/4000
       0004  4000
00009  0006  8520                       LDK,L    A5,PCT61+STATUS
       0008  0000  X
00010  000A  8334                       LDR*     A3,A5
00011  000C  A60D                       TM       A6,A3
00012  000E  8820                       AB,L(0)  ERHB
       0010  0000  X
00013  0012  1700                       ADK      A7,0
00014  0014  5000  F                    RF(0)    SKIP
00015  0016  F6A1                       CF       A14,HB
       0018  0000  X
00016  001A  825F                       ST       A2,24,A15
       001C  0018
00017  001E  FE18               SKIP    C1R      A6,A6
00018  0020  A635                       ANR,S    A6,A5
00019  0022  8F20                       AB,L     CPRTN
       0024  0000  X
00020                                    END
```

SYMBOL TABLE

```
RSTART  0000  R   CPRTN          X   PCT61          X   ERHB           X
HB            X   STATUS  0000  A   SKIP    001E   R
```

ASS,ERR, 00000

```
ASM LOADER
DATE  06 /04 /73   TIME 10H-14M-07S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                          IDENT    LOADER
00001                  *
00002                  ********************************************************************************
00003                  * SYSTEM LOADER                                                                  *
00004                  *                                                                               *
00005                  *          THIS MODULE LOADS A USER PROGRAM AT BASE ADDRESS CVTBKA+16            *
00006                  *           HAVING FIRST LEFT 16 WORDS FOR THE USER SAVE AREA                   *
00007                  *                                                                               *
00008                  *           SYNTAX OF THE COMMAND LINE : #LD M                                  *
00009                  *                                  WHERE M IS OPTIONAL(MASTER MODE FLAG)        *
00010                  *                    USE OF REGISTERS:  A1 THRU A8                              *
00011                  *                                                                               *
00012                  *                                                                               *
00013                  ********************************************************************************
00014                  *
00015                          ENTRY    LOADER,LDFLAG
00016                  *
00017                          EXTRN    PCT61
00018                          EXTRN    CVTMSZ
00019                          EXTRN    CVTBKA
00020                          EXTRN    CVTSBA
00021                          EXTRN    CVTBBA
00022                          EXTRN    CPRTN
00023                          EXTRN    BUFCP
00024                          EXTRN    INHCP
00025                          EXTRN    ERHB
00026                          EXTRN    INHST
00027                          EXTRN    BH
00028                          EXTRN    HB
00029
00030                  *
00031                          EXTRN    ECBCP
00032                  USPSW   EQU      /F800
00033                  STADR   EQU      -4
00034                  SAVADR  EQU      -2
00035                  COMAR   EQU      96          48 WORDS COMMUNICATON AREA
00036                  FCASR   EQU      5
00037                  *
00038  0000  0000      LDFLAG  DATA     0
00039                  *
00040  0002  0004      ECBCLU  DATA     4
00041  0004  0000  X           DATA     BUFCP
00042  0006  0046              DATA     70
00043  0008                     RES      2
00044  000C  0000              DATA     0
00045                  *
00046                  *
00047  000E  9035      LOADER  IMR      A5
00048  0010  8240              LD       A2,INHST
       0012  0000  X
```

