#!EOR
#**** CLOCK= 02 /06 /72 AT 16H- 6M-28S-

B. E. MONITOR LISTING

0
~~197~~

```
00000                                   IDENT   LOCAT
00001                                   ENTRY   STB
00002                                   EXTRN   I:TC
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  0000  0000 X                     DATA    I:PFAR
00019  0002  0000 X                     DATA    I:LKM
00020  0004  0000 X                     DATA    I:RTC
00021  0006  0000 X                     DATA    I:MEMP
00022  0008  0000 X                     DATA    I:ITCP
00023  000A  0000 X                     DATA    I:TC
00024  000C  0000 X                     DATA    I:PR
00025  000E  0000 X                     DATA    I:PP
00026  0010  0000 X                     DATA    I:ASR
00027  0012  0000 X                     DATA    I:DISK
00028
00029  0014  0000 X                     DATA    I:LP
00030  0016  0000 X                     DATA    I:CR
00031  0018  0000 X                     DATA    I:CP
00032  001A  0000 X                     DATA    I:MHDL
00033  001C                             RES     18      INTERRUPT LOCATIONS 14-31
00034  0040  0000 X                     DATA    INTAB   MASKABLE INT TABLE ADDRESS
00035  0042  0000 X                     DATA    CVT     CVT ADDRESS
00036  0044                             RES     30      MULTIPLEX AREA
00037  0080                             RES     16      INTERRUPT LOCATIONS 32-47
00038  00A0                             RES     16      OVERFLOW AREA
00039  00C0  FFFF                       DATA    /FFFF   OVERFLOW LOCATION
00040  00C2                             RES     61      STACK AREA
00041  013C  FFFF      017C     STB     DATA    /FFFF   STACK BASE
00042                                   END
ASS.ERR. 00000
```

level
0
1
2
3
4
5
6
7
8
9
10
11
12
13

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
CVT	0000	X	INTAB	0000	X	I:MHDL	0000	X
I:ASR	0000	X	I:MEMP	0000	X	I:ITCP	0000	X
I:RTC	0000	X	I:LKM	0000	X	I:PFAR	0000	X
I:CP	0000	X	I:CR	0000	X	I:LP	0000	X
I:DISK	0000	X	I:PP	0000	X	I:PR	0000	X
I:TC	0000	X	STB	013C	UNUSED	A15	000F	UNUSED
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	UNUSED	A7	000E	UNUSED	A6	000C	UNUSED
A5	000A	UNUSED	A4	0008	UNUSED	A3	0006	UNUSED
A2	0004	UNUSED	A1	0002	UNUSED			

```
0000                                        IDENT    I:LKM
0001                                *LKM INTERRUPT HANDLING,SEARCH IN LKMAL IF THE REQUESTED MODULE
0002                                *IS AVAILABLE.    IF THE MODULE IS NOT HERE,RTN WITH A1=-1
0003                                                  IF THE MODULE IS HERE BRANCH ON IT
0004                                        ENTRY    I:LKM
0005                                        EXTRN    LKMAL
0006                                        EXTRN    DISPAT
0007                                        EXTRN    PCT61
0008                                        EXTRN    SYSAB
0009                                        EXTRN    M:A00
0010                                STATUS  EQU      0
0011                                LKM     EQU      X'2804'      LKM SYNTAX
0012  0000  BC3F     017E           I:LKM   MSR      8,A15
0013  0002  20FB                             RIT      /1D  → clear LKM interrupt bit
0014  0004  EFA0                             CWK      A15,/100
      0006  0100
0015  0008  5500     0008                    RF(5)    LKM3         STACK OVERFLOW
0016  000A  825E                             LD       A2,20,A15    ADDRESS OF USER DATA STATEMENT behind LKM instruction
      000C  0014
0017  000E  8128                              LDR*     A1,A2        USER DATA
0018  0010  8348                             LD       A3,-2,A2     USER LKM instruction
      0012  FFFE
0019  0014  E820                             CWK      A3,LKM       TEST IF LKM
      0016  2804
0020  0018  5000     0018                    RF(0)    LKM1         SYNTAX O.K.
0021  001A  8F20                             AB,L     M:A00        SYNTAX N.O.K. GO TO SIMUL
      001C  0000 X
0022  001E  0101                LKM3        LDK      A1,1         OR STACK OFLOW
0023  0020  207F                             HLT
0024  0022  0302                LKM1        LDK      A3,2         ← it is an LKM
0025  0024  0600                             LDK      A6,0
0026  0026  1100                             ADK      A1,0         ← user DATA statement in A2
0027  0028  5100     0028                    RF(1)    LKM4
0028  002A  F304                             CIK      A1,A1        ← scheduled label
0029  002C  1101                             ADK      A1,1
0030  002E  8640                             LD       A6,PCT61+STATUS
      0030  0000 X
0031  0032  267F                             ANK      A6,/7F
0032  0034  EE20                             CWK      A6,/7F
      0036  007F
0033  0038  5402                             RF(4)    *+4
0034  003A  207F                             HLT
0035  003C  9041                             IM       PCT61+STATUS
      003E  0000 X
0036  0040  8648                             LD       A6,2,A2      USER INT ADDR
      0042  0002
0037  0044  0304                             LDK      A3,4
0038  0046  935F                LKM4        AD,S     A3,20,A15    ← update return to user addr.
      0048  0014
0039                                *                             IF PROCESSOR NOT HERE ,RTN
0040  004A  8240                             LD       A2,LKMAL     ← max value of DATA NBR
```

```
        004C  0000 X
00041   004E  E908                              CWR     A1,A2          IF LKM GREATER THAN
00042   0050  5100   0050                       RF(1)   LKM2           TABLE LENGTH ,RTN
00043   0052  3941                              SLL1    A1
00044   0054  8244                              LD      A2,LKMAL,A1  → A2= entrypoint Addr. of subrout.
        0056  0000 X
00045   0058  5000   0050                       RF(0)   LKM2
00046   005A  8F08                              ABR     A2
00047   005C  8720                 LKM2         LDK.L   A7,-1
        005E  FFFF
00048   0060  8F20                              AB.L    DISPAT
        0062  0000 X
00049                                           END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
LKM2	005C	R	LKM4	0046	R	LKM1	0022	R
LKM3	001E	R	LKM	2804	A	STATUS	0000	A
M*A00	0000	X	SYSAB	0000	X	PCT61	0000	X
DISPAT	0000	X	LKMAL	0000	X	I*LKM	0000	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	A
A6	000C	A	A5	000A	UNUSED	A4	0008	UNUSED
A3	0006	A	A2	0004	A	A1	0002	A

```
00000                                   IDENT    LKMAL
00001                          *THIS IS THE LIST OF LKM 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        01E2   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
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ABADR	0000	X	PSMAC	0000	X	FRBUFF	0000	X
GETBUF	0000	X	EXIT	0000	X	WAIT	0000	X
R#IORM	0000	X	IKMAL	0000	UNUSED	A15	000F	UNUSED
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	UNUSED	A7	000E	UNUSED	A6	000C	UNUSED
A5	000A	UNUSED	A4	0008	UNUSED	A3	0006	UNUSED
A2	0004	UNUSED	A1	0002	UNUSED			

```
 0000                                    IDENT   CVT
 0001                                    ENTRY   CVT
 0002                                     ENTRY  CVTMSZ      MEMORY SIZE
 0003                                    ENTRY   CVTSTB      STACK A15 BASE
 0004                                    ENTRY   CVTSBA      SMALLEST BUFF AREA ADDRESS
 0005                                    ENTRY   CVTBBA      BIGGEST BUFF AREA ADDRESS
 0006                                    ENTRY   CVTBKA          BACKGROUND ADDRESS
 0007                                    EXTRN   STB
 0008                              CVT   EQU     *
 0009  0000  6000      01FZ      CVTMSZ  DATA    /6000               SIZE = 12 K WORDS
 0010  0002  0000 X              CVTSTB  DATA    STB
 0011  0004  0000                CVTSBA  DATA    /0
 0012  0006  0000                CVTBBA  DATA    0
 0013  0008  1800                CVTBKA  DATA    /1800
 0014                                    END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
STB	0000	X	CVTBKA	0008	UNUSED	CVTBBA	0006	UNUSED
CVTSBA	0004	UNUSED	CVTSTB	0002	UNUSED	CVTMSZ	0000	UNUSED
CVT	0000	UNUSED	A15	000F	UNUSED	A14	000D	UNUSED
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	UNUSED
A7	000E	UNUSED	A6	000C	UNUSED	A5	000A	UNUSED
A4	0008	UNUSED	A3	0006	UNUSED	A2	0004	UNUSED
A1	0002	UNUSED						

```
 0000                                        IDENT   CPT
 0001                                        ENTRY   CPT
 0002  0000  0004      07FC    CPT           DATA    4           LENTH
 0003  0002  0004                            DATA    /0004       00= PAGE NUMBER 04= NUMBER OF PAGES
 0004  0004  F007                            DATA    /F007       MASK1 STARTING FROM RIGHT  PAGE=15.....01.00
 0005  0006  FFFF                            DATA    /FFFF       MASK2   PAGES=31.30..........17.16
 0006                                         END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
CPT	0000	UNUSED	A15	000F	UNUSED	A14	000D	UNUSED
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	UNUSED
A7	000E	UNUSED	A6	000C	UNUSED	A5	000A	UNUSED
A4	0008	UNUSED	A3	0006	UNUSED	A2	0004	UNUSED
A1	0002	UNUSED						

```
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:WPTR
00009                                   EXTRN    D:WPTP
00010                                   EXTRN    D:WLP
00011                              *
00012  0000   0000    0000 0204  F:CT   DATA     F:CT1-F:CT   * NUMBER OF WORDS IN THIS TABLE
00013                              *                          * FCT EXCLUSIVE
00014  0002   0000 X                   DATA    D:WPTR        *01* SOURCE INPUT STANDARD
00015  0004   0000 X                   DATA     D:WLP        *02* LISTING STANDARD
00016  0006   0000 X                   DATA     D:WPTP       *03* PUNCH STANDARD
00017  0008   0000 X                   DATA     D:WPTR       *04* OBJECT INPUT STANDARD
00018  000A   0000 X                   DATA     D:WAS1       *05* OPERATOR TYPEWRITER
00019  000C   0000 X                   DATA     D:WAS2       *06* SLOW TAPE READRE
00020  000E   0000 X                   DATA     D:WAS3       *07* SLOW TAPE PUNCH
00021  0010   0000 X                   DATA     D:WPTR       *08* PAPER TAPE READER
00022  0012   0000 X                   DATA     D:WPTP       *09* PAPER TAPE PUNCH
00023  0014   0000 X                   DATA     D:WLP        *0A* LINE PRINTER
00024                              F:CT1 EQU     *-2
00025                                   END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
F:CT1	0014	R	D:WLP	0000	X	D:WPTP	0000	X
D:WPTR	0000	X	D:WAS3	0000	X	D:WAS2	0000	X
D:WAS1	0000	X	F:CT	0000	R	A15	000F	UNUSED
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	UNUSED	A7	000E	UNUSED	A6	000C	UNUSED
A5	000A	UNUSED	A4	0008	UNUSED	A3	0006	UNUSED
A2	0004	UNUSED	A1	0002	UNUSED			

```
                                 IDENT    DWT
                            ***************************************************************
                            * THIS MODULE CONTAINS THE WORK TABLE FOR EVERY DEVICE
                            ***************************************************************
                                 ENTRY    D:WT
                                 ENTRY    P:DWLG
                                 ENTRY    D:WTEN
                                 ENTRY    D:WAS1
                                 ENTRY    D:WAS2
                                 ENTRY    D:WAS3
                                 ENTRY    D:WPTR
                                 ENTRY    D:WPTP
                                 ENTRY    D:WLP
                                 ENTRY    C:NASR
                                 ENTRY    C:NPTR
                                 ENTRY    C:NPTP
                                 ENTRY    C:NLP
                            ***************************************************************
                                 EXTRN    D:RAS1
                                 EXTRN    D:RAS2
                                 EXTRN    D:RAS3
                                 EXTRN    D:RPTR
                                 EXTRN    D:RPTP
                                 EXTRN    D:RLP
                            *
                                 EXTRN    I:ASR
                                 EXTRN    I:PR
                                 EXTRN    I:PP
                                 EXTRN    I:LP
                            ***************************************************************
                            *
                            D:WT      EQU      *
0000  5459      021A        D:WAS1    DATA     'TY'          *00* TYPEWRITER
0002  0010                            DATA     /0010         *02* DEVICE ADDRESS
0004  0050                            DATA     80            *04* REST LENGTH
0006  0000 X                          DATA     D:RAS1        *06* ACTIVATION DRIVER
0008  8000                            DATA     /8000         *08* SOFTWARE STATUS
000A                                  RES      1             *10*ECB ADDRESS
000C                                  RES      1             *12* CHARACTER ADDRESS
                            *                                *12* BUFFER ADDRESS AT BEGINNING
000E                                  RES      1             *14* REQUESTED LENGTH
0010                                  RES      1             *16* EFFECTIVE LENGTH
0012                                  RES      1             *18* ORDER
0014                                  RES      1             *20* RETRY BIT WITH BASIC ORDER
0016                                  RES      1             *22* OUTPUT * WORD TO OUTPUT
                            *                                *22* INPUT * TABULATION TABLE ADDRESS
0018                                  RES      1             *24* CHECKSUM WITH OBJECT ORDER
                                                             * 24 * LINE PRINTER * SAVE LAST CHARACTER OF BUFFE
001A                                  RES      1             *26* OBJECT 4*4 * RIGHT OR LEFT
                            *                                *26* LINE PRINTER * SAVE CONTROL CODE
001C                                  RES      1             *28*A5
```

```
0051  001E                                    RES     1           *30*A6
0052  0020  0000 R  0020                      DATA    C:NASR      *32* CONTROLLER STATUS ADDRESS
0053  0022  8000                              DATA    /8000       *34*ATTACH
0054  0024  0002 X                           DATA    I:ASR+2     *36* SST SEQUENCE ADDRESS
0055                              *
0056                              ********************************************************************************
0057                              *
0058  0026  5452    0240         D:WAS2      DATA    'TR'        *00* TAPE READER
0059  0028  0010                              DATA    /0010       *02*
0060  002A  0050                              DATA    80
0061  002C  0000 X                           DATA    D:RAS2      *06* DRIVER
0062  002E  C000                              DATA    /C000       *08*
0063  0030                                    RES     9
0064  0042                                    RES     2           *28*30*
0065  0046  0000 R  0020                      DATA    C:NASR      *32*
0066  0048  8000                              DATA    /8000
0067  004A  0002 X                           DATA    I:ASR+2
0068                              *
0069                              ********************************************************************************
0070                              *
0071  004C  5450    0266         D:WAS3      DATA    'Tp'        *00* TAPE PUNCH
0072  004E  0010                              DATA    /0010       *02*
0073  0050  0050                              DATA    80
0074  0052  0000 X                           DATA    D:RAS3      *06* DRIVER
0075  0054  C000                              DATA    /C000       *08*
0076  0056                                    RES     9
0077  0068                                    RES     2           *28*30*
0078  006C  0000 R  0046                      DATA    C:NASR      *32*
0079  006E  8000                              DATA    /8000
0080  0070  0002 X                           DATA    I:ASR+2
0081                              *
0082                              ********************************************************************************
0083                              *
0084  0072  5052    028C         D:WPTR      DATA    'PR'        *00* H S P R
0085  0074  0020                              DATA    /0020       *02*
0086  0076  0050                              DATA    80
0087  0078  0000 X                           DATA    D:RPTR
0088  007A  C000                              DATA    /C000
0089  007C                                    RES     9
0090  008E                                    RES     2           *28*30*
0091  0092  0000 R  0092                      DATA    C:NPTR
0092  0094  8000                              DATA    /8000
0093  0096  0002 X                           DATA    I:PR+2
0094                              *
0095                              ********************************************************************************
0096  0098  5050    02B2         D:WPTP      DATA    'PP'        *00* H S P P
0097  009A  0030                              DATA    /0030
0098  009C  0050                              DATA    80
0099  009E  0000 X                           DATA    D:RPTP
0100  00A0  C000                              DATA    /C000
0101  00A2                                    RES     9
```

```
 00102  00B4                                    RES     2           *28*30*
 00103  00B8  0000 R  00B8                       DATA    C:NPTP
 00104  00BA  8000                               DATA    /8000       *30*
 00105  00BC  0002 X                            DATA    I:PP+2
 00106                              *
 00107                              ************************************************************************************
 00108                              *
 00109                              *
 00110  00BE  4C50       02D8      D:WLP       DATA    'LP'        *00* LINE PRINTER
 00111  00C0  0006                               DATA    /0006
 00112  00C2  0088                               DATA    136
 00113  00C4  0000 X                            DATA    D:RLP       *06* DRIVER
 00114  00C6  8000                               DATA    /8000
 00115  00C8                                     RES     9
 00116  00DA                                     RES     2
 00117  00DE  0000 R  00DE                       DATA    C:NLP       *32*
 00118  00E0  8000                               DATA    /8000
 00119  00E2  0002 X                            DATA    I:LP+2
 00120                              *
 00121                              D:WT1       EQU     *
 00122                    /E4 =     P:DWLG      EQU     D:WT1-D:WT
 00123                              ************************************************************************************
 00124                              *
 00125                              D:WTEN      EQU     *
 00126                              ************************************************************************************
 00127                              *
 00128  00E4  8000       02FE      C:NASR      DATA    /8000
 00129  00E6                                     RES     1
 00130                              *
 00131  00E8  8000       0302      C:NPTR      DATA    /8000
 00132  00EA                                     RES     1
 00133                              *
 00134  00EC  8000       0306      C:NPTP      DATA    /8000
 00135  00EE                                     RES     1
 00136                              *
 00137  00F0  8000       030A      C:NLP       DATA    /8000
 00138  00F2  FFCE                               DATA    -50         * NUMBER OF LINES IN A PAGE
 00139                              ************************************************************************************
 00140                                          END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
D:WT1	00E4	R	I:LP	0000	X	I:PP	0000	X
I:PR	0000	X	I:ASR	0000	X	D:RLP	0000	X
D:RPTP	0000	X	D:RPTR	0000	X	D:RAS3	0000	X
D:RAS2	0000	X	D:RAS1	0000	X	C:NLP	00F0	R
C:NPTP	00EC	R	C:NPTR	00E8	R	C:NASR	00E4	R
D:WLP	00BE	UNUSED	D:WPTP	0098	UNUSED	D:WPTR	0072	UNUSED
D:WAS3	004C	UNUSED	D:WAS2	0026	UNUSED	D:WAS1	0000	UNUSED
D:WTEN	00F4	UNUSED	P:DWLG	00E4	UNUSED	D:WT	0000	R
A15	000F	UNUSED	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	UNUSED
A6	000C	UNUSED	A5	000A	UNUSED	A4	0008	UNUSED
A3	0006	UNUSED	A2	0004	UNUSED	A1	0002	UNUSED

```
0000                                    IDENT    INIT
0001                            * THIS MODULE IS ENTERED TO LOAD THE MODULES AND INITIALIZE
0002                                                    THE RUNNING
0003                                                    LOAD USER (BASE ADDRSESS:/0800
0004                                                    SET BUFFERS AREA LIMIT
0005                                                    SET A15
0006                                                    LOAD USER REGISTERS FROM SAVE AREA
0007                                                    INITIALIZE USER PCT (LEVEL 62)
0008                                                    GIVE CONTROL TO USER
0009                                    ENTRY    INIT,RINIT
0010                                    ENTRY    MAINEX
0011                                    ENTRY    RELOAD
0012                            *
0013                            *
0014                                    EXTRN    CVTSBA,CVTSTB,PCT61
0015                                    EXTRN    CVTBKA
0016                                    EXTRN    CPT
0017                                    EXTRN    SOFMA,FILLAB,SCLFG
0018                                     EXTRN   INHCP
0019                                     EXTRN   C:NASR
0020                                     EXTRN   C:NPTR
0021                                     EXTRN   C:NPTP
0022                                    EXTRN    C:NLP
0023                                    EXTRN    PFAR
0024                                    EXTRN    LDFLAG
0025                                    EXTRN    INHST
0026                                    EXTRN    MCABFL
0027                            *
0028                            *
0029                            ECBWT   EQU      2
0030                            ECBSCL  EQU      4
0031                            SAVADR  EQU      -2
0032                            STADR   EQU      -4
0033                            STATUS  EQU      0
0034                            USPSW   EQU      /F800          LEVEL  62
0035  0000  E9C0      030E      INIT    CW       A9,CVTBKA
      0002  0000 X
0036  0004  5104              RELOAD  RF(1)     *+6
0037  0006  81C0      0314    RELOAD  LD       A9,CVTBKA    SET USER BASE ADDRESS (NORMALLY /0800 )
      0008  0000 X
0038  000A  81C1              RELOAD  ST       A9,CVTBKA
      000C  0000 X
0039  000E  81C1                      ST       A9,PCT61+SAVADR
      0010  FFFE X
0040  0012  0100      0320    RINIT   LDK      A1,0
0041                          MAINEX  EQU      RINIT
0042  0014  4100              RINIT   WIM      A1
0043  0016  8141              RINIT   ST       A1,FILLAB-2
      0018  FFFE X
0044  001A  8141              RINIT   ST       A1,INHST
      001C  0000 X
```

```
00045  001E  8141                        ST      A1,SCLFG
       0020  0000 X
00046  0022  8141                        ST      A1,PCT61+STATUS
       0024  0000 X
00047  0026  8141                        ST      A1,PCT61+ECBWT
       0028  0002 X
00048  002A  8141                        ST      A1,PCT61+ECBSCL
       002C  0004 X
00049  002E  8141                        ST      A1,INHCP
       0030  0000 X
00050  0032  8141                        ST      A1,PFAR
       0034  0000 X
00051  0036  8141                        ST      A1,C:NLP+2
       0038  0002 X
00052  003A  8141                        ST      A1,MCABFL
       003C  0000 X
00053  003E  8161                        ST*     A1,CVTSBA    INITIALIZE GET CORE AREA
       0040  0000 X
00054  0042  8140                        LD      A1,CPT+4     SET EX.SYS. MEM. PROTECT MASK
       0044  0004 X
00055  0046  4140                        WMP     A1
00056  0048  8120                        LDK.L   A1,CPT+6
       004A  0006 X
00057  004C  41C0                        WM2     A1
00058  004E  87C0                        LD      A15,CVTSTB   SET A15 TO STACK BASE
       0050  0000 X
00059  0052  8120                        LDK.L   A1,/8000
       0054  8000
00060  0056  8141                        ST      A1,C:NASR
       0058  0000 X
00061  005A  8141                        ST      A1,C:NPTR
       005C  0000 X
00062  005E  8141                        ST      A1,C:NPTP
       0060  0000 X
00063  0062  8141                        ST      A1,C:NLP
       0064  0000 X
00064  0066  8120                        LDK.L   A1,TESTLD
       0068  0000 R  0066
00065  006A  8220                        LDK.L   A2,USPSW
       006C  F800
00066  006E  893F                        MSR     2,A15
00067  0070  F03F                        RTN     A15
00068  0072  8140              TESTLD    LD      A1,LDFLAG
       0074  0000 X
00069  0076  5806                        RB(0)   TESTLD
00070  0078  8140                        LD      A1,INHST
       007A  0000 X
00071  007C  580C                        RB(0)   TESTLD
00072  007E  20BF                        INH
00073  0080  8140                        LD      A1,PCT61+STADR
       0082  FFFC X
```

```
 00074  0084  8204                    LDR     A2,A1
 00075  0086  2201                    ANK     A2,1
 00076  0088  AA20                    ORK.L   A2,USPSW
        008A  F800
 00077  008C  893F                    MSR     2,A15
 00078  008E  8140                    LD      A1,CVTBKA
        0090  0000 X
 00079  0092  8240                    LD      A2,CVTSRA
        0094  0000 X
 00080  0096  F03E                    RTN     A15         CONTROL TO USER
 00081                               END     INIT
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
TESTLD	0072	R	USPSW	F800	A	STATUS	0000	A
STADR	FFFC	A	SAVADR	FFFE	A	ECBSCL	0004	A
ECBWT	0002	A	MCABFL	0000	X	INHST	0000	X
LIFLAG	0000	X	PFAR	0000	X	C:NLP	0000	X
C:NPTP	0000	X	C:NPTR	0000	X	C:NASR	0000	X
INDCP	0000	X	SCLFG	0000	X	FILLAB	0000	X
SGEMA	0000	X	CPT	0000	X	CVTBKA	0000	X
PCT61	0000	X	CVTSTB	0000	X	CVTSBA	0000	X
RELOAD	0006	UNUSED	MAINEX	0012	UNUSED	RINIT	0012	R
INIT	0000	R	A15	000F	A	A14	000D	UNUSED
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	A	A8	0001	UNUSED
A7	000E	UNUSED	A6	000C	UNUSED	A5	000A	UNUSED
A4	0008	UNUSED	A3	0006	UNUSED	A2	0004	A
A1	0002	A						