```
00049  0014  5100  F            RF(1)     ER
00050  0016  0201               LDK       A2,1
00051  0018  8241               ST        A2,MASTER
       001A  0000  F
00052  001C  81C0               LD        A9,CVTBKA
       001E  0000  X
00053  0020  91A0               ADK,L     A9,COMAR
       0022  0060
00054  0024  1700               ADK       A7,0
00055  0026  5000  F            RF(0)     PRAFL
00056  0028  EF20               CWK       A7,2
       002A  0002
00057  002C  5400  F            RF(4)     LOAD2
00058  002E  E224     LOAD1     LCR       A2,A1
00059  0030  EA20               CWK       A2,/20
       0032  0020
00060  0034  5400  F            RF(4)     ER
00061  0036  1101               ADK       A1,1
00062  0038  E224               LCR       A2,A1
00063  003A  EA20               CWK       A2,/4D       4D =M
       003C  004D
00064  003E  5400  F            RF(4)     ER
00065  0040  0100               LDK       A1,0
00066  0042  8141               ST        A1,MASTER
       0044  0000  F
00067  0046  5700  F            RF        PRAFL
00068                  *
00069                  *
00070  0048  8F20     ER        AB,L      ERHB
       004A  0000  X
00071                  *
00072  004C  F6A1     LOAD2     CF        A14,HB
       004E  0000  X
00073  0050  9188               ADR       A9,A2
00074  0052  0200               LDK       A2,0
00075  0054  1F00               SUK       A7,0
00076  0056  592A               RB(1)     LOAD1
00077                  *
00078  0058  81C1     PRAFL     ST        A9,PCT61+SAVADR
       005A  FFFE  X
00079  005C  91A0               ADK,L     A9,32        SKIP SAVE AREA
       005E  0020
00080  0060  82C0               LD        A10,CVTMSZ   A10= ENDADDRESS
       0062  0000  X
00081  0064  9AA0               SUK,L A10,2
       0066  0002
00082  0068  F6A1               CF        A14,TESTOV
       006A  0000  F
00083  006C  8386               LDR       A11,A9
00084                  *
```

```
00085  006E  8120      RAFL    LDK,L   A1,0
       0070  0000
00086                  EOTFL   EQU     *-2
00087  0072  5000  F           RF(0)   RAFL1
00088  0074  8120              LDK,L   A1,/2045            * E
       0076  2045
00089  0078  8220              LDK,L   A2,/4F54            *OT
       007A  4F54
00090  007C  F6A1              CF      A14,HLTASC
       007E  0000  F
00091  0080  207F              HLT                 HALT CHANGE TAPE AND RESTART
00092  0082  0100              LDK     A1,0
00093  0084  8141              ST      A1,EOTFL
       0086  0070  R
00094  0088  0702      RAFL1   LDK     A7,2
00095  008A  0146              LDK     A1,70
00096  008C  8141              ST      A1,ECBCLU+4
       008E  0006  R
00097  0090  0504              LDK     A5,4
00098  0092  F6A1              CF      A14,STIO
       0094  0000  F
00099                  *
00100  0096  8140              LD      A1,ECBCLU+8
       0098  000A  R
00101  009A  8A20              ABL(2)  CLCO1       ERROR
       009C  0000  F
00102  009E  211F              ANK     A1,/1F
00103  00A0  39E1              SRC     A1,1
00104  00A2  5200  F           RF(2)   EOF
00105  00A4  39E1              SRC     A1,1
00106  00A6  5200  F           RF(2)   EOS         EOS HAS BEEN FOUND
00107  00A8  39E1              SRC     A1,1
00108  00AA  5200  F           RF(2)   CLCO1               ERRONEOUS CLUSTER
00109  00AC  39E1              SRC     A1,1
00110  00AE  5200  F           RF(2)   CLCO1
00111  00B0  39E1              SRC     A1,1
00112  00B2  5600  F           RF(6)   LOAD3
00113  00B4  9041              IM      EOTFL               END OF TAPE
       00B6  0070  R
00114                  *
00115  00B8  0100      LOAD3   LDK     A1,0
00116  00BA  E140              LC      A1,BUFCP
       00BC  0000  X
00117  00BE  E920              CWK     A1,/20      IS IT A CLUSTER
       00C0  0020
00118  00C2  5200  F           RF(2)   PROLO1+4    YES GO TO PROCESS IT
00119                  *
00120  00C4  0120              LDK     A1,/20
00121  00C6  870E              LDR     A7,A11
00122  00C8  8620              LDK,L   A6,BUFCP
```

```
        00CA  0000  X
00123   00CC  9640          AD      A6,ECBCLU+6
        00CE  0008  R
00124   00D0  E139          SCR     A1,A6       STORE TWO BLANKS
00125   00D2  E159          SC      A1,1,A6     FOLLOWING THE IDENT
        00D4  0001
00126   00D6  1602          ADK     A6,2
00127   00D8  F6A1          CF      A14,BH      convert Base Adr to Hex and store it in BUF.CP
        00DA  0000  X
00128   00DC  F6A1          CF      A14,A8CII   GO PRINT  IDENT
        00DE  0000  F
00129                   *
00130   00E0  5F74          RB      RAFL         BACK TO READING
```

```
00131                                   EJECT
00132                           ********************************************************************************
00133                           EOS     EQU     *
00134  00E2  870E                       LDR     A7,A11          ENDING LOAD ADDRESS
00135  00E4  8620                       LDK,L   A6,ADDR         STORING AREA
       00E6  0000  F
00136  00E8  8120                       LDK,L   A1,/2020
       00EA  2020
00137  00EC  F6A1                       CF      A14,BH
       00EE  0000  X
00138  00F0  0706                       LDK     A7,6            ASCII WRITE
00139  00F2  80A0                       LDK,L   A8,ECBKK        ECB ADDRESS
       00F4  0000  F
00140  00F6  2804                       LKM
00141  00F8  0001                       DATA    1
00142  00FA  8722                       LDR*    A7,A8           IS IT FINISHED ?
00143  00FC  5E04                       RB(6)   *-2
00144  00FE  5F92                       RB      RAFL            BACK TO READING
00145                           *
00146  0100  0005              ECBKK    DATA    FCASR
00147  0102  0000  F                    DATA    BUFKK-2
00148  0104  000E                       DATA    14
00149  0106                             RES     2
00150                           *
00151  010A  3A45              BUFKK    DATA    ';EOS  '
       010C  4F53
       010E  2020
00152  0110                     ADDR     RES     3
00153                           ********************************************************************************
00154                           ********************************************************************************
00155  0116  0722              EOF      LDK     A7,/22          OUTPUT  EOF
00156  0118  F6A1                       CF      A14,ASCII+2
       011A  0000  F
00157  011C  8140                       LD      A1,PCT61+STADR
       011E  FFFC  X
00158  0120  5400  F                    RF(4)   MASTER-2
00159  0122  8120                       LDK,L   A1,/204E        204E= N
       0124  204E
00160  0126  8220                       LDK,L   A2,/5320        5320=S
       0128  5320
00161  012A  F6A1                       CF      A14,HLTASC
       012C  0000  F
00162  012E  5700  F                    RF      EXIT
00163  0130  8120                       LDK,L   A1,MASTER
       0132  0000  F
00164                           MASTER   EQU     *-2
00165  0134  9141                       AD,S    A1,PCT61+STADR
       0136  FFFC  X
00166  0138  9041              EXIT     IM      LDFLAG
       013A  0000  R
```

```
00167  013C  8F20      EXIT1   AB,L    CPRTN
       013E  0000  X
00168                  ********************************************************************************
00169                  *
00170  0140  8141      HLTASC  ST      A1,BUFCP
       0142  0000  X
00171  0144  8241              ST      A2,BUFCP+2
       0146  0002  X
00172  0148  0106              LDK     A1,6
00173  014A  8141              ST      A1,ECBCLU+4
       014C  0006  R
00174  014E  0706      ASCII   LDK     A7,6
00175  0150  0505              LDK     A5,5
00176  0152  8120              LDK,L   A1,-2
       0154  FFFE
00177  0156  9141              AD,S    A1,ECBCLU+2
       0158  0004  R
00178  015A  80A0      STIO    LDK,L   A8,ECBCLU       entry: A5 = file code
       015C  0002  R
00179  015E  8523              STR     A5,A8
00180  0160  2804              LKM
00181  0162  0001              DATA    1
00182  0164  8222              LDR*    A2,A8
00183  0166  5E04              RB(6)   *-2
00184  0168  8120              LDK,L   A1,BUFCP
       016A  0000  X
00185  016C  8141              ST      A1,ECBCLU+2     -> ECB Buff Addr
       016E  0004  R
00186  0170  0148              LDK     A1,72
00187  0172  8141              ST      A1,ECBCLU+4     -> ECB char count
       0174  0006  R
00188  0176  F03A              RTN     A14
```