```
00000                                  IDENT    HALTES
00001                                  ENTRY    I:TC
00002                                  ENTRY    I:DISK
00003                                  ENTRY    I:CR
00004                                  ENTRY    I:CP
00005                                  ENTRY    M:A00
00006                                ENTRY  I:MA00
00007                                ENTRY  I:MA01
00008                                ENTRY  I:MA02
00009                                ENTRY  I:MA03
00010                                ENTRY  I:MA04
00011                                ENTRY  I:MA05
00012                                ENTRY  I:MA06
00013                                ENTRY  I:MA07
00014                                ENTRY  I:MA08
00015                                ENTRY  I:MA09
00016                                ENTRY  I:MA10
00017                                ENTRY  I:MA11
00018                                ENTRY  I:MA12
00019                                ENTRY  I:MA13
00020                                ENTRY  I:MA14
00021                                ENTRY  I:MA15
00022                          I:MA00  EQU    *
00023                          I:MA01  EQU    *
00024                          I:MA02  EQU    *
00025                          I:MA03  EQU    *
00026                          I:MA04  EQU    *
00027                          I:MA05  EQU    *
00028                          I:MA06  EQU    *
00029                          I:MA07  EQU    *
00030                          I:MA08  EQU    *
00031                          I:MA09  EQU    *
00032                          I:MA10  EQU    *
00033                          I:MA11  EQU    *
00034                          I:MA12  EQU    *
00035                          I:MA13  EQU    *
00036                          I:MA14  EQU    *
00037                          I:MA15  EQU    *
00038                          I:TC    EQU    *
00039                          I:DISK  EQU    *
00040                          I:CR    EQU    *
00041                          I:CP    EQU    *
00042                          M:A00   EQU    *
00043  0000  207F      03A6            HLT
00044  0002  5F04                     RR(7)    *-2
00045                        * STOP COMPUTER IF UNEXPECTED INTERRUPT OR BRANCH
00046                                  END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
I:MA15	0000	UNUSED	I:MA14	0000	UNUSED	I:MA13	0000	UNUSED
I:MA12	0000	UNUSED	I:MA11	0000	UNUSED	I:MA10	0000	UNUSED
I:MA09	0000	UNUSED	I:MA08	0000	UNUSED	I:MA07	0000	UNUSED
I:MA06	0000	UNUSED	I:MA05	0000	UNUSED	I:MA04	0000	UNUSED
I:MA03	0000	UNUSED	I:MA02	0000	UNUSED	I:MA01	0000	UNUSED
I:MA00	0000	UNUSED	M:A00	0000	UNUSED	I:CP	0000	UNUSED
I:CR	0000	UNUSED	I:DISK	0000	UNUSED	I:TC	0000	UNUSED
A15	000F	UNUSED	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	UNUSED
A6	000C	UNUSED	A5	000A	UNUSED	A4	0008	UNUSED
A3	0006	UNUSED	A2	0004	UNUSED	A1	0002	UNUSED

```
 EXIT CODE=0000
#$SAS
#**** CLOCK= 02 /06 /72 AT 15H-53M-16S-
```

```
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  20FF          03AA      I:PFAR   RIT      /17
00009  0002  813F                             STR      A1,A15     SAVE A7
00010  0004  8120                             LDK.L    A1,0
       0006  0000
00011                        03B0    PFAR     EQU      *-2
00012  0008  5100    0008                     RF(1)    AUTRES
00013  000A  813E                             LDR*     A1,A15     RESTORE A7
00014  000C  BF3F                             MSR      14,A15
00015  000E  87C1                             ST       A15,SAVA15
       0010  0000 R  000E
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  8141                             ST       A1,PFAR
       001C  0006 R
00022  001E  87A0                             LDK.L    A15,SAVA15
       0020  0000 R  000E
00023                                  SAVA15   EQU      *-2
00024  0022  8140                             LD       A1,PCT61+STATUS
       0024  0000 X
00025  0026  217F                             ANK      A1,/7F
00026  0028  5400    0028                     RF(4)    ABORT
00027  002A  BF3E                             MLR      14,A15
00028  002C  F03E                             RTN       A15
00029  002E  0201                     ABORT    LDK      A2,1
00030  0030  97A0                             ADK.L    A15,12
       0032  000C
00031  0034  835E                             LD       A3,20,A15
       0036  0014
00032  0038  8F20                             AB.L     SYSAB
       003A  0000 X
00033                                  *
00034                                  *
00035  003C  20F7          03EG      I:RTC    RIT      /18
00036  003E  F03E                             RTN      A15
00037  0040  20FD          03E8      I:MEMP   RIT      /1E
00038  0042  BC3F                             MSR      8,A15
00039  0044  0203                             LDK      A2,3
00040  0046  835E                             LD       A3,20,A15
       0048  0014
```

```
 00041  004A  BF20                    AB.L     SYSAB
        004C  0000 X
 00042                                END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ABORT	002E	R	SAVA15	0020	R	AUTRES	0018	R
STATUS	0000	A	SYSAB	0000	X	PCT61	0000	X
PFAR	0006	R	I:MEMP	0040	UNUSED	I:RTC	003C	UNUSED
I:PFAR	0000	UNUSED	A15	000F	A	A14	000D	UNUSED
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	UNUSED
A7	000E	UNUSED	A6	000C	UNUSED	A5	000A	UNUSED
A4	0008	UNUSED	A3	0006	A	A2	0004	A
A1	0002	A						
00043			:EOS					

ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ABORT	032E	R	SAVA15	0020	R	AUTRES	0018	R
STATUS	0000	A	SYSAB	0000	X	PCT61	0000	X
PFAR	0006	R	I:NEMP	0040	UNUSED	I:RTC	003C	UNUSED
I:PFAR	0000	UNUSED	A15	000F	A	A14	000D	UNUSED
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	UNUSED
A7	000E	UNUSED	A6	000C	UNUSED	A5	000A	UNUSED
A4	0008	UNUSED	A3	0006	A	A2	0004	A
A1	0002	A						

```
0000                                    IDENT   EXIT
0001                                    ENTRY   EXIT
0002                                    EXTRN   DISPAT,SCLFG
0003                                    EXTRN   PCT61
0004                                    EXTRN   EXSCH
0005                                    EXTRN   CVTSBA
0006                            * EXIT MODULE FOR GAMMA 4K EXEC. SYST.
0007                            STATUS  EQU     0
0008                            SAVADR  EQU     -2
0009                            STADR   EQU     -4
0010  0000  8140          03F8  EXIT    LD      A1,SCLFG                                EXITSC03
      0002  0000 X
0011  0004  5100    0004               RF(1)   EXIT1                                   EXITSC04
0012  0006  1600                       ADK     A6,0
0013  0008  5200    0008               RF(2)   LLEXIT
0014                            *                       EXIT FROM MAIN ,SET  EXIT BIT   EXITSC06
0015  000A  8120                EXITA   LDK.L   A1,/800
      000C  0800
0016  000E  A941                       OR.S    A1,PCT61+STATUS                         EXITSC08
      0010  0000 X
0017  0012  8F20                EXIT2   AR.L    DISPAT
      0014  0000 X
0018                            * EXIT FOR SCHEDULE LABEL ********************************************** EXITSC00
0019  0016  0100                EXIT1   LDK     A1,0                                    EXITSC12
0020  0018  8141                       ST      A1,SCLFG                                EXITSC13
      001A  0000 X
0021  001C  9041                       IM      EXSCH     SET EXIT FOR SCHDULE LABEL FLAG
      001E  0000 X
0022  0020  5F10                       RB      EXIT2                                   EXITSC15
0023                            ************************************************************************ EXITSC16
0024  0022  81C1                LLEXIT  ST      A9,PCT61+STADR
      0024  FFFC X
0025  0026  1F24                       SUK     A7,36
0026  0028  8741                       ST      A7,PCT61+SAVADR
      002A  FFFE X
0027  002C  88C1                       ST      A8,CVTSBA
      002E  0000 X
0028  0030  8620                       LDK.L   A6,-1
      0032  FFFF
0029  0034  9641                       AD.S    A6,PCT61+STATUS
      0036  0000 X
0030  0038  0600                       LDK     A6,0
0031  003A  5F32                       RB      EXITA
0032                                    END
ASS.ERR. 00000
```

```
**SYMBOL**   **VALUE*                **SYMBOL**   **VALUE*                **SYMBOL**   **VALUE*
  EXIT2        0012   R                 EXITA        000A   R                 LLEXIT       0022   R
  EXIT1        0016   R                 STADR        FFFC   A                 SAVADR       FFFE   A
  STATUS       0000   A                 CVTSBA       0000   X                 EXSCH        0000   X
  PCT61        0000   X                 SCLFG        0000   X                 DISPAT       0000   X
  EXIT         0000   UNUSED            A15          000F   UNUSED            A14          000D   UNUSED
  A13          000B   UNUSED            A12          0009   UNUSED            A11          0007   UNUSED
  A10          0005   UNUSED            A9           0003   A                 A8           0001   A
  A7           000E   A                 A6           000C   A                 A5           000A   UNUSED
  A4           0008   UNUSED            A3           0006   UNUSED            A2           0004   UNUSED
  A1           0002   A
 00033                                  $EOS
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
EXIT2	0012	R	EXITA	000A	R	LLEXIT	0022	R
EXIT1	0016	R	STADR	FFFC	A	SAVADR	FFFE	A
STATUS	0000	A	CVTSBA	0000	X	EXSCH	0000	X
PCT61	0000	X	SCLFG	0000	X	DISPAT	0000	X
EXIT	0000	UNUSED	A15	000F	UNUSED	A14	000D	UNUSED
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	A	A8	0001	A
A7	000E	A	A6	000C	A	A5	000A	UNUSED
A4	0008	UNUSED	A3	0006	UNUSED	A2	0004	UNUSED
A1	0002	A						

```
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                          0434  PWAIT  EQU       *
00010  0000  8140                    WAIT   LD        A1,SCLFG
       0002  0000 X
00011  0004  5000    0004                  RF(0)     WAIT1
00012  0006  8CC1                          ST        A8,PCT61+ECBSCL
       0008  0004 X
00013  000A  5700    000A                  RF        RETURN
00014  000C  8CC1                    WAIT1  ST        A8,PCT61+ECBWT
       000E  0002 X
00015  0010  8F20                    RETURN AB.L      DISPAT
       0012  0000 X
00016                                      END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
RETURN	0010	R	WAIT1	000C	R	ECBSCL	0004	A
ECBWT	0002	A	PCT61	0000	X	DISPAT	0000	X
SCLFG	0000	X	PWAIT	0000	UNUSED	WAIT	0000	UNUSED
A15	000F	UNUSED	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	A	A7	000E	UNUSED
A6	000C	UNUSED	A5	000A	UNUSED	A4	0008	UNUSED
A3	0006	UNUSED	A2	0004	UNUSED	A1	0002	A

C0017 $EOS
ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
RETURN	0010	R	WAIT1	000C	R	ECBSCL	0004	A
ECBWT	0002	A	PCT61	0000	X	DISPAT	0000	X
SCLFG	0000	X	PWAIT	0000	UNUSED	WAIT	0000	UNUSED
A15	000F	UNUSED	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	A	A7	000E	UNUSED
A6	000C	UNUSED	A5	000A	UNUSED	A4	0008	UNUSED
A3	0006	UNUSED	A2	0004	UNUSED	A1	0002	A

```
                                 IDENT   PCT61
                                 ENTRY   PCT61
0000  0000              STADR    DATA    0
0002  0000              SAVADR   DATA    0  -> = CVTBKA at Initialisation
0004  0000              STATUS   DATA    0  -> =0 at init.
                 044C   PCT61    EQU     *=2
0006  0000              ECBWT    DATA    0  -> =0 at init.
0008  0000              ECBSCL   DATA    0  -> =0 at init.
                                 END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ECBSCL	0008	UNUSED	ECBWT	0006	UNUSED	STATUS	0004	UNUSED
SAVADR	0002	UNUSED	STADR	0000	UNUSED	PCT61	0004	UNUSED
A15	000F	UNUSED	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	UNUSED
A6	000C	UNUSED	A5	000A	UNUSED	A4	0008	UNUSED
A3	0006	UNUSED	A2	0004	UNUSED	A1	0002	UNUSED

00009 *EOS
ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ECBSCL	0008	UNUSED	ECBWT	0006	UNUSED	STATUS	0004	UNUSED
SAVADR	0002	UNUSED	STADR	0000	UNUSED	PCT61	0004	UNUSED
A15	000F	UNUSED	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	UNUSED
A6	000C	UNUSED	A5	000A	UNUSED	A4	0008	UNUSED
A3	0006	UNUSED	A2	0004	UNUSED	A1	0002	UNUSED

```
                                     IDENT     GETBUF                                              GETBF001
                          ***********************************************************************  GETBF002
                          *THIS  MODULE  ALLOCATES  DYNAMIC MEMORY BLOCK TO THE USER ON THE        GETBF003
                          *          SAGITTAIRE  GAMMA WITH 4K OF CORE MEMORY                      GETBF004
                          *                                                                        GETBF005
                          *                                                                        GETBF006
                          *                    CALLING SEQUENCE :     A7 =BLOCK LENGTH IN CHARACTER  GETBF007
                          *                                           LKM                          GETBF008
                          *                                           DATA   4                     GETBF009
                          *                    UPON RETURN      :     OLD  AI4 IN BLOCK            GETBF011
                          *                                           NEW  AI4 GIVES ADDRESS OF THE  GETBF012
                          *                                           BEGINNING OF THE BLOCK       GETBF013
                          *                                                                        GETBF014
                          *                                IF  NO ROOM   A7=+1
                          *                                                                        GETBF016
                          *                                                                        GETBF017
                          *                                                                        GETBF018
                          ***********************************************************************  GETBF019
                                     ENTRY     GETBUF                                              GETBF020
                                     EXTRN     CVTMSZ,CVTSBA,CVTBBA                                GETBF021
                                     EXTRN     DISPAT
                                     EXTRN CHLEV
                                     EXTRN     SYSAB
                          *                                                                        GETBF022
                          *                                                                        GETBF023
0000  0130         0452   GETBUF     LDK       A1,48
0002  87C1                           ST        A15,SAV15
0004  0000 R  0002
0006  F7A1                           CF        A15,CHLEV
0008  0000 X
000A  8098                           LDR       A8,A6
000C  1700                GET0       ADK       A7,0
000E  5400    000E                   RF(4)     GET1                                                GETBF025
                          *                                                                        GETBF026
0010  8740                           LD        A7,CVTMSZ       A7=0  GIVE MEMSIZE TO USER (IN AI4)
0012  0000 X
0014  5700    0014                   RF        RETURN
                          *                                                                        GETBF029
                          *                                                                        GETBF030
0016  8240                GET1       LD        A2,CVTSBA       GET ADDRESS OF 1ST  AREA LOCATION   GETBF031
0018  0000 X
001A  1705                           ADK       A7,5
001C  A720                           ANK,L     A7,/FFFE
001E  FFFE
0020  0600                           LDK       A6,0                                                GETBF033
0022  0401                           LDK       A4,1                                                GETBF034
                          *                                                                        GETBF035
                          *                                                                        GETBF036
0024  8128                GET2       LDR*      A1,A2                                               GETBF037
0026  5000    0026                   RF(0)     GET5           END OF ALLOCATED AREA,GO AND SEE     GETBF038
                          *                               IF THERE IS ENOUGH ROOM LEFT             GETBF039
```

```
                                 *                                                     GETBF040
0028  A111                               TM      A1,A4      IS THE BLOCK (ALLOCATED) BUSY          GETBF041
002A  5000     002A                      RF(0)   GET4       NOT BUSY ,GO AND SEE IF THE SIZE IS O.K.  GETBF042
                                 *                                                     GETBF043
                                 *                                                     GETBF044
002C  8228                       GET3    LDR*    A2,A2      GO TO NEXT BLOCK                       GETBF045
002E  5F0C                               RB(7)   GET2                                              GETBF046
                                 *                                                     GETBF047
                                 *                                                     GETBF048
0030  8504                       GET4    LDR     A5,A1      A5=IND OF BLOCK                        GETBF049
0032  9D08                               SUR     A5,A2      A5=LENGTH OF BLOCK                     GETBF050
                                 *                                                     GETBF051
                                 *                                                     GETBF052
0034  ED1C                               CWR     A5,A7                                             GETBF056
0036  5A0C                               RB(2)   GET3       BLOCK TOO SMALL                        GETBF057
                                 *                                                     GETBF055
0038  1600                               ADK     A6,0
003A  5000     003A                      RF(0)   GET4A
003C  EE14                               CWR     A6,A5      A6= PREVIOUS AVAILABLE BLOCK LENGTH    GETBF053
003E  5A14                               RB(2)   GET3       PREVIOUS IS BETTER                     GETBF054
                                 *                                                     GETBF058
0040  8614                       GET4A   LDR     A6,A5      BLOCK  ALL RIGHT  GO TO SEE            GETBF059
0042  8308                               LDR     A3,A2      IF THERE IS ANYTHING BETTER            GETBF060
                                 *                                                     GETBF061
0044  5F1A                               RB(7)   GET3                                              GETBF062
                                 *                                                     GETBF063
                                 *                                                     GETBF064
                                 *                                                     GETBF065
                                 *                                                     GETBF066
0046  1600                       GET5    ADK     A6,0       HAVE  WE  FOUND AN ALLOC-NOTBUSY BLOCK?  GETBF067
0048  5400     0048                      RF(4)   GET8       YES                                    GETBF068
004A  A220                               ANK,L   A2,/FFFE
004C  FFFF
                                 *                                                     GETBF069
004E  8108                               LDR     A1,A2      NO  LOOK IF THERE STILL ROOM ENOUGH    GETBF070
0050  911C                               ADR     A1,A7                                             GETBF071
0052  F940                               CW      A1,CVTBBA                                         GETBF072
0054  0000 X
0056  5200     0056                      RF(2)   GET6       NOT YET IN OVERFLOW                    GETBF073
0058  0701                       GET5A   LDK     A7,1       CORE O'FLOW
005A  5700     0014                      RF      RETURN                                            GETBF075
005C  EA40                       GET6    CW      A2,CVTSBA                                         GETBF076
005E  0000 X
0060  5200     0060                      RF(2)   ERROR      AREA DESTROYED BY USER                 GETBF077
0062  1101                               ADK     A1,1       SET BLOCK BUSY                         GETBF078
0064  8129                               STR     A1,A2                                             GETBF079
0066  0700                               LDK     A7,0                                              GETBF080
0068  8769                               ST*     A7,0,A2          PUT IN NEXT BLOCK LINK
006A  0000
                                 *                                                     GETBF082
006C  86C9                       GET7    ST      A14,2,A2   PUT OLD A14 IN BLOCK
```

```
      006E  0002
 0093 0070  0700                        LDK     A7,0
 0094 0072  1206                        ADK     A2,6                                    GETBF084
 0095 0074  8688                        LDR     A14,A2      UPDATE NEW A14              GETBF085
 0096                           *                                                       GETBF086
 0097                           *                                                       GETBF087
 0098 0076  8602                RETURN  LDR     A6,A8
 0099 0078  8120                        LDK.L   A1,SAV15
      007A  0000 R  0002
 0100                           SAV15   EQU     *-2
 0101 007C  8745                        ST      A7,4,A1
      007E  0004
 0102 0080  8F20                        AB.L    DISPAT
      0082  0000 X
 0103                           *                                                       GETBF090
 0104                           *                                                       GETBF091
 0105 0084  8520                GET8    LDK.L   A5,CVTSBA   CHECK IF ANYTHING           GETBF098
      0086  0000 X
 0106 0088  EB34                        CWR*    A3,A5       WRONG=                      GETBF099
 0107 008A  5200    0060                RF(2)   ERROR                                   GETBF100
 0108 008C  1302                        ADK     A5,2
 0109 008E  EB34                        CWR*    A3,A5                                   GETBF102
 0110 0090  5600    008A                RF(6)   ERROR                                   GETBF103
 0111                           *                                                       GETBF095
 0112                           *                                                       GETBF096
 0113 0092  902D                        IMR     A3          RESET BUSY-BLOCK FLAG       GETBF092
 0114 0094  820C                        LDR     A2,A3                                   GETBF093
 0115 0096  5F2C                        RB      GET7        GO TO UPDATE A14            GETBF094
 0116                           *                                                       GETBF097
 0117                           *                                                       GETBF104
 0118                           *                                                       GETBF105
 0119 0098  0204                ERROR   LDK     A2,4
 0120 009A  8340                        LD      A3,SAV15
      009C  007A R
 0121 009E  834C                        LD      A3,20,A3
      00A0  0014
 0122 00A2  8F20                        AB.L    SYSAB
      00A4  0000 X
 0123                           *                                                       GETBF107
 0124                           *                                                       GETBF108
 0125                                   END                                             GETBF109
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
GET7	006C	R	ERROR	0098	R	GET5A	0058	UNUSED
GET6	005C	R	GET8	0084	R	GET4A	0040	R
GET3	002C	R	GET4	0030	R	GET5	0046	R
GET2	0024	R	RETURN	0076	R	GET1	0016	R
GET0	000C	UNUSED	SAV15	007A	R	SYSAB	0000	X
CHLEV	0000	X	DISPAT	0000	X	CVTBBA	0000	X
CVTSBA	0000	X	CVTMSZ	0000	X	GETBUF	0000	UNUSED
A15	000F	A	A14	000D	A	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	A	A7	000E	A
A6	000C	A	A5	000A	A	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

00126 *EOS
ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
GET7	005C	R	ERROR	0098	R	GET5A	0058	UNUSED
GET6	005C	R	GET8	0084	R	GET4A	0040	R
GET3	002C	R	GET4	0030	R	GET5	0046	R
GET2	0024	R	RETURN	0076	R	GET1	0016	R
GET0	000C	UNUSED	SAV15	007A	R	SYSAB	0000	X
CHLEV	0000	X	DISPAT	0000	X	CVTBBA	0000	X
CVTSBA	0000	X	CVTMSZ	0000	X	GETBUF	0000	UNUSED
A15	000F	A	A14	000D	A	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	A	A7	000E	A
A6	000C	A	A5	000A	A	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