```
00189                                   EJECT
00190                   ********************************************************************************
00191                   *PROCESS LOADING  :  THIS  MODULE  READ A  CLUSTER
00192                   *       AND BRANCH ACCORDING TO  THE  CLUSTER  TYPE
00193                   *
00194                   *       ON  EXIT    A1= BUFF ADDRESS  PLUS ONE
00195                   *                   A2= WORD COUNT
00196                   *                   A3= TYPE
00197                   *       THE  TYPE  MUST BE    3,4,7   IF NOT THIS : HALT
00198                   ********************************************************************************
00199                   ABA     EQU     0
00200  0178  8F20       PROLO1  AB,L    RAFL        READ A CLUSTER
       017A  006E  R
00201                   PROLO   EQU     PROLO1
00202  017C  818E               LDR     A9,A11
00203  017E  8120               LDK,L   A1,BUFCP
       0180  0000  X
00204  0182  0200               LDK     A2,0
00205  0184  0300               LDK     A3,0
00206  0186  0401               LDK     A4,1
00207  0188  E324               LCR     A3,A1       A3 = TYPE
00208  018A  1101               ADK     A1,1
00209  018C  E224               LCR     A2,A1       A2= WORD COUNT
00210  018E  1101               ADK     A1,1
00211  0190  EB20               CWK     A3,3
       0192  0003
00212  0194  5000  F            RF(0)   CLCODE      BRANCH ON  CLUSTER CODE
00213  0196  EB20               CWK     A3,4
       0198  0004
00214  019A  5000  F            RF(0)   CLIMOD                      INTERNAL MODIFICATION
00215  019C  EB20               CWK     A3,7
       019E  0007
00216  01A0  5000  F            RF(0)   CLEND                       END/START
00217  01A2  5F2C               RB(7)   PROLO1
00218                   *
00219  01A4  8120       CLCO1   LDK,L   A1,/2045    2045= E
       01A6  2045
00220  01A8  8220               LDK,L   A2,/4320    4320=C
       01AA  4320
00221  01AC  F6A1               CF      A14,HLTASC
       01AE  0140  R
00222  01B0  5F76               RB      EXIT1
00223                   *
00224                   *
```

```
00225                          EJECT
00226                    *
00227                    ********************************************************************************
00228                    ********************************************************************************
00229                    *CLUSTER CODE  (TYPE 3)
00230                    *         UPON ENTRY : A1=ADDRESS OF  BUFF+1 (RBK)
00231                                           A2= WORD COUNT
00232                                           A9= BADDRESS
00233                                           A10=ENDADDRESS
00234                    ********************************************************************************
00235                    *
00236                    *
00237  01B2  8340       CLCODE   LD       A3,BUFCP+6
       01B4  0006  X
00238  01B6  5C40               RB(4)    PROL01     EMBK SET SKIP THE CLUSTER
00239  01B8  8340       CLC01A   LD       A3,BUFCP+4
       01BA  0004  X
00240  01BC  A311               TM       A3,A4      IS IT RELOCATABLE SECTION
00241  01BE  5000  F            RF(0)    CLC02      NO
00242  01C0  9306               ADR      A3,A9      YES
00243  01C2  F6A1               CF       A14,TESTAD
       01C4  0000  F
00244  01C6  5700  F            RF(7)    CLC04
00245  01C8  81A0       CLC02    LDK,L    A9,ABA
       01CA  0000
00246  01CC  8524       CLC04    LDR*     A5,A1      A5 =(RBK)
00247  01CE  1106               ADK      A1,6       A1 = ADDRESS OF FIRST CODE WORD  IN BUFF
00248  01D0  1A03               SUK      A2,3       A2 = NUMBER  OF  CODE  WORD
00249                    *                           A3 = STORAGE ADDRESS
00250                    *                           A4 = MASK  FOR RBK
00251                    *                           A6= CODE WORD
00252  01D2  3CE1       CLC05    SRC      A4,1
00253  01D4  8624               LDR*     A6,A1
00254  01D6  A511               TM       A5,A4
00255  01D8  5000  F            RF(0)    CLC07
00256  01DA  960E               ADR      A6,A11
00257  01DC  862D       CLC07    STR      A6,A3      YES STORE CODE WORDS
00258  01DE  1102               ADK      A1,2       UPDATE
00259  01E0  1302               ADK      A3,2
00260                    *                           POINTERS
00261  01E2  1A01               SUK      A2,1
00262  01E4  5C14               RB(4)    CLC05
00263  01E6  5F70               RB(7)    PROL0
00264                    *
00265                    *
```