```
                              IDENT    FRBUFF                                              FRBUF000
                         *RELEASING OF A BLOCK IN DYNAMIC  BUFFER AREA                     FRBUF001
                         *                                                                 FRBUF002
                         *                UPON ENTRY   A14 =USER ENTRY POINT IN THE BLOCK   FRBUF003
                         *                             A7  =LENGTH OF THE BLOCK             FRBUF004
                                          UPON RETURN                                      FRBUF
                                          UPON RETURN  A7  =0  O.K.                        FRBUF005
                                                       A7=  1  ERROR IN PARAMETERS
                                                               OR  4REA  DISTROYED         FRBUF007
                              ENTRY    FRBUFF                                              FRBUF008
                              EXTRN    CVTSBA,CVTBBA                                       FRBUF009
                              EXTRN    DISPAT
                              EXTRN CHLEV
                         *                                                                 FRBUF010
                         *                                                                 FRBUF011
0000  0130        04F8   FRBUFF   LDK      A1,48
0002  809E                        LDR      A8,A15
0004  F7A1                        CF       A15,CHLEV
0006  0000 X
0008  821A               FREE0    LDR      A2,A14
000A  1A06                        SUK      A2,6          A2 =BEGINNING OF THE BLOCK        FRBUF013
000C  EA40                        CW       A2,CVTSBA                                       FRBUF014
000E  0000 X
0010  5200    0010                RF(2)    ERROR         BAD A14 GIVEN
0012  EA40                        CW       A2,CVTBBA                                       FRBUF016
0014  0000 X
0016  5600    0010                RF(6)    ERROR                                           FRBUF017
                         *                                                                 FRBUF018
0018  1705                        ADK      A7,5
001A  A720                        ANK.L    A7,/FFFE
001C  FFFE
001E  8328                        LDR*     A3,A2                                           FRBUF020
0020  812C                        LDR*     A1,A3                                           FRBUF021
0022  9308                        SUR      A3,A2         A3=LENGTH OF BLOCK                FRBUF022
0024  1301                        SUK      A3,1
0026  EF0C                        CWR      A7,A3
0028  5400    0016                RF(4)    ERROR                                           FRBUF023
002A  1100                        ADK      A1,0                                            FRBUF024
002C  5000    002C                RF(0)    FREE1                                           FRBUF025
                         *                                                                 FRBUF026
002E  8420                        LDK.L    A4,/FFFE      THE BLOCK  IS NOT THE LAST        FRBUF027
0030  FFFE
0032  A429                        ANR.S    A4,A2         OF THE CHAIN , RA2 BUSY BIT       FRBUF028
0034  5700    0034                RF       FREE2                                           FRBUF030
0036  8129               FREE1    STR      A1,A2         END  OF THE CHAIN PUT 0           FRBUF032
                         *                               IN  LAST FORWARD LINK             FRBUF033
                         *                                                                 FRBUF034
                         *                                                                 FRBUF035
0038  1202               FREE2    ADK      A2,2                                            FRBUF036
003A  8EA8                        LDR*     A14,A2        RESER  A14 TO USER                FRBUF037
                         *                                                                 FRBUF039
```

```
 00046  003C  0700                        LDK     A7,0                                    FRBUF040
 00047  003E  8743              RETURN    ST      A7,4,A8
        0040  0004
 00048  0042  8F20                        AB,L    DISPAT
        0044  0000 X
 00049                          *                                                       FRBUF043
 00050  0046  0701              ERROR     LDK     A7,1                                    FRBUF044
 00051  0048  8F0C                        RB      RETURN                                  FRBUF045
 00052                          *                                                       FRBUF046
 00053                                    END                                             FRBUF047
ASS.ERR. 00000
```

```
**SYMBOL**   **VALUE*
  RETURN       003E    R
  ERROR        0046    R
  DISPAT       0000    X
  FREUFF       0000  UNUSED
  A13          0008  UNUSED
  A10          0005  UNUSED
  A7           000E    A
  A4           0008    A
  A1           0002    A .
 00054
ASS.ERR. 00000

**SYMBOL**   **VALUE*
  FREE2        0038    R
  FREE0        0008  UNUSED
  CVTBBA       0000    X
  A15          000F    A
  A12          0009  UNUSED
  A9           0003  UNUSED
  A6           000C  UNUSED
  A3           0006    A
 .EOS

**SYMBOL**   **VALUE*
  FREE1        0036    R
  CHLEV        0000    X
  CVTSBA       0000    X
  A14          000D    A
  A11          0007  UNUSED
  A8           0001    A
  A5           000A  UNUSED
  A2           0004    A
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
RETURN	003E	R	FREE2	0038	R	FREE1	0036	R
ERROR	0046	R	FREE0	0008	UNUSED	CHLEV	0000	X
DISPAT	0000	X	CVTBBA	0000	X	CVTSBA	0000	X
FRNUFF	0000	UNUSED	A15	000F	A	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	A
A7	000E	A	A6	000C	UNUSED	A5	000A	UNUSED
A4	0008	A	A3	0006	A	A2	0004	A
A1	0002	A						

```
                              IDENT   I:MHDL
                     ***********************************************************************
                     *
                     *
                     * INTERRUPT  HANDLER [for the common int. line] ,DO AN  INDIRECT BRANCH TO THE INTERRUPT
                     *        PROCESSOR
                     *
                     ***********************************************************************
                              ENTRY   INTAB
                              ENTRY   I:MHDL
                     *
                     *
                     *
                              EXTRN   I:MA00
                              EXTRN   I:MA01
                              EXTRN   I:MA02
                              EXTRN   I:MA03
                              EXTRN   I:MA04
                              EXTRN   I:MA05
                              EXTRN   I:MA06
                              EXTRN   I:MA07
                              EXTRN   I:MA08
                              EXTRN   I:MA09
                              EXTRN   I:MA10
                              EXTRN   I:MA11
                              EXTRN   I:MA12
                              EXTRN   I:MA13
                              EXTRN   I:MA14
                              EXTRN   I:MA15
0000  0000 X      0542 INTAB  DATA    I:MA00
0002  0000 X                  DATA    I:MA01
0004  0000 X                  DATA    I:MA02
0006  0000 X                  DATA    I:MA03
0008  0000 X                  DATA    I:MA04
000A  0000 X                  DATA    I:MA05
000C  0000 X                  DATA    I:MA06
000E  0000 X                  DATA    I:MA07
0010  0000 X                  DATA    I:MA08
0012  0000 X                  DATA    I:MA09
0014  0000 X                  DATA    I:MA10
0016  0000 X                  DATA    I:MA11
0018  0000 X                  DATA    I:MA12
001A  0000 X                  DATA    I:MA13
001C  0000 X                  DATA    I:MA14
001E  0000 X                  DATA    I:MA15
                     *
                     *
0020  BC3F        0562 I:MHDL MSR     8,A15
0022  4900                    RIL     A1
0024  0200                    LDK     A2,0
0026  1100                    ADK     A1,0
```

```
 0051  0028  5200     0028                RF(2)     SWITCH
 0052  002A  E920                         CWK       A1,/FF
       002C  00FF
 0053  002E  5100     002E                RF(1)     SHIFT
 0054  0030  0210                         LDK       A2,16
 0055  0032  E104                         EGR       A1,A1
 0056  0034  1100                         ADK       A1,0
 0057  0036  5200     0028                RF(2)     SWITCH
 0058  0038  1202                 SHIFT   ADK       A2,2
 0059  003A  3941                         SLL1      A1
 0060  003C  5E06                         RB(6)     SHIFT
 0061  003E  8F48                 SWITCH  ABI       INTAB,A2
       0040  0000 R
 0062                                    *
 0063                                    ********************************************************************************
 0064                                    ********************************************************************************
 0065                                    END
ASS.ERR. 00000
```

```
**SYMBOL**   **VALUE*
   SHIFT        0038   R
   I:MA14       0000   X
   I:MA11       0000   X
   I:MA08       0000   X
   I:MA05       0000   X
   I:MA02       0000   X
   I:MHDL       0020   UNUSED
   A14          000D   UNUSED
   A11          0007   UNUSED
   A8           0001   UNUSED
   A5           000A   UNUSED
   A2           0004   A
  .0006

**SYMBOL**   **VALUE*
   SWITCH       003E   R
   I:MA13       0000   X
   I:MA10       0000   X
   I:MA07       0000   X
   I:MA04       0000   X
   I:MA01       0000   X
   INTAB        0000   R
   A13          000B   UNUSED
   A10          0005   UNUSED
   A7           000E   UNUSED
   A4           0008   UNUSED
   A1           0002   A
   :EOS

**SYMBOL**   **VALUE*
   I:MA15       0000   X
   I:MA12       0000   X
   I:MA09       0000   X
   I:MA06       0000   X
   I:MA03       0000   X
   I:MA00       0000   X
   A15          000F   A
   A12          0009   UNUSED
   A9           0003   UNUSED
   A6           000C   UNUSED
   A3           0006   UNUSED

ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
SHIFT	0038	R	SWITCH	003E	R	I:MA15	0000	X
I:MA14	0000	X	I:MA13	0000	X	I:MA12	0000	X
I:MA11	0000	X	I:MA10	0000	X	I:MA09	0000	X
I:MA08	0000	X	I:MA07	0000	X	I:MA06	0000	X
I:MA05	0000	X	I:MA04	0000	X	I:MA03	0000	X
I:MA02	0000	X	I:MA01	0000	X	I:MA00	0000	X
I:MHDL	0020	UNUSED	INTAB	0000	R	A15	000F	A
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	UNUSED	A7	000E	UNUSED	A6	000C	UNUSED
A5	000A	UNUSED	A4	0008	UNUSED	A3	0006	UNUSED
A2	0004	A	A1	0002	A			

```
                                  IDENT    NSCHLB
                        ********************************************************************** SCHLA002
                        *SCHEDULE LABEL DISPATCHEUR                                           SCHLA003
                              CREATE A NEW ENTRY IN SCHEDULE LABEL FILE  IF A6#0              SCHLA005
                              THEN  LOOKS FOR  LAST LEVEL  IN   STACK                         SCHLA006
                                   IF  <48    RTN  AFTER MLR                                  SCHLA008
                                   IF 49<L<61  ERROR,HALT                                     SCHLA009
                                   IF  62     PROCESS LABEL IF ANY                            SCHLA010
                                   IF  63     RESET FIRST MAIN REGISTERS, THEN PROCESS        SCHLA011
                                              AS FOR 62.                                      SCHLA012
                             ENTRY    DISPAT                                                  SCHLA015
                             ENTRY    FILLAB
                             ENTRY    SCLFG
                             ENTRY    EXSCH
                        *
                        *
                             EXTRN    PCT61                                                   SCHLA016
                             EXTRN    MAINEX                                                  SCHLA017
                             EXTRN    CHLEV
                             EXTRN    SYSAB
                        *
                        *
                        SAVADR   EQU      -2
                        STATUS   EQU      0                                                   SCHLA020
                        ECBWT    EQU      2
                        ECBSCL   EQU      4
 0000  20BF             DISPAT   INH
 0002  1600                      ADK      A6,0
 0004  5000      0004            RF(0)    DISP1         NO LABEL TO PUT IN FILE               SCHLA025
 0006  8140                      LD       A1,FILLAB-2                                         SCHLA027
 0008  0000 R    0006
 000A  E920                      CWK      A1,14                                               SCHLA030
 000C  000E
 000E  5208                      RF(2)    *+10
 0010  0205                      LDK      A2,5
 0012  8318                      LDR      A3,A6
 0014  8F20                      AB.L     SYSAB                 ERROR TOO MANY LABEL
 0016  0000 X
 0018  8545                      ST       A6,FILLAB,A1  PUT NEW ENTRY IN FILE                 SCHLA035
 001A  0000 R    0006
                        *                                 INCREMENT NUMBER OF ENTRY           SCHLA036
 001C  1102                      ADK      A1,2                                                SCHLA037
 001E  8141                      ST       A1,FILLAB-2                                         SCHLA038
 0020  0000 R    0018
 0022  8120                      LDK.L    A1,-1
 0024  FFFF
 0026  9141                      AB.S     A1,PCT61+STATUS
 0028  0000 X
 002A  815E             DISP1    LD       A1,18,A15    TAKE PSW INTERRJPTED
 002C  0012
 002E  396A                      SRL      A1,10                                               SCHLA043
```

```
0043  0030  1932                          SUK     A1,50
0044  0032  5104                          RF(1)   *+6             >49
0045  0034  BC3F          RETURN          MLR     8,A15           QUICK  BACK  TO  PROGRAM
0046  0036  F03E                          RTN     A15                                          SCHLA047
0047  0038  190B                          SUK     A1,11
0048  003A  5102                          RF(1)   *+4
0049  003C  207F                          HLT                     BIG ERROR  49<LEVEL<62       SCHLA051
0050  003E  1901                          SUK     A1,1
0051  0040  5004                          RF(0)   *+6
0052  0042  97A0                          ADK.L   A15,20
      0044  0014
0053  0046  E140                          LC      A1,PCT61+STATUS
      0048  0000 X
0054  004A  2140                          ANK     A1,/40          IN PAUSE ?
0055  004C  5400    004C                  RF(4)   DISP3           YES
0056  004E  8240                          LD      A2,SCLFG                                     SCHLA056
      0050  0000 R  004E
0057  0052  5000    0052                  RF(0)   DISPAB
0058  0054  8340                          LD      A3,PCT61+ECBSCL         IN WAIT (SCH. LABEL )
      0056  0004 X
0059  0058  5826                          RR(0)   RETURN                   NO
0060  005A  822C                          LDR*    A2,A3                   EVENT OCCURRED
0061  005C  5600    004C                  RF(6)   DISP3                   NO
0062  005E  8141                          ST      A1,PCT61+ECBSCL          YES RAZ EVENT ADDRESS
      0060  0004 X
0063  0062  5F30                          RR      RETURN
0064  0064  8120          DISPAB          LDK.L   A1,0            EXIT OF A SCHEDULED LABEL
      0066  0000
0065                 05EA  EXSCH           EQU     *-2
0066  0068  5500    0068                  RF(5)   DISPX           NO
0067  006A  0100                          LDK     A1,0            RESET EXSCH
0068  006C  8141                          ST      A1,EXSCH
      006E  0066 R
0069  0070  97A0                          ADK.L   A15,20
      0072  0014
0070  0074  8340                          LD      A3,PCT61+SAVADR
      0076  FFFE X
0071  0078  B92C                          MLR     2,A3
0072  007A  B93F                          MSR     2,A15
0073  007C  1304                          ADK     A3,4
0074  007E  BF2C                          MLR     14,A3
0075  0080  BC3F                          MSR     8,A15
0076  0082  8240          DISPX   LD      A2,FILLAB-2
      0084  0000 R  001E
0077  0086  5000    0086                  RF(0)   DISP2           NO ELEMENT IN LABEL FILE     SCHLA064
0078  0088  8140                          LD      A1,PCT61+SAVADR
      008A  FFFE X
0079  008C  86C5                          ST      A14,30,A1
      008E  001E
0080  0090  1104                          ADK     A1,4
0081  0092  8584                          LDR     A14,A1
```

```
00082  0094  BC3E                        MLR     8,A15
00083  0096  BEBB                        MSR     13,A14
00084  0098  B83E                        MLR     2,A15
00085  009A  B85B                        MS      2,-4,A14
       009C  FFFC
00086  009E  9041                        IM      SCLFG       SET INTERRUPT SEQUENCE RUNNING FLAG      SCHLA067
       00A0  0000 R  004E
00087  00A2  8240                        LD      A2,FILLAB-2
       00A4  0000 R  0082
00088  00A6  8348                        LD      A3,FILLAB-2,A2                                       SC8LA0
       00A8  0000 R  00A2
00089  00AA  833F                        STR     A3,A15
00090  00AC  1A02                        SUK     A2,2                                                 SCHLA075
00091  00AE  8241                        ST      A2,FILLAB-2
       00B0  0000 R  00A6
00092  00B2  9FA0                        SUK.L   A15,2
       00B4  0002
00093  00B6  F03E                        RTN     A15
00094  00B8  8340              DISP2     LD      A3,PCT61+ECBWT      IN WAIT (MAIN)
       00BA  0002 X
00095  00BC  5000    00BC              RF(0)     DISP2A              NO
00096  00BE  822C                        LDR*    A2,A3               EV. OCCURRED
00097  00C0  5600    005C              RF(6)     DISP3               NO
00098  00C2  0100                        LDK     A1,0
00099  00C4  8141                        ST      A1,PCT61+ECBWT      RAZ EVENT ADDRESS
       00C6  0002 X
00100  00C8  5F96                        RB      RETURN
00101  00CA  8140              DISP2A    LD      A1,PCT61+STATUS
       00CC  0000 X
00102  00CE  39C4                        SLC     A1,4                EXIT BIT ON ?
00103  00D0  5E9E                        RB(6)   RETURN          NO,RETURN TO MAIN                    SCHLA085
00104                                                              YES IS EVERYTHING QUIET ?            SCHLA087
00105  00D2  A120                        ANK.L   A1,/7F0         /7F0 BECAUSE SLC BEFORE
       00D4  07F0
00106  00D6  5400    00C0              RF(4)     DISP3
00107  00D8  0100                        LDK     A1,0
00108  00DA  8141                        ST      A1,PCT61+STATUS
       00DC  0000 X
00109  00DE  0130                        LDK      A1,48
00110  00E0  F7A1                        CF      A15,CHLEV
       00E2  0000 X
00111  00E4  80A0                        LDK.L   A8,ECBEX
       00E6  0000 R  00E4
00112  00E8  0705                        LDK     A7,5
00113  00EA  2804                        LKM
00114  00EC  0001                        DATA    1
00115  00EE  8722                        LDR*    A7,A8
00116  00F0  5E04                        RB(6)   *-2
00117  00F2  8F20                        AB.L    MAINEX      GO TO MAINEX
       00F4  0000 X
00118  00F6  0005              ECBEX     DATA    5
```

```
 00119  00F8  0000 R  00F8                    DATA    EXMSG
 00120  00FA  0008                           DATA    8
 00121  00FC                                 RES     2
 00122  0100  0D0A                  EXMSG    DATA    /0D0A
 00123  0102  4558                           DATA    'EXIT'
        0104  4954
 00124  0106  0D0A                           DATA    /0D0A
 00125                              *
 00126                              *
 00127                              ********************************************************************************
 00128                              *
 00129                              *                          NOT YET  QUIET ,IDLE TASK.          SCHLA092
 00130  0108  8220                  DISP3    LDK.L   A2,/FC00 ← level 63
        010A  FC00
 00131  010C  8120                           LDK.L   A1,ADDR
        010E  0000 R  010C
 00132  0110  B93F                           MSR     2,A15
 00133  0112  F03E                           RTN     A15 ← change to level 63
 00134  0114  5F02                  ADDR     RB      ADDR            IDLE  LOOP          SCHLA098
 00135  0116  0000                           DATA    0 → pointer for FILLAB              SCHLA103
 00136  0118          069C → [FILLAB]        RES     7 ← label file                      SCHLA104
 00137  0126  0000     06AA → [SCLFG]         DATA    0
 00138                                      END                                         SCHLA106
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ADDR	0114	R	EXMSG	0100	R	ECBEX	00F6	R
DISP2A	00CA	R	DISP2	00B8	R	DISPX	0082	R
DISPAB	0064	R	DISP3	0108	R	RETURN	0034	R
DISP1	002A	R	ECBSCL	0004	A	ECBWT	0002	A
STATUS	0000	A	SAVADR	FFFE	A	SYSAB	0000	X
CHLEV	0000	X	MAINEX	0000	X	PCT61	0000	X
EXSCH	0066	R	SCLFG	0126	R	FILLAB	0118	R
DISPAT	0000	UNUSED	A15	000F	A	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	A
A7	000F	A	A6	000C	A	A5	000A	UNUSED
A4	0008	UNUSED	A3	0006	A	A2	0004	A
A1	0002	A						

00139 $EOS

ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ADDR	0114	R	EXMSG	0100	R	ECBEX	00F6	R
DISP2A	00CA	R	DISP2	0088	R	DISPX	0082	R
DISPAB	0064	R	DISP3	0108	R	RETURN	0034	R
DISP1	002A	R	ECBSCL	0004	A	ECBWT	0002	A
STATUS	0000	A	SAVADR	FFFE	A	SYSAB	0000	X
CHIEV	0000	X	MAINEX	0000	X	PCT61	0000	X
EXSCH	0066	R	SCLFG	0126	R	FILLAR	0118	R
DISPAT	0000	UNUSED	A15	000F	A	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	A
A7	000E	A	A6	000C	A	A5	000A	UNUSED
A4	0008	UNUSED	A3	0006	A	A2	0004	A
A1	0002	A						

```
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 content of :(USER DATA-# 2)
00014                           *
00015                           *
00016                           L:TOPC  EQU     3           T:OPC LENGHT.-1
00017                           L:TSVR  EQU     216 ⟶ pointer of last 'DATA' in T:SVR = length of 6 blocks in T:SVR
00018                           *
00019 0000 0403                 M:A00   LDK     A4,L:TOPC   INITIALIZATION OF T:OPC POINTER
00020 0002 850C                         LDR     A5,A3       LOAD USER DATA-2
00021 0004 3D68                         SRL     A5,8        OPC IN RIGHT CHARACTER OF A5
00022                           *
00023 0006 ED51                 M:A01   CC      A5,T:OPC,A4 TEST OPC USER DATA =OK
      0008 0000 R  0006/132
00024 000A 5000    000A                 RF(0)   M:A02       OK GO TO M:A02
00025 000C 1C01                         SUK     A4,1
00026 000E 5E0A                         RB(6)   M:A01
00027 0010 8308                         LDR     A3,A2       USER P FOR ABORT ROUTINE
00028 0012 0202                         LDK     A2,2        INVALID  OPC  ERROR
00029 0014 8F20                         AB.L    SYSAB
      0016 0000 X
00030                           *
00031 0018 05D8                 M:A02   LDK     A5,L:TSVR   INITIALIZATION OF T:SVR POINTER
00032 001A 80D4                 M:A03   LD      A8,T:SVR,A5 IS THIS T:SVR AERA FREE ?
      001C 0000 R  001A
00033 001E 5000    001E                 RF(0)   M:A04       YES GO TO  M:A04
00034 0020 1D12                         SUK     A5,18 = 36?  NO UPDATE OF T:SVR POINTER
00035 0022 5E0A                         RB(6)   M:A03       T:SVR  OVERFLOW ? NO GO TO M:A03
00036 0024 0201                         LDK     A2,1        YES  SYSTEM ABEND
00037 0026 8F20                         AB.L    SYSAB
      0028 0000 X
00038                           *
00039 002A 8094                 M:A04   LDR     A8,A5       LOAD T:SVR POINTER
00040 002C 90A0                          ADK.L   A8,T:SVR+4                    A8 = Adr User A1
      002E 0000 R  001A
00041 0030 BC41                         MS      8,Z:SVR     SAVE MONITOR REGISTERS
      0032 0000 R  0030 = /13E
00042 0034 BC3E                         MLR     8,A15       LOAD USER REGISTERS
00043 0036 BF61                         MS*     14,Z:SVR+14 USER REGISTERS IN T:SVR
      0038 0000 R  0030
                                                  save
```

```
00044  003A  A0A0                        LDK.L    A8,-4
       003C  FFFC
00045  003E  90C1                        AD.S     A8,Z:SVR+14
       0040  0000 R  0036
00046  0042  B93E                        MLR      2,A15        LOAD USER PSW AND P
00047  0044  B961                        MS*      2,Z:SVR+14 USER PSW AND P IN T:SVR
       0046  0000 R  003E
00048  0048  8120                        LDK.L    A1,M:B00     LOAD NEW P REGISTER
       004A  0000 R  0048
00049  004C  A220                        ANK.L    A2,/FFFE  <- clear user mode bit
       004E  FFFF
00050  0050  B93F                        MSR      2,A15        NEW PSW IN STACK
00051  0052  BC40                        ML       8,Z:SVR      LOAD MONITOR REGISTERS
       0054  0000 R  0044                ADRL     A8,4         A8= Adr User A7
00052  0056  F03E                        RTN      A15          GO TO START  M:B00 IN USER LEVEL but master mode
00053                            *  THIS MODULE COMPUTE THE SECOND OPERAND OF THE USER DATA,AND
00054                            *  CALL A ROUTINE FOR SIMULATE  THE USER OPC.
00055                            *
00056  0058  860C                M:B00    LDR      A6,A3        LOAD USER (DATA -2)
00057  005A  A620                        ANK.L    A6,/00DF     IS A CONSTANT INSTRUCTION
       005C  00DF
00058  005E  5400     005E               RF(4)    M:B01        NO, GO TO M:B01
00059  0060  8648                        LD       A6,0,A2   -> LDR*  A6,A2 <- 1st constant
       0062  0000
00060  0064  EC20                        CWK      A4,2         IS A DAK OPC
       0066  0002                                                          CWK   A4,2
00061  0068  5000     0068               RF(0)    M:B00A                  RF(2) M:B00B
00062  006A  EC20                        CWK      A4,3         IS A DSK OPC ?
       006C  0003
00063  006E  5400     006E               RF(4)    M:B00B       NO GO TO M:B00B
00064  0070  81A0                M:B00A   LDK.L    A9,4  <- DAK or DSK
       0072  0004
00065  0074  91D5                        AD.S     A9,T:SVR,A5  UPDATE OF USER P
       0076  0000 R  002C
00066  0078  8748                        LD       A7,2,A2  <- 2nd constant
       007A  0002
00067  007C  5700     007C               RF(7)    M:B06 -> M:B00C
00068  007E  81A0                M:B00B   LDK.L    A9,2  <- DVK or MUK
       0080  0002
00069  0082  91D5                M:B00C   AD.S     A9,T:SVR,A5  UPDATE OF USER P
       0084  0000 R  0074
00070  0086  5700     007C               RF(7)    M:B06        GO TO M:B06
00071  0088  860C                M:B01    LDR      A6,A3        REGISTER NUMBER ANALYSIS (BITS 11TO 14)
00072  008A  A620                        ANK.L    A6,/0002
       008C  0002
00073  008E  5000     008E               RF(0)    M:B01A
00074  0090  860C                        LDR      A6,A3        BIT 14=1
00075  0092  3E62                        SRL      A6,2
00076  0094  A620                        ANK.L    A6,/0007
       0096  0007
00077  0098  1608                        ADK      A6,8
```

```
M:B01   LDR   A6,A3
        LDR   A7,A3
        ANK   A6,/1C     keep bits 11-13
        ANK   A7,/2      keep bit 14
        SLL   A7,4       move bit
        ORR   A6,A7      A6 = 4 * REG NBR
        SRL   A6,1       A6 = 2 * REG NBR
```



```
009A  3E41                     SLL      A6,1         A6 = 2*REGISTER NUMBER
009C  5700   009C              RF(7)    M:B02
009E  860C          M:B01A     LDR      A6,A3        BIT 14 =0
00A0  3E61                     SRL      A6,1
00A2  A620                     ANK.L    A6,/000F     A6 = 2* REG. NBR
00A4  000F
                    *
00A6  8718          M:B02      LDR      A7,A6        A7=2 * R2
00A8  1702                     ADK      A7,2         A7=2 * (R2+1)
00AA  818C                     LDR      A9,A3        LOAD USER OPC
00AC  A1A0                     ANK.L    A9,/0040     ADRESSING MODE < 2
00AE  0040
00B0  5400   00B0              RF(4)    M:B03        NO GO TO M:B03
                    *
                    * REGISTER TO REGISTER INSTRUCTIONS
00B2  9602                     ADR      A6,A8        COMPUTE  OPERAND ADDRESS IN T:SVR   A8 = Adr of user A7 in T:SVR
00B4  8758                     LDR*     A7,A6                   USER OPERAND BITS 16,31
00B6  0004
00B8  8658                     LD       A6,2,A6      USRE OPERAND (BITS 0 TO 15)
00BA  0002
                    *          USER INDIRECTION TEST.
00BC  818C                     LDR      A9,A3        LOAD USER DATA
00BE  A1A0                     ANK.L    A9,/0020                INDIRECTION
00C0  0020
00C2  5400   00C2              RF(4)    M:B05    Ind instr
00C4  5700   0086              RF(7)    M:B06    Dir instr
                    *
                    * MEMORY REFERENCE INSTRUCTIONS
                    *
00C6  81A0          M:B03      LDK.L    A9,2
00C8  0002
00CA  91D5                     AD.S     A9,T:SVR,A5 UPDATE OF USER P
00CC  0000 R  0082
                    *          USER INDEXATION TEST
00CE  8618                     LDR      A6,A6
00D0  5000   00D0              RF(0)    M:B04        NO GO TO M:B04
00D2  9602                     ADR      A6,A8        A8 = Adr of user A7 in T:SVR
00D4  8658                     LD       A6,2,A6                 USER INDEXATION
00D6  0002
00D8  9604          M:B04      ADR      A6,A1        A6 = mem eff addr for dir instr.
                    *          USER INDIRECTION TEST.
00DA  818C                     LDR      A9,A3        LOAD USER DATA
00DC  A1A0                     ANK.L    A9,/0060
00DE  0060
00E0  B1A0                     XRK.L    A9,/0060                INDIRECTION
00E2  0060
00E4  5400   00C2              RF(4)    M:B05
00E6  8658          M:B04A     LDR*     A6,A6                   LOAD USER INDIRECT ADDRESS   A6 = mem eff addr for ind instr
00E8  0000
00EA  8758          M:B05      LD       A7,2,A6                 LOAD USER OPERAND (BITS 16 TO 31)
00EC  0002
```

```
00EE  8658                 LDR*     A6,0,A6             LOAD USER OPERAND (BITS  0 TO 15)
00F0  0000
                      *
                      *
00F2  8954            M:B06   MLR      2,T:SVR+4,A5 A8       LOAD USER A1,A2        A8 = Adr user A7
00F4  0000 R  00CA
00F6  8410                 LDR      A4,A4         IS A OPC MULTIPLICATION
00F8  5400    00F8         RF(4)    M:B07          NO GO TO M:B07
00FA  8708                 LDR      A7,A2         USER A2 IN A7
00FC  8682            M:B07   LDR      A14,A8
00FE  96A0                 ADK.L    A14,34 30                            A4 = 0 MPY
0100  0022                                                                    2 DIV
0102  3C41                 SLL1     A4                                        4 ADD
0104  81D0                 LD       A9,T:SRA,A4 (A9)= SIMULATION ROUTINE ADDRESS   6 DSU
0106  0000 R  0104
0108  F687                 CFR      A14,A9
                      *
010A  8955                 MS       2,T:SVR+4,A5 RESULT IN USER A1 A2
010C  0000 R  00F2
010E  E154                 LC       A1,T:SVR+32,A5        CR UPDATE
0110  0000 R  010A
0112  E155                 SC       A1,T:SVR+2,A5
0114  0000 R  010E
0116  8154                 LD       A1,T:SVR,A5           LOAD P
0118  0000 R  0112
011A  8254                 LD       A2,T:SVR+2,A5
011C  0000 R  0116
011E  2A01                 ORK      A2,/01        USER INDICATOR =1
0120  20BF                 INH                     INHIBIT INTERRUPT.
0122  893F                 MSR      2,A15          USER PSW UPDATED IN STACK
0124  0100                 LDK      A1,0
0126  8155                 ST       A1,T:SVR,A5  USER T:SVR SAVE AERA =FREE
0128  0000 R  011A
012A  BF54                 ML       14,T:SVR+4,A5   UPDATE USER REGISTERS
012C  0000 R  0126
012E  2840                 ENB                     ENABLE INTERRUPT
0130  F03E                 RTN      A15            LINK TO USER PROGRAM
                      *
                      *
                      *
0132  C0C8            T:OPC   DATA     /C0C8  MPY, DIV
0134  D0D8                 DATA     /D0D8  ADD, DSU
                      *
                      *
0136  0000 X          T:SRA   DATA     MPYMOD         SIMULATION ROUTINES ADDRESSES
0138  0000 X               DATA     DIVMOD
013A  0000 X               DATA     ADDMOD
013C  0000 X               DATA     DSUMOD
                      *
                      *
013E                  Z:SVR   RES      8              SAVE AERA
```

```
                                          *
                                          *
014E  0000      → +0  T:SVR     DATA    0  → SAVE AERA  USER PSW AND REGISTERS + stack for A74
0150                            RES     17
0172  0000        +36           DATA    0
0174                            RES     17
0196  0000        +72           DATA    0
0198                            RES     17
01BA  0000        +108          DATA    0
01BC                            RES     17
01DE  0000        +144          DATA    0
01E0                            RES     17
0202  0000        +180          DATA    0
0204                            RES     17
0226  0000        +216          DATA    0
0228                            RES     17
                                END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
T:SRA	0136	R	M:B07	00FC	R	M:B04A	00E6	UNUSED
M:B04	00D8	R	M:B05	00EA	R	M:B03	00C6	R
M:B02	00A6	R	M:B01A	009E	R	M:B06	00F2	R
M:B00B	007E	R	M:B00A	0070	R	M:B01	0088	R
Z:SVR	013E	R	M:A04	002A	R	T:SVR	014E	R
M:A03	001A	R	M:A02	0018	R	T:OPC	0132	R
M:A01	0006	R	L:TSVR	00D8	A	L:TOPC	0003	A
SYSAB	0000	X	DSUMOD	0000	X	ADDMOD	0000	X
DIVMOD	0000	X	MPYMOD	0000	X	M:B00	0058	R
M:A00	0000	UNUSED	A15	000F	A	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	A	A8	0001	A
A7	000E	A	A6	000C	A	A5	000A	A
A4	0008	A	A3	0006	A	A2	0004	A
A1	0002	A						

00174 $EOS

ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
T:SRA	0136	R	M:B07	00FC	R	M:B04A	00E6	UNUSED
M:B04	00D8	R	M:B05	00EA	R	M:B03	00C6	R
M:B02	00A6	R	M:B01A	009E	R	M:B06	00F2	R
M:B00B	007E	R	M:B00A	0070	R	M:B01	0088	R
Z:SVR	013E	R	M:A04	002A	R	T:SVR	014E	R
M:A03	001A	R	M:A02	0018	R	T:OPC	0132	R
M:A01	0006	R	L:TSVR	00D8	A	L:TOPC	0003	A
SYSAB	0000	X	DSUMOD	0000	X	ADDMOD	0000	X
DIVMOD	0000	X	MPYMOD	0000	X	M:B00	0058	R
M:A00	0000	UNUSED	A15	000F	A	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	A	A8	0001	A
A7	000E	A	A6	000C	A	A5	000A	A
A4	0008	A	A3	0006	A	A2	0004	A
A1	0002	A						

```
                                 IDENT    MPYMOD
                               * THIS ROUTINE EXECUTES THE MULTIPLY INSTRUCTION ON THE ALPLA COMPUTER   002
                               * CALLING SEQUENCE:                                                      003
                               *                 LD          A6,ARG1                                    004
                               *                 LDR         A7,ARG1 A2                                 005
                               *         CF      A14,MPYMOD
                               * RETURN :        RESULT  IN  A1,A2                                      007
                               *         REGISTERS  A3,A4,A6,A7, ARE CRUSHED
                                         ENTRY    MPYMOD
0000  8320                      MPYMOD   LDK.L    A3,/8000    IF A6=A7=/8000 RETURN IN ERROR EXIT
0002  8000
0004  E318                               CWR      A3,A6                                                 025
0006  5400   0006                        RF(4)    SUITE                                                 026
0008  E31C                               CWR      A3,A7                                                 027
000A  5000   000A                        RF(0)    END3                                                  028
000C  861C                               LDR      A6,A7       * A6= X'8000'  A7# X'8000'                029
000E  870C                               LDR      A7,A3       * EXCHANGE  A6-A7                         030
0010  0100                      SUITE    LDK      A1,0        *INITIALISE                               031
0012  0200                               LDK      A2,0                                                  032
0014  0300                               LDK      A3,0                                                  033
0016  040F                               LDK      A4,15                                                 034
0018  1600                               ADK      A6,0                                                  035
001A  5000   001A                        RF(0)    END0                                                  036
001C  5600   001C                        RF(6)    ARG1PS                                                037
001E  1301                               ADK      A3,1        *ARG1 NEGATIVE
0020  FE18                               C1R      A6,A6                                                 039
0022  1601                               ADK      A6,1                                                  040
0024  1700                      ARG1PS   ADK      A7,0                                                  050
0026  5000   001A                        RF(0)    END0                                                  051
0028  5600   0028                        RF(6)    ARG2PS                                                052
002A  1801                               SUK      A3,1        *ARG2 NEGATIVE                            053
002C  FF1C                               C1R      A7,A7                                                 054
002E  1701                               ADK      A7,1                                                  055
0030  5300   0030                        RF(3)    CASSPE                                                056
0032  3FE1                      ARG2PS   SRC      A7,1                                                  060
0034  5600   0034                        RF(6)    NOVER1                                                061
0036  9118                               ADR      A1,A6                                                 062
0038  3A21                      NOVER1   SRA      A2,1                                                  063
003A  39E1                               SRC      A1,1                                                  064
003C  5600   003C                        RF(6)    NOVER2                                                 65
003E  AA20                               ORK.L    A2,/4000                                               66
0040  4000
0042  A120                               ANK.L    A1,/7FFF                                              067
0044  7FFF
0046  1C01                      NOVER2   SUK      A4,1                                                  070
0048  5C18                               RB(4)    ARG2PS                                                071
004A  1300                      NOVER3   ADK      A3,0        *END* RESTORE SIGN                        072
004C  5000   004C                        RF(0)    END1                                                  073
004E  F904                               C1R      A1,A1                                                 074
0050  FA08                               C1R      A2,A2                                                 075
0052  1201                               ADK      A2,1                                                  076
```

```
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  0056                      RF(2)    NOVER4
00052  0058  1101                            ADK      A1,1                                          078
00053  005A  A220                  NOVER4    ANK.L    A2,/7FFF
       005C  7FFF
00054  005E  5700  005E                      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  3841                  END0      SLL      A3,1
00059  0068  A320                            ANK.L    A3,/0300
       006A  0300
00060  006C  8420                            LDK.L    A4,/FCFF
       006E  FCFF
00061  0070  A458                            AN.S     A4,2,A14
       0072  0002
00062  0074  A358                            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          090
00065                                *                             *AND  A1= A6                      091
00066  007C  5F34                            RB(7)    NOVER3                                        093
00067                                       END
ASS.ERR.  00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
END2	0062	R	NOVER4	005A	R	END1	0064	R
NOVER3	004A	R	NOVER2	0046	R	NOVER1	0038	R
CASSPE	007A	R	ARG2PS	0032	R	ARG1PS	0024	R
END0	0066	R	END3	0060	R	SUITE	0010	R
SEYMOD	0000	UNUSED	A15	000F	UNUSED	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	UNUSED
A7	000E	A	A6	000C	A	A5	000A	UNUSED
A4	0008	A	A3	0006	A	A2	0004	A
A1	0002	A						