```
00266                          EJECT
00267                  *
00268                  ********************************************************************************
00269                  *INTERNAL MODIFICATION CLUSTERS
00270                  *
00271                  *        UPON ENTRY : A1 = ADDRESS OF  BUFF+1 (RBK)
00272                                       A2 = WORD  COUNT
00273                                       A9 = BASE  ADDRESS
00274                                       A10= END   ADDRESS
00275                  ********************************************************************************
00276  01E8  8524      CLIMOD   LDR*     A5,A1         A5= (RBK)
00277  01EA  1A01               SUK      A2,1
00278  01EC  0701      CLIM1    LDK      A7,1          A7= MASK FOR ADDRESS
00279  01EE  3CE1               SRC      A4,1
00280  01F0  1102               ADK      A1,2
00281  01F2  8324               LDR*     A3,A1          A3 = ADDRESS
00282  01F4  A31D               TM       A3,A7          IS IT RELOCATABLE
00283  01F6  5000  F            RF(0)    CLIM2          NO
00284  01F8  9306               ADR      A3,A9          YES  ADD  BASE
00285  01FA  F6A1               CF       A14,TESTAD
       01FC  0000  F
00286  01FE  1102      CLIM2    ADK      A1,2           YES
00287  0200  8624               LDR*     A6,A1          TAKE   CODE  VORD
00288  0202  A511               TM       A5,A4          IS IT RELOCATABLE
00289  0204  5000  F            RF(0)    CLIM3          NO
00290  0206  960E               ADR      A6,A11
00291  0208  862D      CLIM3    STR      A6,A3          YES  STORE  CODE WORD
00292                  *                                UPDATE
00293  020A  1A02               SUK      A2,2           POINTERS
00294  020C  5C22               RB(4)    CLIM1          CONTINUE
00295  020E  5F98               RB(7)    PROLO
00296                  *
00297                  *
```

```
00298                          EJECT
00299                    *
00300                    ********************************************************************************
00301                    ********************************************************************************
00302                    * CLUSTER   END/START
00303                    *         UPON  ENTRY      A1 = ADDRESS  OF BUFF+1  (START ADDRESS)
00304                                               A2 = WORD COUNT
00305                                               A9 = BADDRESS
00306                                               A10= ENDADDRESS
00307  0210  8324       CLEND     LDR*      A3,A1
00308  0212  5000  F              RF(0)     CLEN3A       FINISHED   NO  START ADDRESS
00309  0214  A311                TM        A3,A4        IS START ADDRESS RELOCATABLE
00310  0216  5000  F              RF(0)     CLEN1
00311  0218  9306                ADR       A3,A9
00312  021A  A320       CLEN1     ANK,L     A3,/FFFE
       021C  FFFE
00313  021E  F6A1                CF        A14,TESTAD
       0220  0000  F
00314  0222  8140                LD        A1,PCT61+STADR        TRANSFER OLD START ADDRESS
       0224  FFFC  X
00315  0226  8161                ST*       A1,CVTBKA             IN FIRST WORD OF COM, AREA
       0228  0000  X
00316  022A  8341                ST        A3,PCT61+STADR
       022C  FFFC  X
00317  022E  8140       CLEN3A    LD        A1,BUFCP+6  UPDATE BASE ADDRESS
       0230  0006  X
00318  0232  9184                ADR       A9,A1
00319  0234  8386                LDR       A11,A9
00320  0236  F6A1                CF        A14,TESTOV
       0238  0000  F
00321  023A  0100                LDK       A1,0
00322  023C  81C1                ST        A9,CVTSBA
       023E  0000  X
00323  0240  8127                STR       A1,A9        INITIALIZE GET CORE AREA
00324  0242  8140                LD        A1,CVTMSZ
       0244  0000  X
00325  0246  1902                SUK       A1,2
00326  0248  8141                ST        A1,CVTBBA
       024A  0000  X
00327  024C  5FD6                RB        PROLO
00328                    *
```