00068 $EOS

ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
END2	0062	R	NOVER4	005A	R	END1	0064	R
NOVER3	004A	R	NOVER2	0046	R	NOVER1	0038	R
CASSPE	007A	R	ARG2PS	0032	R	ARG1PS	0024	R
END0	0066	R	END3	0060	R	SUITE	0010	R
MPYMOD	0000	UNUSED	A15	000F	UNUSED	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	UNUSED
A7	000E	A	A6	000C	A	A5	000A	UNUSED
A4	0008	A	A3	0006	A	A2	0004	A
A1	0002	A						

```
                                 IDENT   DIVMOD                                                    001
                         * THIS ROUTINE EXECUTES THE DIVIDE INSTRUCTION ON THE ALPHA COMPUTER      002
                         * CALLING SEQUENCE                                                        003
                         *                A1-A2= DIVIDEND                                          004
                         *                A6   = DIVISOR                                           005
                         *       CF       A14,DIVMOD
                         *RETURN*         RESUT IN A1-A2 ;  A1= REMAINDER;A2= QUOTIENT             007
                         * CAUTION : REGISTERS A3,A4,A6,A7,A8  ARE CRUSHED.
                                 ENTRY    DIVMOD
0000  8084               DIVMOD  LDR      A8,A1         SAVE DIVIDEND SIGN
0002  0300                       LDK      A3,0
0004  1600                       ADK      A6,0                                                     025
0006  5000  0006                 RF(0)    END3          * IF DIVISOR IS NULL, OVREFLOW             026
0008  1100                       ADK      A1,0                                                     027
000A  5400  000A                 RF(4)    SIGNE                                                    028
000C  A220                       ANK,L    A2,/7FFF                                                 029
000E  7FFF
0010  5000  0010                 RF(0)    END0          * IF DIVIDEND IS NULL, CR = 0              030
                         * THIS SEQUENCE GIVES THE OPERAND  A POSITIVE VALUE                       040
0012  0700               SIGNE   LDK      A7,0                                                     041
0014  0410                       LDK      A4,16                                                    043
0016  1100                       ADK      A1,0          *SIGN OF DIVIDEND                          044
0018  5600  0018                 RF(6)    DIVENP                                                   045
001A  1301                       ADK      A3,1          * DIVIDEND IS NEGATIVE                     046
001C  F904                       C1R      A1,A1                                                    047
001E  FA08                       C1R      A2,A2                                                    048
0020  A220                       ANK,L    A2,X'7FFF'                                               049
0022  7FFF
0024  1201                       ADK      A2,1                                                     050
0026  5100  0018                 RF(1)    DIVENP                                                   051
0028  1101                       ADK      A1,1                                                     053
002A  5500  0006                 RF(5)    END3                                                     054
002C  1600               DIVENP  ADK      A6,0          *SIGN OF DIVISOR                           060
002E  5600  002E                 RF(6)    DIVORP                                                   061
0030  1301                       SUK      A3,1          *NEGATIVE DIVISOR                          062
0032  FE18                       C1R      A6,A6                                                    063
0034  1601                       ADK      A6,1                                                     064
0036  1600                       ADK      A6,0                 RESET IF OVERFLOW
0038  5500  0038                 RF(5)    CASSPE                                                   065
003A  E918               DIVORP  CWR      A1,A6                                                    070
003C  5100  002A                 RF(1)    END3                                                     071
003E  5000  003E                 RF(0)    CASSP1                                                   072
0040  1C01               SHIFT   SUK      A4,1          *A1 LESS THAN A6                           073
0042  5000  0042                 RF(0)    END                                                      074
0044  3941                       SLL      A1,1                                                     076
0046  3F41                       SLL      A7,1                                                     075
0048  3A41                       SLL      A2,1                                                     077
004A  5602                       RF(6)    *+4                                                      078
004C  1101                       ADK      A1,1                                                     079
004E  1100                       ADK      A1,0                                                     080
0050  5200  003E                 RF(2)    CASSP1                                                   081
```

```
0052  E918                     CWR      A1,A6                                    082
0054  5A16                     RB(2)    SHIFT                                    083
0056  9918           CASSP1    SUR      A1,A6                                    084
0058  1701                     ADK      A7,1                                     085
005A  5F1C                     RB(7)    SHIFT                                    086
                     *THIS SEQUENCE RESTORES THE SIGN OF THE RESULTS             090
005C  821C           END       LDR      A2,A7                                    091
005E  1300                     ADK      A3,0                                     092
0060  5000    0060             RF(0)    NOSIGN                                   093
0062  5200    0062             RF(2)    AA         DIVIDEND +. DIVISOR +
0064  F904                     CIR      A1,A1      *REMAINDER                    094
0066  1101                     ADK      A1,1                                     095
0068  FA08           AA        CIR      A2,A2      * QUOTIENT
006A  1201                     ADK      A2,1                                     097
                     *CAUTION THE NEXT INSTRUCTION IS ABSOLUTELY NECESSARY TO SET CR
                     * WHEN THE ADK A2,1 SET AN OVERFLOW CR EX (QUOTIENT=8000)
006C  1200                     ADK      A2,0
006E  5200    006E             RF(2)    END2                                     098
0070  1381           END3      ADK      A3,/81
0072  1381           END2      ADK      A3,/81
0074  1381           END1      ADK      A3,/81
0076  3841           END0      SLL1     A3
0078  A320                     ANK.L    A3,/0300
007A  0300
007C  8420                     LDK.L    A4,/FCFF
007E  FCFF
0080  A45B                     AN.S     A4,2,A14
0082  0002
0084  A35B                     OR.S     A3,2,A14   UPDATE CR IN PSW CALLING PROGRAM
0086  0002
0088  F03A                     RTN      A14
008A  90A0           NOSIGN    ADK.L    A8,0       TEST OF DIVIDEND SIGN
008C  0000
008E  5600    008E             RF(6)    BB
0090  F904                     CIR      A1,A1      DIVIDEND- .DIVISOR -
0092  1101                     ADK      A1,1       REMAINDER -
0094  1200           BB        ADK      A2,0
0096  5822                     RB(0)    END0
0098  5A28                     RB(2)    END2
009A  5F28                     RB(7)    END1
009C  8704           CASSPE    LDR      A7,A1                                    109
009E  8108                     LDR      A1,A2                                    110
00A0  E920                     CWK      A1,/8000
00A2  8000
00A4  5C4A                     RB(4)    END
00A6  0100                     LDK A1,0
00A8  5F4E                     RB(7)    END                                      111
                               END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
BB	0094	R	END1	0074	R	END2	0072	R
AA	0068	R	NOSIGN	008A	R	END	005C	R
SHIFT	0040	R	CASSP1	0056	R	CASSPE	009C	R
DIVORP	003A	R	DIVENP	002C	R	ENDO	0076	R
SIGNE	0012	R	END3	0070	R	DIVMOD	0000	UNUSED
A15	000F	UNUSED	A14	000D	A	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	A	A7	000E	A
A6	000C	A	A5	000A	UNUSED	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

00091 *EOS
ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
BB	0094	R	END1	0074	R	END2	0072	R
AA	0068	R	NOSIGN	008A	R	END	005C	R
SHIFT	0040	R	CASSP1	0056	R	CASSPE	009C	R
DIVORP	003A	R	DIVENP	002C	R	ENDO	0076	R
SIGNE	0012	R	END3	0070	R	DIVMOD	0000	UNUSED
A15	000F	UNUSED	A14	000D	A	A13	0008	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	A	A7	000E	A
A6	000C	A	A5	000A	UNUSED	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

data systems

7.2

```
                                        IDENT    ADDMOD
                                *  THIS ROUTINE EXECUTES THE DOUBLE ADDITION INSTRUCTION ON THE ALPHA     002
                                *  COMPUTER                                                               003
                                *CALLING SEQUENCE:                                                        004
                                *                A1-A2 = ARG1                                             5
                                *                AG-A7 = ARG2                                             006
                                *       CF       A14,ADDMOD
                                *RETURN :        RESULT IN A1-A2                                          008
                                *  CAUTION  REGISTERS  A3,A6,A7  ARE  CRUSHED.
                                        ENTRY    ADDMOD
0000  0300                      ADDMOD  LDK      A3,0
0002  A720                              ANK.L    A7,/7FFF                                                 025
0004  7FFF
0006  A220                              ANK.L    A2,/7FFF                                                 028
0008  7FFF
000A  921C                              ADR      A2,A7                                                    030
000C  5300    000C                      RF(3)    OVER1                                                    032
000E  9118                      NOVER   ADR      A1,A6       * NO OVERFLOW                                034
0010  5100    0010                      RF(1)    END1                                                     042
0012  5200    0012                      RF(2)    END2                                                     044
0014  5300    0014                      RF(3)    END3                                                     046
0016  1200                      NOVER1  ADK      A2,0
0018  5000    0018                      RF(0)    END0
001A  5700    0010                      RF(7)    END1
001C  A220                      OVER1   ANK.L    A2,/7FFF                                                 048
001E  7FFF
0020  1101                              ADK      A1,1                                                     050
0022  5300    0022                      RF(3)    OVER3                                                    052
0024  5F18                              RB(7)    NOVER                                                    054
0026  9118                      OVER3   ADR      A1,A6
0028  5200    0014                      RF(2)    END3
002A  1100                              ADK      A1,0
002C  5100    001A                      RF(1)    END1
002E  5F1A                              RB(7)    NOVER1
0030  1380                      END3    ADK      A3,/80                                                   064
0032  1380                      END2    ADK      A3,/80                                                   065
0034  1380                      END1    ADK      A3,/80                                                   066
0036  3341                      END0    SLL1     A3                                                       067
0038  A320                              ANK.L    A3,/0300
003A  0300
003C  8420                              LDK.L    A4,/FCFF
003E  FCFF
0040  A45B                              AN.S     A4,2,A14
0042  0002
0044  A35B                              OR.S     A3,2,A14    UPDATE CR IN PSW CALLING PROGRAM
0046  0002
0048  F03A                              RTN      A14
                                        END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
OVER3	0026	R	END0	0036	R	NOVER1	0016	R
END3	0030	R	END2	0032	R	END1	0034	R
NOVER	000E	R	OVER1	001C	R	ADDMOD	0000	UNUSED
A15	000F	UNUSED	A14	000D	A	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	A
A6	000C	A	A5	000A	UNUSED	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

00041 *EOS
ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
OVER3	0026	R	END0	0036	R	NOVER1	0016	R
END3	0030	R	END2	0032	R	END1	0034	R
NOVER	003E	R	OVER1	001C	R	ADDMOD	0000	UNUSED
A15	000F	UNUSED	A14	000D	A	A13	0008	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	A
A6	000C	A	A5	000A	UNUSED	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

72a
next
73a

data systems

73a

next 74

```
                                   IDENT    DSUMOD
                         * THIS ROUTINE EXECUTES THE DOUBLE SUBSTRACTION INSTRUCTION ON THE ALPHA     002
                         *COMPUTER                                                                     003
                         *CALLING SEQUENCE                                                             004
                         *                  A1-A2  = ARG1                                              005
                         *                  A6-A7  = ARG2                                              006
                         *         CF       A14,DSUMOD
                         *RETURN:           RESULT IN A1-A2                                            008
                         * CAUTION  REGISTERS  A3,A6,A7  ARE  CRUSHED.
                                   ENTRY    DSUMOD
0000  0300               DSUMOD    LDK      A3,0
0002  FE18                         C1R      A6,A6                                                      022
0004  FF1C                         C1R      A7,A7                                                      023
0006  A720                         ANK.L    A7,X'7FFF'                                                 025
0008  7FFF
000A  A220                         ANK.L    A2,/7FFF                                                   026
000C  7FFF
000E  1701                         ADK      A7,1                                                       027
0010  5100   0010                  RF(1)    NOVER1                                                     028
0012  1601                         ADK      A6,1                                                       030
0014  5300   0014                  RF(3)    OVER4                                                      031
0016  5700   0016                  RF(7)    NOVER                                                      032
0018  921C               NOVER1    ADR      A2,A7                                                      033
001A  5300   001A                  RF(3)    OVER1                                                      034
001C  9118               NOVER     ADR      A1,A6                                                      035
001E  5100   001E        NOVER2    RF(1)    END1                                                       036
0020  5200   0020                  RF(2)    END2
0022  5300   0022                  RF(3)    END3
0024  1200                         ADK      A2,0                                                       037
0026  5000   0026                  RF(0)    END0
0028  5700   001E                  RF(7)    END1
002A  A220               OVER1     ANK.L    A2,X'7FFF'                                                 044
002C  7FFF
002E  1101                         ADK      A1,1                                                       045
0030  5300   0014                  RF(3)    OVER4                                                      046
0032  5F18                         RB(7)    NOVER                                                      047
0034  9118               OVER4     ADR      A1,A6
0036  5200   0022                  RF(2)    END3
0038  1100                         ADK      A1,0
003A  5F1E                         RB(7)    NOVER2
003C  1380               END3      ADK       A3,/80                                                    064
003E  1380               END2       ADK      A3,/80                                                    065
0040  1380               END1       ADK      A3,/80                                                    066
0042  3841               END0      SLL1      A3                                                        067
0044  A320                         ANK.L    A3,/0300
0046  0300
0048  8420                         LDK.L    A4,/FCFF
004A  FCFF
004C  A45B                         AN.S     A4,2,A14
004E  0302
0050  AB5B                         OR.S     A3,2,A14     UPDATE CR IN PSW CALLING PROGRAM
```

```
        0052  0002
 00045  0054  F03A                      RTN      A14
 00046                                  END
ASS.ERR. 00000
```

```
**SYMBOL**   **VALUE*
   END0          0042   R          **SYMBOL**   **VALUE*
   END1          0040   R             END3          003C   R          **SYMBOL**   **VALUE*
   NOVER         001C   R             NOVER2        001E   R             END2          003E   R
   DSUMOD        0000   UNUSED        OVER4         0034   R             OVER1         002A   R
   A13           0008   UNUSED        A15           000F   UNUSED        NOVER1        0018   R
   A10           0005   UNUSED        A12           0009   UNUSED        A14           000D   A
   A7            000E   A             A9            0003   UNUSED        A11           0007   UNUSED
   A4            0008   A             A6            000C   A             A8            0001   UNUSED
   A1            0002   A             A3            0006   A             A5            000A   UNUSED
 00047                                EOS                                A2            0004   A
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
END0	0042	R	END3	003C	R	END2	003E	R
END1	0040	R	NOVER2	001E	R	OVER1	002A	R
NOVER	001C	R	OVER4	0034	R	NOVER1	0018	R
DSUMOD	0000	UNUSED	A15	000F	UNUSED	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	UNUSED
A7	000E	A	A6	000C	A	A5	000A	UNUSED
A4	0008	A	A3	0006	A	A2	0004	A
A1	0002	A						

```
                                     IDENT     IORM
                                *
                                ********************************************************************************
                                *    ENTRY CONDITIONS
                                *    A6 = SCHEDULE LABEL ADDRESS  -> = 0 if no sch. lab.
                                *    A7 = ORDER
                                *    A8 = ECB ADDRESS
                                *    ENTRY   M:IORM
                                ********************************************************************************
                                     ENTRY     M:IORM
                                     ENTRY     E:FECB
                                     ENTRY     E:SECB
                                *
                                     EXTRN     E:S000
                                     EXTRN     E:S015
                                     EXTRN     E:S012
                                     EXTRN     E:S011
                                     EXTRN     F:CT
                                     EXTRN     L:VCH
                                     EXTRN     PCT61
                                     EXTRN     DISPAT
                                     EXTRN     PWAIT
                                * THIS SEQUENCE PERFORMS THE GET ASSIGN   - get info about a file code
0000  8122                      ORD30   LDR*      A1,A8          <-   * A1 = ECB0
0002  21FF                              ANK       A1,/FF              * A1 = FILE CODE
0004  5000        0004                  RF(0)     ORD301              * FILE CODE = 0
0006  9104                              ADR       A1,A1
0008  E940                              CW        A1,F:CT
000A  0000 X
000C  5100        0004                  RF(1)     ORD301              * FILE CODE NOT IN TABLE
000E  8444                              LD        A4,F:CT,A1
0010  0000 X
0012  5000        000C                  RF(0)     ORD301
0014  8130                              LDR*      A1,A4
0016  8250                              LD        A2,4,A4             * LENGTH
0018  0004
001A  8350                              LD        A3,2,A4             * ADDRESS
001C  0002
001E  B9C3                      ORD302  MS        3,2,A8
0020  0002
0022  0180                              LDK       A1,/80
0024  E123                              SCR       A1,A8
0026  0100                              LDK       A1,0
0028  8143                              ST        A1,8,A8
002A  0008
002C  8F20                              AB.L(7)   DISPAT
002E  0000 X
                                *
0030  0100                      ORD301  LDK       A1,0                * FILE CODE UNKNOWN
0032  0200                              LDK       A2,0
0034  0300                              LDK       A3,0
```

```
0044  0036  5F1A                        RB(7)    ORD302
0045                          * BUFFERS TO OUTPUT EOS OR EOF
0046  0038  0A0A                        DATA     /0A0A
0047  003A  3A45      06E6   E:SECB     DATA     ':EOS'
      003C  4F53
0048  003E  0D0A                        DATA     /0D0A
0049  0040  3A45      06EC   E:FECB     DATA     ':EOF'
      0042  4F46
0050  0044  0D0A                        DATA     /0D0A
0051                          * OUTPUT SEQUENCE
0052  0046  8F20                ERSO1    AB,L(7)  E:SO11      * FUNCTION UNKNOWN
      0048  0000 X
0053  004A  8F20                NOTAS1   AB,L(7)  E:SO15  ← file code > biggest existing one
      004C  0000 X
0054  004E  8F20                NOTAS2   AB,L(7)  E:SO00  ← file code=0 or non existing DWT
      0050  0000 X
0055                          * THIS SEQUENCE SEARCHES THE DWT CORRESPONDING TO FILE CODE
0056  0052  9041    06FE →      M:IORM   IM       PCT61     * INCREMENT THE EVENT COUNT
      0054  0000 X
0057  0056  8120                        LDK,L    A1,*+8
      0058  005E R
0058  005A  8F20                        AB,L(7)  L:VCH     * AT RETURN LEVEL = 48 , master mode and intenb
      005C  0000 X
0059  005E  A0A0                ADDR1    ANK,L    A8,/FFFE
      0060  FFFE
0060  0062  811C                        LDR      A1,A7              * IS IT ORDER 30 ?  → = get info about a file code
0061  0064  213F                        ANK      A1,/3F
0062  0066  E320                        CWK      A1,/30
      0068  0030
0063  006A  586C                        RB(0)    ORD30
0064  006C  8122                        LDR*     A1,A8     * A1=ECB0
0065  006E  21FF                        ANK      A1,/FF    * A1=FILE CODE
0066  0070  5824                        RB(0)    NOTAS2    * IF FILE CODE =0, GO TO NOTASS
0067  0072  9104                        ADR      A1,A1
0068  0074  E940                        CW       A1,F:CT   = twice number of existing file codes
      0076  0000 X
0069  0078  5930                        RB(1)    NOTAS1    * THE FILE CODE IS NOT IN THE TABLE
0070  007A  8344                        LD       A3,F:CT,A1  * A3 = DWT ADDRESS
      007C  0000 X
0071  007E  5832                        RB(0)    NOTAS2    * THE FILE IS NOT ASSIGNED
0072                          * THIS SEQUENCE CHECKS THAT THE CONTROLLER IS FREE
0073  0080  8402                        LDR      A4,A8     * SAVE A8
0074  0082  83CC                        LD       A8,32,A3  * A8 = CONTROLLER STATUS ADDRESS
      0084  0020
0075  0086  8222                IORM21   LDR*     A2,A8
0076  0088  5200    0088                RF(2)    IORM20    * CONTROLLER FREE
0077  008A  825E                        LD       A2,18,A15 * CHECK IF LEVEL < 62
      008C  0012
0078  008E  3A6A                        SRL      A2,10
0079  0090  1A3E                        SUK      A2,62
0080  0092  5A0E                        RB(2)    IORM21
```

```
00081  0094  825E                    LD      A2,20,A15   * RESTORE LKM INSTRUCTION
       0096  0014
00082  0098  8140                    LD      A1,PCT61
       009A  0000 X
00083  009C  1A04                    SUK     A2,4
00084  009E  1301                    SUK     A1,1
00085  00A0  1600                    ADK     A6,0
00086  00A2  5000          00A2      RF(0)   IORM22
00087  00A4  1A02                    SUK     A2,2        * SCHEDULE LABEL
00088  00A6  1301                    SUK     A1,1
00089  00A8  825F            IORM22  ST      A2,20,A15
       00AA  0014
00090  00AC  8141                    ST      A1,PCT61
       00AE  0000 X
00091  00B0  8F20                    AB.L(7) PWAIT
       00B2  0000 X
00092  00B4  8090            IORM20  LDR     A8,A4
00093                      * THIS SEQUENCE PUTS THE ECB PARAMETERS IN THE PARAMETERS TABLE
00094  00B6  0200            IORM2   LDK     A2,0        * SET BUSY
00095  00B8  864D                    ST      A6,30,A3
       00BA  001E
00096  00BC  860C                    LDR     A6,A3
00097  00BE  F223                    SCR     A2,A8       * ECB
00098  00C0  F279                    SC*     A2,32,A6    * CONTROLLER
       00C2  0020
00099  00C4  8259                    ST      A2,26,A6    * CHECKSUM
       00C6  001A
00100  00C8  8259                    ST      A2,24,A6    * CHARACTER FLAG
       00CA  0018
00101  00CC  8259                    ST      A2,22,A6    * TABULATION
       00CE  0016
00102  00D0  8259                    ST      A2,18,A6    * ORDER
       00D2  0012
00103  00D4  8243                    ST      A2,8,A8     * USER STATUS
       00D6  0008
00104  00D8  8242                    LD      A2,4,A8
       00DA  0004
00105  00DC  8820                    AB.L(0) E:S012      * LENGTH = 0
       00DE  0000 X
00106                      * THIS SEQUENCE ANALYSES THE ORDER
00107  00E0  8089            IORM3   ST      A8,10,A6
       00E2  000A
00108  00E4  8142                    LD      A1,2,A8
       00E6  0002
00109  00E8  8820                    AB.L(0) E:S012      * NO BUFFER ADDRESS
       00EA  0000 X
00110  00EC  841C                    LDR     A4,A7
00111  00EE  243F                    ANK     A4,/3F
00112  00F0  58AC                    RB(0)   ERS01       * ORDER =0
00113  00F2  EC20                    CWK     A4,2
       00F4  0002
```