```
00329                                   EJECT
00330                           *
00331                           ********************************************************************************
00332                           *
00333  024E  8120               OUTOV   LDK,L   A1,/204F    204F= 0
       0250  204F
00334  0252  8220                       LDK,L   A2,/5620    5620=V
       0254  5620
00335  0256  F6A1                       CF      A14,HLTASC
       0258  0140  R
00336                           ********************************************************************************
00337  025A  8F20                       AB,L    EXIT1
       025C  013C  R
00338                           ********************************************************************************
00339
00340                           *
00341                           ********************************************************************************
00342                           *
00343  025E  8704               TESTAD  LDR     A7,A1
00344  0260  8088                       LDR     A8,A2
00345  0262  8106                       LDR     A1,A9
00346  0264  820A                       LDR     A2,A10
00347  0266  3961                       SRL     A1,1
00348  0268  3A61                       SRL     A2,1
00349  026A  3B61                       SRL     A3,1
00350  026C  EB04                       CWR     A3,A1
00351  026E  5A22                       RB(2)   OUTOV
00352  0270  EB08                       CWR     A3,A2
00353  0272  5926                       RB(1)   OUTOV
00354  0274  3B41                       SLL     A3,1
00355  0276  811C                       LDR     A1,A7
00356  0278  8202                       LDR     A2,A8
00357  027A  F03A                       RTN     A14
00358                           *
00359                           ********************************************************************************
00360                           *
00361  027C  8106               TESTOV  LDR     A1,A9
00362  027E  820A                       LDR     A2,A10
00363  0280  3961                       SRL     A1,1
00364  0282  3A61                       SRL     A2,1
00365  0284  E908                       CWR     A1,A2
00366  0286  593A                       RB(1)   OUTOV
00367  0288  F03A                       RTN     A14
00368                           *
00369                           ********************************************************************************
00370                                   END
```

SYMBOL TABLE

LOADER	000E	R	LDFLAG	0000	R	PCT61		X	CVTMSZ		X
CVTBKA		X	CVTSBA		X	CVTBBA		X	CPRTN		X
BUFCP		X	INHCP		X	ERHB		X	INHST		X
BH		X	HB		X	ECBCP		X	USPSW	F800	A
STADR	FFFC	A	SAVADR	FFFE	A	COMAR	0060	A	FCASR	0005	A
ECBCLU	0002	R	ER	0048	R	MASTER	0132	R	PRAFL	0058	R
LOAD2	004C	R	LOAD1	002E	R	TESTOV	027C	R	RAFL	006E	R
EOTFL	0070	R	RAFL1	0088	R	HLTASC	0140	R	STIO	015A	R
CLCO1	01A4	R	EOF	0116	R	EOS	00E2	R	LOAD3	00B8	R
PROLO1	0178	R	ASCII	014E	R	ADDR	0110	R	ECBKK	0100	R
BUFKK	010A	R	EXIT	0138	R	EXIT1	013C	R	ABA	0000	A
PROLO	0178	R	CLCODE	01B2	R	CLIMOD	01E8	R	CLEND	0210	R
CLCO1A	01B8	R	CLCO2	01C8	R	TESTAD	025E	R	CLCO4	01CC	R
CLCO5	01D2	R	CLCO7	01DC	R	CLIM1	01EC	R	CLIM2	01FE	R
CLIM3	0208	R	CLEN3A	022E	R	CLEN1	021A	R	OUTOV	024E	R

ASS.ERR. 00000

```
ASM M:CMAD
DATE  06 /04 /73   TIME 10H-14M-46S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102  BOMREL
```

```
00000                          IDENT    M:CMAD
00001                  *   THIS SUBROUTINE COMPARE THE ADDRESS CONTAINED IN A2                *
00002                                   WITH CVTMSZ  MEMORY SIZE                              *
00003                  *                THIS ROUTINE DESTROYS A4                              *
00004                  *                                                                      *
00005                  ************************************************************************
00006                          ENTRY    M:CMAD
00007                          EXTRN    CVTMSZ,ERHB
00008                  *
00009  0000  8440      M:CMAD  LD       A4,CVTMSZ
       0002  0000  X
00010  0004  5000  F           RF(0)    CMADEX       CVTMSZ NULL = 32K
00011  0006  3C61              SRL      A4,1
00012  0008  3A61              SRL      A2,1
00013  000A  EA10              CWR      A2,A4
00014  000C  8E20              AB,L(6)  ERHB
       000E  0000  X
00015  0010  3A41              SLL      A2,1
00016  0012  F03A      CMADEX  RTN      A14
00017                          END
```

```
        SYMBOL TABLE

M:CMAD  0000  R   CVTMSZ        X   ERHB          X   CMADEX  0012  R

        ASS.ERR.    00000
```

```
ASM HEBIN
DATE  06 /04 /73   TIME 10H-14M-51S-
LABEL = SAGR              DATE =  270273          PACK NBR =  102     BOMREL
```

```
00000                                IDENT    HEBIN
00001                           *
00002                           ********************************************************************************
00003                           *THIS MODULE     NVERT  A NUMBER  IN  HEXADECIMAL
00004                           *        FORM  INTO A  BINARY FORM
00005                           *     UPON ENTRY , THE  NUMBER IS IN BUFF,CHARACTER ADDRESS IN A1
00006                           *     EXIT IF BLANK OR  END OF BUFF ENCOUNTERED
00007                           *     A7 GIVE THE CHARACTERS NUMBER STILL IN BUFFER,
00008                           *     A2 BINARY  RESULT
00009                           ********************************************************************************
00010                           *         A4,A5,A6 CAN BE USED AS  WORK  REGISTERS
00011                                   ENTRY    HB
00012                                   EXTRN    ERHB
00013                           *
00014  0000  1101               HB0      ADK      A1,1
00015  0002  1F01                        SUK      A7,1
00016  0004  5000  F                     RF(0)    ER3
00017  0006  0200               HB       LDK      A2,0
00018  0008  0400                        LDK      A4,0
00019  000A  E424                        LCR      A4,A1
00020  000C  EC20                        CWK      A4,X'20'
       000E  0020
00021  0010  5812                        RB(0)    HB0
00022  0012  EC20               AGAIN    CWK      A4,X'30'     30= 0
       0014  0030
00023  0016  5200  F                     RF(2)    ER3
00024  0018  EC20                        CWK      A4,X'3A'
       001A  003A
00025  001C  5200  F                     RF(2)    CHIF
00026  001E  EC20                        CWK      A4,X'41'     41= A
       0020  0041
00027  0022  5200  F                     RF(2)    ER3
00028  0024  EC20                        CWK      A4,X'46'
       0026  0046
00029  0028  5100  F                     RF(1)    ER3
00030  002A  1409                        ADK      A4,9
00031  002C  240F               CHIF     ANK      A4,X'F'
00032  002E  3A44                        SLL      A2,4
00033  0030  AA10                        ORR      A2,A4
00034  0032  1101                        ADK      A1,1
00035  0034  1F01                        SUK      A7,1
00036  0036  5000  F                     RF(0)    HB2
00037  0038  E424                        LCR      A4,A1
00038  003A  EC20                        CWK      A4,X'20'
       003C  0020
00039  003E  5000  F                     RF(0)    HB2
00040  0040  EC20                        CWK      A4,X'2E'
       0042  002E
00041  0044  5C34                        RB(4)    AGAIN
00042  0046  F03A               HB2      RTN      A14          NORMAL  EXIT
```

```
00043  0048  8F20       ER3      AB,L(7)  ERHB       ERROR EXIYT
       004A  0000  X
00044                   *
00045                   *
00046                   ********************************************************************************
00047                            END
```

```
          SYMBOL TABLE

HB        0006  R   ERHB          X   HB0       0000  R   ER3       0048  R
AGAIN     0012  R   CHIF    002C  R   HB2       0046  R