```
0114  00F6  5000    00F6              RF(0)    ITAB        * TABULATION
0115  00F8  5200    00F8              RF(2)    SWITCH
0116  00FA  EC20                      CWK      A4,5
      00FC  0005
0117  00FE  5ABA                      RB(2)    ERSO1       * ORDER =3 OR 4
0118  0100  EC20                      CWK      A4,6
      0102  0006
0119  0104  5000    0104              RF(0)    REMOVE
0120  0106  5200    00F8              RF(2)    SWITCH
0121  0108  EC20                      CWK      A4,9
      010A  0009
0122  010C  5200    010C              RF(2)    SWITC1
0123  010E  EC20                      CWK      A4,/14
      0110  0014
0124  0112  5000    0112              RF(0)    IEOS
0125  0114  EC20                      CWK      A4,/16
      0116  0016
0126  0118  5000    0118              RF(0)    IEOF
0127  011A  EC20                      CWK      A4,/26
      011C  0026
0128  011E  5000    011E              RF(0)    OEOS
0129  0120  EC20                      CWK      A4,/22
      0122  0022
0130  0124  5000    0124              RF(0)    OEOF
0131  0126  EC20                      CWK      A4,/31
      0128  0031
0132  012A  5AE6                      RB(2)    ERSO1
0133  012C  EC20                      CWK      A4,/38
      012E  0038
0134  0130  59EC                      RB(1)    ERSO1
0135  0132  5700    0106              RF       SWITCH
0136  0134  8120              OEOF    LDK.L    A1,E:FECB   * OUTPUT EOF
      0136  0040 R
0137  0138  5700    011E              RF(7)    OEOS+4
0138                          *
0139  013A  8120              OEOS    LDK.L    A1,E:SECB   * OUTPUT EOS
      013C  003A R
0140  013E  0204                      LDK      A2,4
0141  0140  0406                      LDK      A4,6
0142  0142  5700    010C              RF(7)    SWITC1
0143                          *
0144  0144  8420              IEOS    LDK.L    A4,/8302    * SKIP TO EOS
      0146  8302
0145  0148  5700    0142              RF(7)    SWITC1
0146                          *
0147  014A  8420              IEOF    LDK.L    A4,/8102    * SKIP TO EOF
      014C  8102
0148  014E  5700    0148              RF(7)    SWITC1
0149  0150  8558              ITAB    LD       A5,10,A6
      0152  000A
0150  0154  8554                      LD       A5,10,A5
```

```
        0156  000A
0151    0158  8559                      ST      A5,22,A6
        015A  0016
0152    015C  240F                      ANK     A4,/F
0153    015E  5700    014E              RF(7)   SWITC1
0154                          *
0155                          * THIS SEQUENCE REMOVES THE TRAILING BLANKS
0156    0160  9108              REMOVE  ADR     A1,A2
0157    0162  1301                      SUK     A1,1
0158    0164  E324                      LCR     A3,A1
0159    0166  1101                      ADK     A1,1
0160    0168  23FF                      ANK     A3,/FF
0161    016A  1320                      SUK     A3,/20
0162    016C  5400    016C              RF(4)   REMOV1
0163
0164    016E  1302              REMOV2  SUK     A1,2
0165    0170  8324                      LDR*    A3,A1
0166    0172  9320                      SUK.L   A3,/2020
        0174  2020
0167    0176  5400    016C              RF(4)   REMOV1
0168    0178  1A02                      SUK     A2,2
0169    017A  5C0E                      RB(4)   REMOV2
0170    017C  1202                      ADK     A2,2
0171    017E  8142              REMOV1  LD      A1,2,A8
        0180  0002
0172    0182  5700    015E              RF(7)   SWITC1
0173                          * SWITCH TO SPECIFIC MODULE
0174    0184  851C              SWITCH  LDR     A5,A7
0175    0186  2540                      ANK     A5,/40      * KEEP STATUS BIT
0176    0188  0300              SWITC2  LDK     A3,0
0177    018A  EC20                      CWK     A4,7
        018C  0007
0178    018E  5200    018E              RF(2)   SWIBIS
0179    0190  8262                      LD*     A2,2,A8   ← 1st word of user buff
        0192  0002
0180    0194  22FF                      ANK     A2,/FF
0181    0196  9208                      ADR     A2,A2
0182    0198  1202                      ADK     A2,2
0183    019A  BAD9              SWIBIS  MS      5,12,A6     * INITIALISE THE PARAMETERS TABLE
        019C  000C
0184    019E  24FF                      ANK     A4,/FF
0185    01A0  8F58                      ABI(7)  6,A6        * SWITCH
        01A2  0006
0186    01A4  0500              SWITC1  LDK     A5,0
0187    01A6  5F20                      RB(7)   SWITC2
0188                                    END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
S*IBIS	019A	R	SWITC2	0188	R	REMOV2	016E	R
REMOV1	017E	R	OEOF	0134	R	OEOS	013A	R
IEOF	014A	R	IEOS	0144	R	SWITC1	01A4	R
REMOVE	0160	R	SWITCH	0184	R	ITAB	0150	R
IORM3	00E0	UNUSED	IORM2	00B6	UNUSED	IORM22	00A8	R
IORM20	00B4	R	IORM21	0086	R	NOTAS2	004E	R
NOTAS1	004A	R	ERSO1	0046	R	ORD302	001E	R
ORD301	0030	R	ORD30	0000	R	PWAIT	0000	X
DISPAT	0000	X	PCT61	0000	X	L:VCH	0000	X
F:CT	0000	X	E:SO11	0000	X	E:SO12	0000	X
E:SO15	0000	X	E:SO00	0000	X	E:SECR	003A	R
E:FECR	0040	R	M:IORM	0052	UNUSED	A15	000F	A
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	A	A7	000E	A	A6	000C	A
A5	000A	A	A4	0008	A	A3	0006	A
A2	0004	A	A1	0002	A			

00169 *EOS

ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
S:IBIS	019A	R	SWITC2	0188	R	REMOV2	016E	R
REMOV1	017E	R	OEOF	0134	R	OEOS	013A	R
IEOF	014A	R	IEOS	0144	R	SWITC1	01A4	R
REMOVE	0160	R	SWITCH	0184	R	ITAB	0150	R
IORM3	00E0	UNUSED	IORM2	00B6	UNUSED	IORM22	00A8	R
IORM20	0084	R	IORM21	0086	R	NOTAS2	004E	R
NOTAS1	004A	R	ERS01	0046	R	ORD302	001E	R
ORD301	0030	R	ORD30	0000	R	PWAIT	0000	X
DISPAT	0000	X	PCT61	0000	X	L:VCH	0000	X
F:CT	0000	X	E:S011	0000	X	E:S012	0000	X
E:S015	0000	X	E:S000	0000	X	E:SECB	003A	R
E:FECB	0040	R	M:IORM	0052	UNUSED	A15	000F	A
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	A	A7	000E	A	A6	000C	A
A5	000A	A	A4	0008	A	A3	0006	A
A2	0004	A	A1	0002	A			

```
0000                                    IDENT   DRIY01
0001                                    ENTRY   D:RAS1
0002                                    ENTRY   D:RAS2
0003                                    ENTRY   D:RAS3
0004                                    ENTRY    I:ASR
0005                            *
0006                                    EXTRN   C:INPT
0007                                    EXTRN   C:NASR
0008                                    EXTRN   C:WAIT
0009                                    EXTRN   D:WAS1
0010                                    EXTRN   D:WAS2
0011                                    EXTRN   D:WAS3
0012                                    EXTRN   E:SECB
0013                                    EXTRN   E:FECB
0014                                    EXTRN   E:SO11
0015                                    EXTRN   I:NPUT
0016                                    EXTRN   L:VCH
0017                                    EXTRN   O:TPUT
0018                                    EXTRN   R:TUR1
0019                                    EXTRN   R:TUR2
0020                                    EXTRN   R:TUR4
0021                                    EXTRN   R:TURN
0022                            *
0023                            S       EQU     1
0024                            H       EQU     0
0025                            TY01    EQU     /0010
0026                            *
0027                            * THIS SEQUENCE ACTIVATES THE ASR KEYBOARD IN INPUT OR OUTPUT
0028  0000  0581        0854    D:RAS1  LDK     A5,/81
0029  0002  E541                        SC      A5,C:NASR+1
      0004  0001 X
0030  0006  8641                        ST      A6,C:NASR+2 * DWT ADDRESS
      0008  0002 X
0031  000A  1C05                        SUK     A4,5    <- A4 = ORDER
0032  000C  5200    000C                RF(2)   DRASIN  <- input
0033  000E  5000    000E                RF(0)   DRAS03  <- basic write
0034  0010  8458                         LD     A4,12,A6 <- ORDER>5
      0012  000C                                  -> A4 = Buff Addr
0035  0014  EC20                        CWK     A4,E:SECB   *ISIT EOS?
      0016  0000 X
0036  0018  5006                        RF(0)   *+8
0037  001A  EC20                        CWK     A4,E:FECB *ISITEOF?
      001C  0000 X
0038  001E  5400    001E                RF(4)   DRAS02
0039  0020  0406                        LDK     A4,6
0040  0022  8459                        ST      A4,14,A6
      0024  000E
0041  0026  0405                        LDK     A4,5
0042  0028  8459                        ST      A4,18,A6
      002A  0012
0043  002C  5700    000E                RF(7)   DRAS03
```

```
                                  DRASO2    EQU       *        ← ORDER>5
     002E   8220                            LDK.L     A2,/FFFE      MAKE EVEN THE BUFFER ADDRESS
     0030   FFFE
     0032   A259                            AN.S      A2,12,A6
     0034   000C                                        49
     0036   8278                            LD*       A2,12,A6      CONVERT THE FORMAT CONTROL CODE
     0038   000C
     003A   0202                            LDK       A2,2
     003C   9259                            AD.S      A2,12,A6
     003E   000C
     0040   9259                            AD.S      A2,16,A6
     0042   0010
     0044   24FE                            ANK       A4,/FE
     0046   EC20                            CWK       A4,/30
     0048   0030
     004A   5400    002C                    RF(4)     DRASO3
     004C   010A                            LDK       A1,/0A
     004E   5700    004E                    RF(7)     DRASO1
     0050   0100                  DRASO3    LDK       A1,0     ← basic write
     0052   5700    004E                    RF(7)     DRASO1
     0054   20BF                  DRASOT    INH
     0056   F7A1                            CF        A15,0:TPUT
     0058   0000 X
     005A   8158                            LD        A1,22,A6
     005C   0016
     005E   0200                  DRASO1    LDK       A2,0     → output
     0060   20BF                            INH
     0062   42B0                            CIO       A2,S,TY01
     0064   4110                            OTR       A1,0,TY01
     0066   F7A1                            CF        A15,0:TPUT
     0068   0000 X
     006A   8F20                  WAITTS    AB.L(7)   C:WAIT
     006C   0000 X
                                  ******************************************************************************
     006E   0201                  DRASIN    LDK       A2,1     ← input
     0070   42B0                            CIO       A2,S,TY01
     0072   5F0A                            RB(7)     WAITTS
                                  * THIS SEQUENCE ACTIVATES THS ASR READER
     0074   0582           08C8   D:RAS2    LDK       A5,/82
     0076   E541                            SC        A5,C:NASR+1
     0078   0001 X
     007A   E641                            ST        A6,C:NASR+2 * DWT ADDRESS
     007C   0002 X
     007E   1C04                            SUK       A4,4
     0080   8920                            AB.L(1)   E:S011
     0082   0000 X
     0084   0111                            LDK       A1,/11                  * X=ON
     0086   0200                            LDK       A2,0
     0088   20BF                            INH
     008A   42B0                            CIO       A2,S,TY01
     008C   4110                            OTR       A1,0,TY01
```

```
0082  008E  4290                          CIO     A2,H,TY01
0083  0090  2840                          ENB
0084  0092  5F2A                          RB(7)   WAITTS
0085                          * THIS SEQUENCE ACTIVATES THE ASR PUNCH
0086  0094  0581      08E8   D:RAS3        LDK     A5,/81
0087  0096  E541                          SC      A5,C:NASR+1
      0098  0001 X
0088  009A  8641                          ST      A6,C:NASR+2 * DWT ADDRESS
      009C  0002 X
0089  009E  1C05                          SUK     A4,5
0090  00A0  8A20                          AB.L(2) E:S011
      00A2  0000 X
0091  00A4  5852                          RB(0)   DRASOT
0092  00A6  1C03                          SUK     A4,3
0093  00A8  5206                          RF(2)   *+8
0094  00AA  0407                          LDK     A4,7
0095  00AC  E459                          SC      A4,19,A6
      00AE  0013
0096  00B0  0112                          LDK     A1,/12          * TAPE-ON
0097  00B2  5F56                          RB(7)   DRAS01
0098                          * THIS SEQUENCE PERFORMS THE ASR INTERRUPT
0099  00B4  BC3F      0908   I:ASR         MSR     8,A15
0100  00B6  8140                          LD      A1,C:NASR
      00B8  0000 X
0101  00BA  21FF                          ANK     A1,/FF
0102  00BC  8640                          LD      A6,C:NASR+2  * DWT ADDRESS
      00BE  0002 X
0103  00C0  E920                          CWK     A1,/82
      00C2  0082
0104  00C4  5400      00C4                RF(4)   I:ASR1
0105  00C6  4AD0                          SST     A2,TY01 ← HSR reader active
0106  00C8  0281                          LDK     A2,/81
0107  00CA  E241                          SC      A2,C:NASR+1
      00CC  0001 X
0108  00CE  0201                          LDK     A2,1  → input
0109  00D0  42D0                          CIO     A2,S,TY01
0110  00D2  BC3F                          MLR     8,A15
0111  00D4  F03E                          RTN     A15
0112  00D6  4AD0              I:ASR1      SST     A2,TY01
0113  00D8  8C20                          AB.L(4) C:INPT      * SST REFUSED
      00DA  0000 X
0114  00DC  8120                          LDK.L   A1,*+8
      00DE  00E4 R
0115  00E0  8F20                          AB.L(7) L:VCH  → upon return level=48, interrupt and master mode
      00E2  0000 X
0116  00E4  8158                          LD      A1,20,A6    * TEST STATUS BIT
      00E6  0014
0117  00E8  8820                          AB.L(0) R:TUR2
      00EA  0000 X
0118  00EC  8F20                          AB.L(7) R:TUR4
      00EE  0000 X
```

```
00119                                   END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
I:ASR1	00D6	R	WAITTS	006A	R	DRASOT	0054	R
DRASO1	005E	R	DRASO2	002E	R	DRASO3	0050	R
DRASIN	006E	R	TYO1	0010	A	H	0000	A
S	0001	A	R:TURN	0000	X	R:TUR4	0000	X
R:TUR2	0000	X	R:TUR1	0000	X	O:TPUT	0000	X
L:VCH	0000	X	I:NPUT	0000	X	E:SO11	0000	X
E:FECB	0000	X	E:SECB	0000	X	D:WAS3	0000	X
D:WAS2	0000	X	D:WAS1	0000	X	C:WAIT	0000	X
C:WASR	0000	X	C:INPT	0000	X	I:ASR	0084	UNUSED
D:RAS3	0094	UNUSED	D:RAS2	0074	UNUSED	D:RAS1	0000	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	UNUSED
A6	000C	A	A5	000A	A	A4	0008	A
A3	0006	UNUSED	A2	0004	A	A1	0002	A

```
 00120                          $EOS
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
I:ASR1	00D6	R	WAITTS	006A	R	DRASOT	0054	R
DRASO1	005E	R	DRASO2	002E	R	DRASO3	0050	R
DRASIN	006E	R	TYO1	0010	A	H	0000	A
S	0001	A	R:TURN	0000	X	R:TUR4	0000	X
R:TUR2	0000	X	R:TUR1	0000	X	O:TPUT	0000	X
L:VCH	0000	X	I:NPUT	0000	X	E:SO11	0000	X
E:FFCB	0000	X	E:SECB	0000	X	D:WAS3	0000	X
D:WAS2	0000	X	D:WAS1	0000	X	C:WAIT	0000	X
C:ASR	0000	X	C:INPT	0000	X	I:ASR	00B4	UNUSED
D:RAS3	0094	UNUSED	D:RAS2	0074	UNUSED	D:RAS1	0000	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	UNUSED
A6	000C	A	A5	000A	A	A4	0008	A
A3	0006	UNUSED	A2	0004	A	A1	0002	A

```
0000                                        IDENT    DRP018
0001                                *
0002                                * THIS MODULE CONTAINS SPECIFIC OPERATIONS FOR PAPER PUNCH
0003                                        ENTRY    D:RPTP
0004                                        ENTRY    I:PP
0005                                *
0006                                        EXTRN    D:WPTP
0007                                        EXTRN    C:OUT
0008                                        EXTRN    C:WAIT
0009                                        EXTRN    E:S011
0010                                        EXTRN    L:VCH
0011                                        EXTRN    M:RETR
0012                                        EXTRN    O:TPUT
0013                                        EXTRN    R:TUR4
0014                                *
0015                                S       EQU      1
0016                                H       EQU      0
0017                                PP18    EQU      /0030
0018                                *
0019                                * THIS SEQUENCE ACTIVATES THE HIGH SPEED PAPER TAPE PUNCH
0020                                * ENTRY CONDITIONS
0021                                *       A6 = DWT ADDRESS
0022                                *       A4 = ORDER
0023                                *
0024  0000  1C05        0944        D:RPTP   SUK      A4,5          * CHECK ORDER
0025  0002  8A20                             AB,L(2)  E:S011
      0004  0000 X
0026  0006  23BF                             INH
0027  0008  F7A1                             CF       A15,O:TPUT
      000A  0000 X
0028  000C  42F0                             CIO      A2,S,PP18     * ACTIVATE THE HIGH SPEED PAPER PUN3H
0029  000E  8F20                             AB,L(7)  C:WAIT
      0010  0000 X
0030                                * THIS SEQUENCE PERFORMS THE PTP INTERRUPT
0031  0012  BC3F        0956        I:PP     MSR      8,A15
0032  0014  8620                             LDK,L    A6,D:WPTP
      0016  0000 X
0033  0018  4AF0                             SST      A2,PP18
0034  001A  8C20                             AB,L(4)  C:OUT  ← if command not accepted
      001C  0000 X
0035  001E  8120                             LDK,L    A1,*+8
      0020  0026 R
0036  0022  8F20                             AB,L(7)  L:VCH
      0024  0000 X
0037  0026  22FF                             ANK      A2,/FF  upon return: level=48, master mode and int. ent.
0038  0028  5000    0028                     RF(0)    I:PP1
0039  002A  8358                             LD       A3,20,A6      * TEST STATUS BIT
      002C  0014
0040  002E  5100    002E                     RF(1)    I:PP2
0041  0030  0100                             LDK      A1,0          * GO TO M:RETR
0042  0032  8408                             LDR      A4,A2
```

```
 00043  0034  2401                        ANK     A4,/1
 00044  0036  5100    0036                RF(1)   I:PP3 <- NOP BIT SET
 00045  0038  0101                        LDK     A1,1 <- NOP BIT NOT SET
 00046  003A  8F20              I:PP3     AB.L(7) M:RETR
        003C  0000 X
 00047  003E  AA20              I:PP2     ORK.L   A2,/8000    * HARDWARE STATUS
        0040  8000
 00048  0042  8F20              I:PP1     AB.L(7) R:TIR4      * END OF IO
        0044  0000 X
 00049                                    END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
I:PP3	003A	R	I:PP2	003E	R	I:PP1	0042	R
PP18	0030	A	H	0000	UNUSED	S	0001	A
R:TUR4	0000	X	O:TPUT	0000	X	M:RETR	0000	X
L:VCH	0000	X	E:S011	0000	X	C:WAIT	0000	X
C:OUT	0000	X	D:WPTP	0000	X	I:PP	0012	UNUSED
D:RPTP	0000	UNUSED	A15	000F	A	A14	000D	UNUSED
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	UNUSED
A7	000E	UNUSED	A6	000C	A	A5	000A	UNUSED
A4	0008	A	A3	0006	A	A2	0004	A
A1	0002	A						

C0050 :EOS

ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
I:PP3	003A	R	I:PP2	003E	R	I:PP1	0042	R
PP18	0030	A	H	0000	UNUSED	S	0001	A
R:TUR4	0000	X	O:TPUT	0000	X	M:RFTR	0000	X
L:VCH	0000	X	E:S011	0000	X	C:WAIT	0000	X
C:OUT	0000	X	D:WPTP	0000	X	I:PP	0012	UNUSED
D:RPTP	0000	UNUSED	A15	000F	A	A14	000D	UNUSED
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	UNUSED
A7	000E	UNUSED	A6	000C	A	A5	000A	UNUSED
A4	0008	A	A3	0006	A	A2	0004	A
A1	0002	A						

```
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                                   *
00015                                   S       EQU      1
00016                                   H       EQU      0
00017                                   PR38    EQU      /0020
00018                                   *
00019                                   *THIS SEQUENCE ACTIVATES THE HIGH SPEED PAPER TAPE PUNCH  reader
00020                                   * ENTRY CONDITIONS
00021                                   *        A6 = DWT ADDRESS
00022                                   *        A4 = ORDER
00023                                   *
00024  0000  1C04          098A        D:RPTR   SUK      A4,4          * CHECK ORDER
00025  0002  8920                               AB.L(1)  E:SO11
       0004  0000 X
00026  0006  42E0                               CIO      A2,S,PR38     * ACTIVATE THE HIGH SPEED PAPER READ&R
00027  0008  8F20                               AB.L(7)  C:WAIT
       000A  0000 X
00028                                   * THIS SEQUENCE PERFORMS THE PTR INTERRUPT
00029  000C  BC3F          0996        I:PR     MSR      8,A15
00030  000E  8620                               LDK.L    A6,D:WPTR
       0010  0000 X
00031  0012  4AE0                               SST      A2,PR38
00032  0014  8C20                               AB.L(4)  C:INPT  <- SST refused
       0016  0000 X
00033  0018  8120                               LDK.L    A1,*+8       change to level 48 and return
       001A  0020 R
00034  001C  8F20                               AB.L(7)  L:VCH
       001E  0000 X
00035  0020  22FF                               ANK      A2,/FF       level=48, interrupt and master mode
00036  0022  8320                               AB.L(0)  R:TUR2        * HARDWARE STATUS = 0
       0024  0000 X
00037  0026  8358                               LD       A3,20,A6     * TEST STATUS BIT
       0028  0014                                                      -> R bit of order in A7 upon LKM call
00038  002A  5100          002A                RF(1)    I:PR1
00039  002C  0100                               LDK      A1,0
00040  002E  8F20                               AB.L(7)  M:RETR
       0030  0000 X
00041  0032  AA20          I:PR1               ORK.L    A2,/8000
```

```
      0034  8000
 00042 0036  8F20                    AR.L(7)  R:TUR4      * HARDWARE STATUS # 0
      0038  0000 X
 00043                               END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
I:PR1	0032	R	PR38	0020	A	H	0000	UNUSED
S	0001	A	R:TUR4	0000	X	R:TUR2	0000	X
M:RETR	0000	X	L:VCH	0000	X	E:S011	0000	X
C:WAIT	0000	X	C:INPT	0000	X	D:WPTR	0000	X
I:PR	000C	UNUSED	D:RPTR	0000	UNUSED	A15	000F	A
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	UNUSED	A7	000E	UNUSED	A6	000C	A
A5	000A	UNUSED	A4	0008	A	A3	0006	A
A2	0004	A	A1	0002	A			
00044			:EOS					

ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
I:PR1	0032	R	PR38	0020	A	H	0000	UNUSED
S	0001	A	R:TUR4	0000	X	R:TUR2	0000	X
M:RETR	0000	X	L:VCH	0000	X	E:S011	0000	X
C:WAIT	0000	X	C:INPT	0000	X	D:WPTR	0000	X
I:PR	000C	UNUSED	D:RPTR	0000	UNUSED	A15	000F	A
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	UNUSED	A7	000E	UNUSED	A6	000C	A
A5	000A	UNUSED	A4	0008	A	A3	0006	A
A2	0004	A	A1	0002	A			

in C:NLP+2 → line count per page

(14+AG) = char count

(12+AG) = Addr User Buffer

Modifications for LP3000

line 83: /0A0D

86: /0A0A

91: /0A0A

94: /0D0D

99: /0A0C

```
0000                                    IDENT   DRLP
0001                            *
0002                                    ENTRY   D:RLP
0003                                    ENTRY   I:LP
0004                            *
0005                                    EXTRN   C:NLP
0006                                    EXTRN   C:WAIT
0007                                    EXTRN   D:WLP
0008                                    EXTRN   E:SECB
0009                                    EXTRN   E:FECB
0010                                    EXTRN   E:S011
0011                                    EXTRN   L:VCH
0012                                    EXTRN   M:RETR
0013                                    EXTRN   R:TUR1
0014                                    EXTRN   R:TUR4
0015                            *
0016                            * THIS SEQUENCE PREPARES THE MULTIPLEX AND ACTIVATES IT
0017                            *
0018                            S       EQU     1
0019                            LP      EQU     /0006
0020                            MULTI   EQU     /0098
0021                            *
0022                            *       A4 = ORDER
0023                            *       A6 = DWT ADDRESS
0024  0000                       MULTIC  RES     2
0025                            *
0026  0004  1C05      09C8      D:RLP   SUK     A4,5        * CHECK ORDER
0027  0006  8A20                        AB.L(2) E:S011      → if order < 5
      0008  0000 X
0028  000A  1C01                        SUK     A4,1
0029  000C  5000    000C               RF(0)   DRLP02      => standard write, W=0, R=0
0030  000E  8920                        AB.L(1) E:S011      → if order ≥ 6
      0010  0000 X
0031  0012  8258                DRLP1B  LD      A2,12,A6    ← order = 5 : basic write, W=0, R=0
      0014  000C
0032  0016  8158                        LD      A1,14,A6
      0018  000E
0033  001A  A120                DRLP01  ANK.L   A1,/FFF
      001C  0FFF
0034  001E  9204                        ADR     A2,A1
0035  0020  1A01                        SUK     A2,1
0036  0022  F304                        C1R     A1,A1
0037  0024  1101                        ADK     A1,1
0038  0026  A120                        ANK.L   A1,/FFF
      0028  0FFF                                            C,I,F,Φ = 1,0,0,0
0039  002A  A920                        ORK.L   A1,/8000    →       * FUNCTION CHARACTER OUTPUT
      002C  8000
0040  002E  B941                        MS      2,MULTI
      0030  0098
0041  0032  B941                        MS      2,MULTIC
      0034  0000 R
```

```
00042  0036  4206                    CIO      A2,S,LP          * ACTIVATE
00043  0038  8F20                    AB.L(7)  C:WAIT           * EN DOF ACTIVATION
       003A  0000 X
00044                          *
00045  003C  8458           DRLP02   LD       A4,12,A6
       003E  000C
00046  0040  EC20                    CWK      A4,E:SECB        * IS IT EOS ?
       0042  0000 X
00047  0044  5006                    RF(0)    *+8
00048  0046  EC20                    CWK      A4,E:FECB        * IS IT EOF ?
       0048  0000 X
00049  004A  5400      004A          RF(4)    DRLP2B
00050  004C  1C01                    SUK      A4,1
00051  004E  8459                    ST       A4,12,A6
       0050  000C
00052  0052  8130                    LDR*     A1,A4            * SAVE CONTROL CODE
00053  0054  8159                    ST       A1,26,A6
       0056  001A
00054  0058  0406                    LDK      A4,6
00055  005A  8459                    ST       A4,14,A6
       005C  000E
00056  005E  9341                    IM       C:NLP+2          * NUMBER OD LINES +1
       0060  0002 X
00057  0062  0405                    LDK      A4,5
00058  0064  8459                    ST       A4,18,A6
       0066  0012
00059  0068  5F58                    RB(7)    DRLP1B
00060  006A  8558           DRLP2B   LD       A5,12,A6         * PUT A CR-LF EACH N CHARACTERS
       006C  000C
00061  006E  8458                    LD       A4,4,A6
       0070  0004
00062  0072  8358                    LD       A3,14,A6
       0074  000E
00063  0076  8220                    LDK.L    A2,/0A0D
       0078  0A0D
00064  007A  A320                    ANK.L    A3,/FFF
       007C  0FFF
00065  007E  E310           DRLP04   CWR      A3,A4
00066  0080  5500      0080          RF(5)    DRLP03
00067  0082  9510                    ADR      A5,A4
00068  0084  9810                    SUR      A3,A4
00069  0086  8235                    STR      A2,A5
00070  0088  9341                    IM       C:NLP+2          * NUMBER OD LINES +1
       008A  0002 X
00071  008C  5F10                    RB(7)    DRLP04
00072                          *
00073  008E  950C           DRLP03   ADR      A5,A3
00074  0090  F134                    LCR      A1,A5
00075  0092  F159                    SC       A1,24,A6               SAVE LAST CHARACTER OF BUFFER
       0094  0018
00076  0096  E235                    SCR      A2,A5
```

```
0098  8558                     LD        A5,12,A6
009A  000C
009C  8134                     LDR*      A1,A5          * SAVE THE CONTROL CODE
009E  8159                     ST        A1,26,A6
00A0  001A
00A2  E920                     CWK       A1,/31
00A4  0031
00A6  5000   00A6              RF(0)     PAGE           * CONVERT THE CONTROL CODE
00A8  E920                     CWK       A1,/30
00AA  0030
00AC  5000   00AC              RF(0)     TWOLIN
00AE  F920                     CWK       A1,/2B
00B0  002B
00B2  5000   00B2              RF(0)     SUPERP
00B4  8220                     LDK.L     A2,/0D0A       * ONE LINE
00B6  0D0A
00B8  9041                     IM        C:NLP+2        * NUMBER OD LINES +1
00BA  0002 X
00BC  5600   00A6              RF(6)     PAGE
00BE  5700   00BE              RF(7)     DRLP05
                      *
00C0  8220            SUPERP   LDK.L     A2,/0D0D               * SUPERPOSITION
00C2  0D0D
00C4  5700   00BE              RF(7)     DRLP05
                      *
00C6  8220            TWOLIN   LDK.L     A2,/0A0A               * SKIP TWO LINES
00C8  0A0A
00CA  9041                     IM        C:NLP+2        * NUMBER OD LINES +1
00CC  0002 X
00CE  9041                     IM        C:NLP+2        * NUMBER OD LINES +1
00D0  0002 X
00D2  5200   00C4              RF(2)     DRLP05
                      *
00D4  8220            PAGE     LDK.L     A2,/0D0C               * SKIP TO TOP OF PAGE
00D6  0D0C
00D8  8120                     LDK.L     A1,-50
00DA  FFCE
00DC  8141                     ST        A1,C:NLP+2
00DE  0002 X
00E0  8235            DRLP05   STR       A2,A5
00E2  9059                     IM        14,A6
00E4  000E
00E6  5FD6                     RB(7)     DRLP1B
                      *
                      ***********************************************************************************
                      *
00E8  BC3F            I:LP     MSR       8,A15
00EA  4AC6                     SST       A2,LP
00EC  8620                     LDK.L     A6,D:WLP
00EE  0000 X
00F0  8120                     LDK.L     A1,*+8
```

```
        00F2  00F8 R
0112    00F4  8F20                      AR.L(7)  L:VCH
        00F6  0000 X
0113    00F8  22FF              ADDR    ANK      A2,/FF      * TEST STATUS
0114    00FA  5000    00FA              RF(0)    ENDLP2
0115    00FC  8158                      LD       A1,20,A6    * TEST RETRY BIT
        00FE  0014
0116    0100  5100    0100              RF(1)    ENDLP1
0117    0102  8308                      LDR      A3,A2
0118    0104  8940                      ML       2,MULTIC    * RESTORE MULTIPLEX
        0106  0000 R
0119    0108  8941                      MS       2,MULTI
        010A  0098
0120    010C  820C                      LDR      A2,A3
0121    010E  0100                      LDK      A1,0
0122    0110  0300                      LDK      A3,0        * GO TO RETRY
0123    0112  8F20                      AR.L(7)  M:RETR
        0114  0000 X
0124                          * END OF IO
0125    0116  AA20            ENDLP1    ORK.L    A2,/8000
        0118  8000
0126    011A  8458            ENDLP2    LD       A4,26,A6            * RESTORE CONTROL CODE
        011C  001A
0127    011E  8558                      LD       A5,12,A6            * BUFFER ADDRESS
        0120  000C
0128    0122  8435                      STR      A4,A5
0129    0124  8158                      LD       A1,18,A6            ORDER
        0126  0012
0130    0128  1906                      SUK      A1,6
0131    012A  5200    012A              RF(2)    ENDLP3 <- if order <6> => basic write
0132    012C  E158                      LC       A1,24,A6
        012E  0018
0133    0130  8358                      LD       A3,14,A6
        0132  000E
0134    0134  1301                      SUK      A3,1
0135    0136  9314                      ADR      A3,A5
0136    0138  E12D                      SCR      A1,A3
0137    013A  8F20            ENDLP3    AR.L(7)  R:TUR4
        013C  0000 X
0138    013E  8F20                      AR.L(7)  R:TUR4
        0140  0000 X
0139                                    END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ENDLP3	013A	R	ENDLP1	0116	R	ENDLP2	011A	R
DRLP05	00E0	R	SUPERP	00C0	R	TWOLIN	00C6	R
PAGE	00D4	R	DRLP03	008E	R	DRLP04	007E	R
DRLP2B	006A	R	DRLP01	001A	UNUSED	DRLP1B	0012	R
DRLP02	003C	R	MULTIC	0000	R	MULTI	0098	A
LP	0006	A	S	0001	A	R:TUR4	0000	X
R:TUR1	0000	X	M:RETR	0000	X	L:VCH	0000	X
E:S011	0000	X	E:FECB	0000	X	E:SECB	0000	X
D:NLP	0000	X	C:WAIT	0000	X	C:NLP	0000	X
I:LP	00E8	UNUSED	D:RLP	0004	UNUSED	A15	000F	A
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	UNUSED	A7	000E	UNUSED	A6	000C	A
A5	000A	A	A4	0008	A	A3	0006	A
A2	0004	A	A1	0002	A			

00140 :EOS

ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ENDLP3	013A	R	ENDLP1	0116	R	ENDLP2	011A	R
DRLP05	00E0	R	SUPERP	00C0	R	TWOLIN	00C6	R
PAGE	00D4	R	DRLP03	008E	R	DRLP04	007E	R
DRLP2B	006A	R	DRLP01	001A	UNUSED	DRLP1B	0012	R
DRLP02	003C	R	MULTIC	0000	R	MULTI	0098	A
LP	0006	A	S	0001	A	R:TUR4	0000	X
R:TUR1	0000	X	M:RETR	0000	X	L:VCH	0000	X
E:S011	0000	X	E:FECB	0000	X	E:SECB	0000	X
D:WLP	0000	X	C:WAIT	0000	X	C:NLP	0000	X
I:LP	00E8	UNUSED	D:RLP	0004	UNUSED	A15	000F	A
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	UNUSED	A7	000E	UNUSED	A6	000C	A
A5	000A	A	A4	0008	A	A3	0006	A
A2	0004	A	A1	0002	A			

```
00000                                   IDENT   DRCR
00001                           *
00002                                   ENTRY   D:RCR
00003                                   ENTRY   I:CR
00004                           *
00005                                   EXTRN   C:WAIT
00006                                   EXTRN   D:WCR
00007                                   EXTRN   E:SO11
00008                                   EXTRN   L:VCH
00009                                   EXTRN   M:RETR
00010                                   EXTRN   R:TUR1
00011                                   EXTRN   R:TUR3
00012                           *
00013                           CR1     EQU     /0005
00014                           CRMULT  EQU     /0094
00015                           H       EQU     0
00016                           S       EQU     1
00017                           *
00018                           ********************************************************************************
00019                           *
00020                           * THIS SEQUENCE CHECKS THE PARAMETERS,PREPARES AND ACTIVATES THE MULTIPLEX
00021                           *
00022  0000  1C02               D:RCR   SUK     A4,2            * CHEHK ORDER
00023  0002  8920                       AB.L(1) E:SO11
       0004  0000 X
00024  0006  8220                       LDK.L   A2,CRBUFF+158
       0008  0000 R  0006
00025  000A  8120                       LDK.L   A1,/4F60
       000C  4F60
00026  000E  B941                       MS      2,CRMULT
       0010  0094
00027  0012  42C5                       CIO     A2,S,CR1
00028  0014  8F20                       AB.L(7) C:WAIT
       0016  0000 X
00029                           *
00030                           * SYSTEM BUFFER
00031  0018                     CRBUFF  RES     80
00032                           *
00033  0068                     STATUS  RES     1
00034                           *
00035                           * THIS SEQUENCE IS ENTERED BY AN INTERRUPT
00036                           *
00037                           * CHECK IF STATUS IS NULL
00038  006A  BC3F               I:CR    MSR     8,A15           * SAVE REGISTERS
00039  006C  8620                       LDK.L   A6,D:WCR
       006E  0000 X
00040  0070  4AC5                       SST     A2,CR1          * SEND STATUS
00041  0072  8120                       LDK.L   A1,*+8
       0074  007A R
00042  0076  8F20                       AB.L(7) L:VCH
       0078  0000 X
```

```
00043  00CA  0100                        LDK     A1,0
00044  00CC  8141                        ST      A1,STATUS
       00CE  00B8 R
00045                            * THIS SEQUENCE SWITCHES BY ORDER
00046  00D0  8158                        LD      A1,18,A6 --> order
       00D2  0012                                          standard read
00047  00D4  21FD                        ANK     A1,/FD          * ORDER 2 ?
00048  00D6  8C20                        AB.L(4) ITCR5           * NO
       00D8  0000 R  00D6
00049  00DA  220F                        ANK     A2,/F           * KEEP USEFUL BITS
00050  00DC  5000    00DC                RF(0)   ITCR11 -> status OK
00051  00DE  8120                ITCR2   LDK.L   A1,/4F60
       00E0  4F60
00052  00E2  8308                        LDR     A3,A2
00053  00E4  8220                        LDK.L   A2,CRBUFF+158
       00E6  00B6 R
00054  00E8  6941                        MS      2,CRMULT    * MULTIPLEX
       00EA  0094
00055  00EC  820C                        LDR     A2,A3
00056                            * GO TO RETRY MODULE
00057  00EE  0100                RETRY   LDK     A1,0
00058  00F0  0300                        LDK     A3,0
00059  00F2  8F20                        AB.L(7) M:RETR
       00F4  0000 X
00060  00F6  8520                ITCR11  LDK.L   A5,CRBUFF
       00F8  0018 R
00061  00FA  0700                        LDK     A7,0
00062  00FC  80D8                        LD      A8,14,A6 --> requested length
       00FE  000E
00063  0100  8458                        LD      A4,12,A6 --> buff Addr 1st char
       0102  000C
00064  0104  8134                HOLCR8  LDR*    A1,A5       * TRANSLATION
00065  0106  5100    0106                RF(1)   HOLCR1
00066  0108  0320                        LDK     A3,/20      * H-CODE=0 - A-CODE = 20
00067  010A  5700    010A                RF(7)   HOLCR9
00068                            *
00069  010C  0300                HOLCR1  LDK     A3,0        * SCAN FOR THE FIRST HOLE
00070  010E  1301                HOLCR2  ADK     A3,1
00071  0110  3941                        SLL     A1,1
00072  0112  5906                        RB(1)   HOLCR2
00073  0114  1804                        SUK     A3,4
00074  0116  A120                        ANK.L   A1,/7FFF    * FIRST HOLE
       0118  7FFF
00075  011A  5400    011A                RF(4)   HOLLET
00076  011C  1801                        SUK     A3,1        * SWITCH
00077  011E  510A                        RF(1)   *+12
00078  0120  5004                        RF(0)    *+6
00079  0122  0326                        LDK     A3,/26      * $
00080  0124  5700    010A                RF(7)   HOLCR9      * STORE
00081  0126  032D                        LDK     A3,/2D      * -
00082  0128  5700    0124                RF(7)   HOLCR9      * STORE
```

```
00083  012A  132F                          ADK     A3,/2F      * DIGIT
00084  012C  5700    0128                 RF(7)   HOLCR9      * STORE
00085                        *
00086  012E                  HOLFST  RES     1
00087  0130                  HOLSND  RES     1
00088                        *
00089  0132  8341            HOLLET  ST      A3,HOLFST   * SAVE FIRST HOLE POSITION
       0134  012E R
00090  0136  1301                    ADK     A3,1
00091  0138  3941                    SLL     A1,1
00092                        *
00093  013A  5906                    RB(1)   *-4
00094  013C  8341                    ST      A3,HOLSND   * SAVE SECOND HOPE POSITION
       013E  0130 R
00095  0140  A120                    ANK.L   A1,/7FFF
       0142  7FFF
00096  0144  5400    0144            RF(4)   HOLBIZ
00097  0146  8140                    LD      A1,HOLFST   * SWITCH
       0148  012E R
00098  014A  E920                    CWK     A1,3
       014C  0003
00099  014E  5600    014E            RF(6)   HOLLE1
00100  0150  9104                    ADR     A1,A1       * FIRST HOLE = 12 -11-0
00101  0152  8144                    LD      A1,TABLE1,A1 * CHOOSE THE TABLE
       0154  0000 R  0152
00102  0156  8240                    LD      A2,HOLSND
       0158  0130 R
00103                        *
00104  015A  1A03                    SUK     A2,3
00105  015C  5200    015C            RF(2)   HOLCR3
00106  015E  9108                    ADR     A1,A2
00107  0160  E324                    LCR     A3,A1       * CHOOSE THE LETTER IN THE TABLE
00108  0162  5700    012C            RF(7)   HOLCR9
00109  0164  5000    015C    HOLLE1  RF(0)   HOLCR3
00110  0166  1904                    SUK     A1,4
00111  0168  E920                    CWK      A1,5
       016A  0005
00112  016C  5100    0164            RF(1)   HOLCR3
00113  016E  8240                    LD      A2,HOLSND
       0170  0130 R
00114  0172  1A0A                    SUK     A2,10
00115  0174  5400    016C            RF(4)   HOLCR3
00116  0176  E344                    LC      A3,TABL1,A1 * CHOOSE CHARACTER IN THE TABLE
       0178  0000 R  0176
00117  017A  5700    0162            RF(7)   HOLCR9       * STORE
00118                        *
00119  017C  3A23            TABL1   DATA    /3A23
00120  017E  4027                    DATA    /4027
00121  0180  3D22                    DATA    /3D22
00122                        *
00123  0182  8340            HOLBIZ  LD      A3,HOLFST   * THREE HOLES
```