          ASS,ERR,    00000
```

old

```
00000                          IDENT    INIT
00001                  * THIS MODULE IS ENTERED TO LOAD THE MODULES AND INITIALIZE
00002                                                  THE RUNNING
00003                                                  LOAD USER (BASE ADDRSESS:/0800
00004                                                  SET BUFFERS AREA LIMIT
00005                                                  SET A15
00006                                                  LOAD USER REGISTERS FROM SAVE AREA
00007                                                  INITIALIZE USER PCT (LEVEL 62)
00008                                                  GIVE CONTROL TO USER
00009                          ENTRY    INIT,RINIT
00010                          ENTRY    MAINEX
00011                          ENTRY    RELOAD
00012                  *
00013                  *
00014                          EXTRN    CVTSBA,CVTSTB,PCT61
00015                          EXTRN    CVTBKA
00016                          EXTRN    CPT
00017                          EXTRN    SOFMA,FILLAB,SCLFG
00018                           EXTRN   INHCP
00019                           EXTRN   C:NASR
00020                           EXTRN   C:NPTR
00021                           EXTRN   C:NPTP
00022                          EXTRN    C:NLP
00023                          EXTRN     C:NCR
00024                          EXTRN    D:WMTO
00025                          EXTRN    D:WMT1
00026                          EXTRN    C:ONMT
00027                          EXTRN    PFAR
00028                          EXTRN    LDFLAG
00029                          EXTRN    INHST
00030                          EXTRN    MCABFL
00031                  *
00032                  *
00033                  ECBWT     EQU     2
00034                  ECBSCL    EQU     4
00035                  MNLD      EQU     /F10
00036                  COREND    EQU     /1FFE
00037                  SAVADR    EQU     =2
00038                  STADR     EQU     =4
00039                  STATUS    EQU     0
00040                  USPSW     EQU     /F800          LEVEL  62
00041  0000  E9C0     INIT      CW      A9,CVTBKA
       0002  0000  X
00042  0004  5104               RF(1)   *+6
00043  0006  81C0     RELOAD    LD      A9,CVTBKA    SET USER BASE ADDRESS (NORMALLY /0800 )
       0008  0000  X
00044  000A  81C1               ST      A9,CVTBKA
       000C  0000  X
00045  000E  81C1               ST      A9,PCT61+SAVADR
       0010  FFFE  X
```

old

```
00046                          RINIT    EQU      *
00047  0012  0100              RINITA   LDK      A1,0
00048                          MAINEX   EQU      RINITA
00049  0014  4100                       WIM      A1
00050  0016  8161                       ST*      A1,CVTSBA    INITIALIZE GET CORE AREA
       0018  0000  X
00051  001A  8140                       LD       A1,CPT+4     SET EX,SYS, MEM, PROTECT MASK
       001C  0004  X
00052  001E  4140                       WMP      A1
00053  0020  8140                       LD       A1,CPT+6
       0022  0006  X
00054  0024  41C0                       WM2      A1
00055  0026  87C0                       LD       A15,CVTSTB   SET A15 TO STACK BASE
       0028  0000  X
00056  002A  8120                       LDK,L    A1,TESTLD
       002C  0000  F
00057  002E  8220                       LDK,L    A2,USPSW
       0030  F800
00058  0032  B93F                       MSR      2,A15
00059  0034  F03E                       RTN      A15
00060  0036  8140              TESTLD   LD       A1,LDFLAG
       0038  0000  X
00061  003A  5806                       RB(0)    TESTLD
00062  003C  8140                       LD       A1,INHST
       003E  0000  X
00063  0040  580C                       RB(0)    TESTLD
00064  0042  20BF                       INH
00065  0044  8140                       LD       A1,PCT61+STADR
       0046  FFFC  X
00066  0048  8204                       LDR      A2,A1
00067  004A  2201                       ANK      A2,1
00068  004C  AA20                       ORK,L    A2,USPSW
       004E  F800
00069  0050  B93F                       MSR      2,A15
00070  0052  8140                       LD       A1,CVTBKA
       0054  0000  X
00071  0056  8240                       LD       A2,CVTSBA
       0058  0000  X
00072  005A  F03E                       RTN      A15          CONTROL TO USER
00073                                   END      INIT
```

old

SYMBOL TABLE

INIT	0000	R	RINIT	0012	R	MAINEX	0012	R	RELOAD	0006	R
CVTSBA		X	CVTSTB		X	PCT61		X	CVTBKA		X
CPT		X	SOFMA		X	FILLAB		X	SCLFG		X
INHCP		X	C:NASR		X	C:NPTR		X	C:NPTP		X
C:NLP		X	C:NCR		X	D:WMT0		X	D:WMT1		X
C:ONMT		X	PFAR		X	LDFLAG		X	INHST		X
MCABFL		X	ECBWT	0002	A	ECBSCL	0004	A	MNLD	0F10	A
COREND	1FFE	A	SAVADR	FFFE	A	STADR	FFFC	A	STATUS	0000	A
USPSW	F800	A	RINITA	0012	R	TESTLD	0036	R			

ASS.ERR. 00000