```
      0184  012E R
00124 0186  1802                        SUK     A3,2
00125 0188  5100    0174                RF(1)   HOLCR3
00126 018A  8340                        LD      A3,HOLSND
      018C  0130 R
00127 018E  1804                        SUK     A3,4
00128 0190  5200    0188                RF(2)   HOLCR3
00129 0192  1805                        SUK     A3,5
00130 0194  5100    0190                RF(1)   HOLCR3
00131 0196  1309                        ADK     A3,9        * THIRD HOLE = HOLE EIGHT
00132 0198  1301                        ADK     A3,1
00133 019A  3941                        SLL     A1,1
00134 019C  5906                        RB(1)   *-4
00135 019E  180A                        SUK     A3,10
00136 01A0  5400    0194                RF(4)   HOLCR3
00137 01A2  3941                        SLL     A1,1
00138 01A4  5400    01A0                RF(4)   HOLCR3
00139 01A6  8140                        LD      A1,HOLFST   *
      01A8  012E R
00140 01AA  9104                        ADR     A1,A1
00141 01AC  8144                        LD      A1,TABLE2,A1
      01AE  0000 R  01AC
00142 01B0  9140                        AD      A1,HOLSND
      01B2  0130 R
00143 01B4  1904                        SUK     A1,4
00144 01B6  E324                        LCR     A3,A1
00145 01B8  5700    017A                RF(7)   HOLCR9
00146                           * STOR  E ASCII CODE
00147 01BA  E331                HOLCR9  SCR     A3,A4
00148 01BC  1401                        ADK     A4,1
00149 01BE  1502                        ADK     A5,2
00150 01C0  1701                        ADK     A7,1
00151 01C2  EF02                        CWR     A7,A8
00152 01C4  5CC2                        RB(4)   HOLCR8
00153 01C6  8759                        ST      A7,16,A6 → effective length
      01C8  0010
00154                           *
00155                           * THIS SEQUENCE PERFORMS THE END OF TRANSFERT
00156 01CA  8140                HOLEND  LD      A1,STATUS
      01CC  00B8 R
00157 01CE  2101                        ANK     A1,/1
00158 01D0  5000    01D0                RF(0)   HOLEN2 → no unknown character
00159 01D2  0204                        LDK     A2,/4       * GO TO RETRY WITH DATA FAULT
00160 01D4  8F20                        AB,L(7) ITCR2
      01D6  00DE R
00161 01D8  8459                HOLEN2  ST      A4,12,A6 →  Addr 1st non processed char
      01DA  000C
00162 01DC  9C1C                        SUR     A4,A7       BUFFER ADDRESS
00163 01DE  5930                        MLR     2,A4
00164 01E0  E920                        CWK     A1,/3A45    *:E
      01E2  3A45
```

```
00165  01E4  5400     01E4                    RF(4)    HOLEN1
00166  01E6  EA20                             CWK      A2,/4F46     *OF
       01E8  4F46
00167  01EA  5000     01EA                    RF(0)    HOLEN0
00168  01EC  EA20                             CWK      A2,/4F53     *OS
       01EE  4F53
00169  01F0  5400     01E4                    RF(4)    HOLEN1
00170  01F2  1404                    HOLEN0   ADK      A4,4          <- :EOF in card
00171  01F4  8459                             ST       A4,12,A6
       01F6  000C
00172  01F8  0404                             LDK      A4,4
00173  01FA  8459                             ST       A4,16,A6
       01FC  0010
00174  01FE  8558                    HOLEN1   LD       A5,10,A6      <- :EOS in card
       0200  000A
00175  0202  8F20                             AB.L(7)  R:TUR3        -> ECB Addr.
       0204  0000 X
00176                                  *
00177                                  * ERROR DATAS FAULT
00178  0206  0301                     HOLCR3   LDK      A3,1          * UNKNOWN CHARACTER
00179  0208  AB41                              OR.S     A3,STATUS
       020A  00B8 R
00180  020C  0320                             LDK      A3,/20
00181  020E  5F56                             RB(7)    HOLCR9
00182                                  * CONVERSION TABLE
00183  0210  0000 R  0210             TABLE1   DATA     TABI12
00184  0212  0000 R  0212                      DATA     TABI11
00185  0214  0000 R  0214                      DATA     TABI10
00186  0216  4142                     TABI12   DATA     'ABCDEFGHI '
       0218  4344
       021A  4546
       021C  4748
       021E  4920
00187  0220  4A4B                     TABI11   DATA     'JKLMNOPQR '
       0222  4C4D
       0224  4E4F
       0226  5051
       0228  5220
00188  022A  2F53                     TABI10   DATA     '/STUVWXYZ '
       022C  5455
       022E  5657
       0230  5859
       0232  5A20
00189  0234  0000 R  0234             TABLE2   DATA     TABLE3
00190  0236  0000 R  0236                      DATA     TABLE4
00191  0238  0000 R  0238                      DATA     TABLE5
00192  023A  582E                     TABLE3   DATA     /582E          * 12-2-12-3
00193  023C  3C28                              DATA     /3C28          * 12-4-12-5
00194  023E  2B5E                              DATA     /2B5E          * 12-6-12-7
00195  0240  2124                     TABLE4   DATA     /2124          * 11-2-11-3
00196  0242  2A29                              DATA     /2A29          * 11-4-11-5
```

```
00197  0244  385D                        DATA    /385D       * 11-6-11-7
00198  0246  5C2C              TABLE5    DATA    /5C2C       * 10-2-10-3
00199  0248  255F                        DATA    /255F       *10-4-10-5
00200  024A  3E3F                        DATA    /3E3F       * 10-6-10-7
00201                           ITCR5     EQU     *
00202  024C  220F                        ANK     A2,/0F      * KEEP BITS 12,14,15
00203  024E  5000      024E              RF(0)   ITCR51              * STATUS = 0
00204  0250  8158                        LD      A1,20,A6    * STATUS # 0
       0252  0014
00205  0254  8D20                        AB.L(5) ITCR2       * GO TO RETRY
       0256  00DE R
00206  0258  AA20                        ORK.L   A2,/8000
       025A  8000
00207  025C  0100                        LDK     A1,0        * USER WANTS HARDWARE STATUS
00208  025E  8558              ITCR53    LD      A5,10,A6
       0260  000A
00209  0262  8F20                        AB.L(7) R:TUR1
       0264  0000 X
00210                                   * THIS SEQUENCE PUTS CHARACTERS IN USER BUFFER IF STATUS = 0
00211  0266  8558              ITCR51    LD      A5,12,A6            * USER BUFFER ADDRESS
       0268  000C
00212  026A  8458                        LD      A4,14,A6            * REQUESTED
       026C  000E
00213  026E  0100                        LDK     A1,0                * EFFECTIVE LENGTH
00214  0270  8220                        LDK.L   A2,CRBUFF           * SYSTEM BUFFER ADDRESS
       0272  0018 R
00215  0274  EC20                        CWK     A4,160
       0276  00A0
00216  0278  5202                        RF(2)   *+4
00217  027A  04A0                        LDK     A4,160
00218  027C  8328              ITCR52    LDR*    A3,A2
00219  027E  8335                        STR     A3,A5
00220  0280  1502                        ADK     A5,2
00221  0282  1102                        ADK     A1,2
00222  0284  1202                        ADK     A2,2
00223  0286  1C02                        SUK     A4,2
00224  0288  590E                        RB(1)   ITCR52
00225  028A  0200                        LDK     A2,0
00226  028C  E920                        CWK     A1,160
       028E  00A0
00227  0290  5302                        RF(0)   *+4
00228  0292  0208                        LDK     A2,8
00229  0294  5F38                        RB(7)   ITCR53
00230                           *
00231                                   END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ITCR52	027C	R	ITCR53	025F	R	ITCR51	0266	R
TABLE5	0246	R	TABLE4	0240	R	TABLE3	023A	R
TABI10	022A	R	TABI11	0220	R	TABI12	0216	R
HOLEN0	01F2	R	HOLEN1	01FE	R	HOLEN2	01D8	R
HOLEND	01CA	UNUSED	TABLE2	0234	R	TABL1	017C	R
HOLCR3	0206	R	TABLE1	0210	R	HOLLE1	0164	R
HOLBIZ	0182	R	HOLSND	0130	R	HOLFST	012E	R
HOLLET	0132	R	HOLCR2	010E	R	HOLCR9	01BA	R
HOLCR1	010C	R	HOLCR8	0104	R	RETRY	00EE	UNUSED
ITCR2	00DE	R	ITCR11	00F6	R	ITCR5	024C	R
STATUS	00B8	R	CRBUFF	0018	R	S	0001	A
H	0000	UNUSED	CRMULT	0094	A	CR1	0005	A
R:TUR3	0000	X	R:TUR1	0000	X	M:RETR	0000	X
L:VCH	0000	X	E:SO11	0000	X	D:WCR	0000	X
C:WAIT	0000	X	I:CR	00BA	UNUSED	D:RCR	0000	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	A	A7	000E	A
A6	000C	A	A5	000A	A	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

00232 :EOS
ASS.ERR. 00000

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SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ITCR52	027C	R	ITCR53	025E	R	ITCR51	0266	R
TABLE5	0246	R	TABLE4	0240	R	TABLE3	023A	R
TABI10	022A	R	TABI11	0220	R	TABI12	0216	R
HOLEN0	01F2	R	HOLEN1	01FE	R	HOLEN2	01D8	R
HOLEND	01CA	UNUSED	TABLE2	0234	R	TABL1	017C	R
HOLCR3	0206	R	TABLE1	0210	R	HOLLE1	0164	R
HOLBIZ	0182	R	HOLSND	0130	R	HOLFST	012E	R
HOLLET	0132	R	HOLCR2	010E	R	HOLCR9	01BA	R
HOLCR1	010C	R	HOLCR8	0104	R	RETRY	00EE	UNUSED
ITCR2	00DE	R	ITCR11	00F6	R	ITCR5	024C	R
STATUS	0088	R	CRBUFF	0018	R	S	0001	A
H	0000	UNUSED	CRMULT	0094	A	CR1	0005	A
R:TUR3	0000	X	R:TUR1	0000	X	M:RETR	0000	X
L:VCH	0000	X	E:S011	0000	X	D:WCR	0000	X
C:WAIT	0000	X	I:CR	00BA	UNUSED	D:RCR	0000	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	A	A7	000E	A
A6	000C	A	A5	000A	A	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

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```
                              IDENT     M:RETR
                            * THIS MODULE PROCESSES THREE FUNCTIONS:
                            *                   * PRINT OF RETRY MESSAGE
                            *                   * PROCESS OF RY FUNCTION
                            *                   * PROCESS OF RD FUNCTION
                            *
                              ENTRY     M:RETR
                              ENTRY     RYPRO
                              ENTRY     RDPRO
                            *
                            * ENTRY CONDITIONS FOR M:RETR
                            *                   * A6 = DWT ADDRESS
                            *                   * A2 = STATUS
                            *                   * A1 = FLAG RY OR NOT ; IF 0, RY
                            *                   * A3 = REQUEST
                            * ENTRY CONDITIONS FOR RYPRO OR RDPRO
                            *                   * A5=  INHCP ADDRESS (IMR A5)
                            *                   * MESSAGE ECB =ECBCP - BUFCP
                            *                   * IF ERROR,GO TO ERHB
                            *
                              EXTRN     CPRTN
                              EXTRN     ERHB
                              EXTRN     ECBCP
                              EXTRN     BUFCP
                              EXTRN     HB
                              EXTRN     R:TURN
                              EXTRN     R:TUR4
                              EXTRN     R:TUR5
                            *
0000  1100     0B06  ->  M:RETR   ADK       A1,0
0002  5400     0002               RF(4)     RETRY1
0004  8420              RETRY3    LDK.L     A4,TABLE1+2 * PUT IN TABLE  <- retry
0006  0000 R   0004
0008  8330                        LDR*      A5,A4         * SEARCH FOR AN EMPTY WORD.
000A  5000     000A               RF(0)     RETRY2
000C  1404                        ADK       A4,4
000E  EC20                        CWK       A4,TABLE2
0010  0000 R   000E
0012  5910                        RB(1)     RETRY3
0014  5F0E                        RB(7)     RETRY3+4
                            *
0016  8631              RETRY2    STR       A6,A4
0018  1C02                        SUK       A4,2
001A  E30C                        ECR       A3,A3
001C  E358                        LC        A3,3,A6
001E  0003
0020  8331                        STR       A3,A4
0022  8338              RETRY1    LDR*      A3,A6         *PUT DN IN BUFFER   <- no retry
0024  8341                        ST        A3,BUFRY+4
0026  0000 R   0024
0028  8358                        LD        A3,2,A6             * PUT DA IN BUFFER
                                                                    -> device address
```

```
          002A  0002
00047     002C  233F                    ANK     A3,/3F
00048     002E  840C                    LDR     A4,A3
00049     0030  3C64                    SRL     A4,4
00050     0032  1430                    ADK     A4,/30
00051     0034  E410                    ECR     A4,A4
00052     0036  230F                    ANK     A3,/F
00053     0038  1330                    ADK     A3,/30
00054     003A  E820                    CWK     A3,/3A
          003C  003A
00055     003E  5202                    RF(2)   *+4
00056     0040  1307                    ADK     A3,/7
00057     0042  940C                    ADR     A4,A3
00058     0044  8441                    ST      A4,BUFRY+6
          0046  0000 R  0024
00059     0048  0430                    LDK     A4,/30      * PUT STATUS IN BUFFER
00060     004A  E441                    SC      A4,BUFRY+9
          004C  0000 R  0044
00061     004E  E441                    SC      A4,BUFRY+10
          0050  0000 R  004A
00062     0052  8308                    LDR     A3,A2
00063     0054  3864                    SRL     A3,4
00064     0056  230F                    ANK     A3,/F
00065     0058  1330                    ADK     A3,/30
00066     005A  E341                    SC      A3,BUFRY+11
          005C  0000 R  004E
00067     005E  220F                    ANK     A2,/F
00068     0060  1230                    ADK     A2,/30
00069     0062  EA20                    CWK     A2,/3A
          0064  003A
00070     0066  5202                    RF(2)   *+4
00071     0068  1207                    ADK     A2,7
00072     006A  E241                    SC      A2,BUFRY+12
          006C  0000 R  005A
00073     006E  020F                    LDK     A2,15
00074     0070  1100                    ADK     A1,0
00075     0072  5402                    RF(4)   *+4
00076     0074  1203                    ADK     A2,3
00077     0076  8241                    ST      A2,ECBRY+4
          0078  0000 R  0076
00078     007A  0706                    LDK     A7,6
00079     007C  80A0                    LDK.L   A8,ECBRY
          007E  0000 R  0076
00080     0080  2804                    LKM
00081     0082  0001                    DATA    1
00082     0084  1100                    ADK     A1,0
00083     0086  8820                    AB.L(0) RETURN      *RY* RETURN TO INTERRUPTED PROGRAM
          0088  0000 X
00084     008A  0200                    LDK     A2,0
00085     008C  8F20                    AB.L(7) RETUR4      * NO RY * END OF IO
          008E  0000 X
```

```
0090  0000            TABLE1  DATA      0                 * REQUEST- DA
0092  0000                    DATA      0                 * DWT ADDRESS
0094  0000                    DATA      0
0096  0000                    DATA      0
0098  0000                    DATA      0
009A  0000                    DATA      0
009C  0000                    DATA      0
009E  0000                    DATA      0
00A0  0000                    DATA      0
00A2  0000                    DATA      0
00A4  0000                    DATA      0
00A6  0000                    DATA      0
00A8  0000            TABLE2  DATA      0
00AA  0000                    DATA      0
00AC  0000                    DATA      0
00AE  2050            BUFRY   DATA      ' PU,DNXX,STAT,RY'
00B0  552C
00B2  444E
00B4  5858
00B6  2053
00B8  5441
00BA  542C
00BC  5259
00BE  8005            ECBRY   DATA      /8005
00C0  00AC R                  DATA      BUFRY-2
00C2                          RES       3
                      * THIS SEQUENCE PROCESSES RY AND RD
00C8  9035            RYPRO   IMR       A5                * SEARCH FOR THE DEVICE ADDRESS
                      RDPRO   EQU       RYPRO
                      * GO TO HB MODULE
                      * A1 = CHARACTER ADDRESS
00CA  F6A1                    CF        A14,HB
00CC  0000 X
                      * RETURN A2 = BINARY RESULT
00CE  EA20                    CWK       A2,/3F
00D0  003F
00D2  8920            PRO1    AB.L(1)   ERHB              * ERROR IN THE STATEMENT
00D4  0000 X
00D6  8308                    LDR       A3,A2             * A3 = DEVICE ADDRESS
00D8  8420                    LDK.L     A4,TABLE1+1       * SEARCH IN TABLE
00DA  0091 R
00DC  E331            PRO6    CCR       A3,A4
00DE  5000                    RF(0)     PRO5
00E0  1404                    ADK       A4,4
00E2  EC20                    CWK       A4,TABLE2
00E4  00A8 R
00E6  5916                    RB(1)     PRO1
00E8  5F0F                    RB(7)     PRO6
                      *                                   * DEVICE ADDRESS FOUND
00EA  1C01            PRO5    SHK       A4,1              * IS IT RD OR RY
00EC  8140                    LD        A1,BUFCP
```

```
        00EE  0000 X
00125   00F0  E920                          CWK      A1,/5244      * RD
        00F2  5244
00126   00F4  5000      00F4                RF(0)    PR07
00127   00F6  9320                          ADK.L    A3,/41C0      * RY
        00F8  41C0
00128   00FA  8650                          LD       A6,2,A4
        00FC  0002
00129   00FE  8558                          LD       A5,10,A6
        0100  000A
00130   0102  8158                          LD       A1,18,A6      *SET ORDER
        0104  0012
00131   0106  21FF                          ANK      A1,/FF
00132   0108  1903                          SUK      A1,3
00133   010A  5200      010A                RF(2)    PROA2
00134   010C  1902                          SUK      A1,2
00135   010E  5100      010A                RF(1)    PROA2
00136   0110  0102                          LDK      A1,2
00137   0112  E159                          SC       A1,19,A6
        0114  0013
00138   0116  20BF               PROA2      INH
00139   0118  8341                          ST       A3,EXE
        011A  0000 R    0118
00140   011C  8154                          LD       A1,2,A5                 * RESTORE PARAMETERS
        011E  0002
00141   0120  8159                          ST       A1,12,A6
        0122  000C
00142   0124  0100                          LDK      A1,0
00143   0126  8159                          ST       A1,16,A6
        0128  0010
00144   012A  0200                          LDK      A2,0
00145   012C  8959                          MS       2,24,A6
        012E  0018
00146   0130  8955                          MS       2,6,A5
        0132  0006
00147   0134  F130                          LCR      A1,A4
00148   0136  210F                          ANK      A1,/F
00149   0138                     EXE        RES      1             * CIO START
00150   013A  0100                          LDK      A1,0
00151   013C  8131                          STR      A1,A4         * CLEAR THE RY REQUEST
00152   013E  8151                          ST       A1,2,A4
        0140  0002
00153   0142  2840                          ENB
00154   0144  8F20               PR08       AB.L(7)  CPRTN         * END .
        0146  0000 X
00155                            *
00156                            ******************************************************************
00157   0148  8650               PR07       LD       A6,2,A4       *RD
        014A  0002
00158   014C  0100                          LDK      A1,0
00159   014E  8151                          ST       A1,2,A4       * CLEAR THE REQUEST
```

```
          0150  0002
 00160    0152  8131                    STR       A1,A4
 00161    0154  8008                    LD        A8,10,A6
          0156  000A
 00162    0158  8220                    LDK.L     A2,/8000     UPDATE STATUS
          015A  8000
 00163    015C  8720                    LDK.L     A7,CPRTN
          015E  0000 X
 00164    0160  8F20                    AB.L(7)   R:TUR5       * UPDATE EVENT
          0162  0000 X
 00165                          *
 00166                          END
ASS.ERR.  00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
PR08	0144	UNUSED	EXE	0138	R	PR0A2	0116	R
PR07	0148	R	PR05	00EA	R	PR06	00DC	R
PR01	00D2	R	ECBRY	00BE	R	BUFRY	00AE	R
TABLE2	00A8	R	RETRY2	0016	R	TABLE1	0090	R
RETRY3	0004	R	RETRY1	0022	R	R:TUR5	0000	X
R:TUR4	0000	X	R:TURN	0000	X	HB	0000	X
BUFCP	0000	X	ECBCP	0000	X	ERHB	0000	X
CPRTN	0000	X	RDPRO	00C8	UNUSED	RYPRO	00C8	R
M:RETR	0000	UNUSED	A15	000F	UNUSED	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	A
A7	000E	A	A6	000C	A	A5	000A	A
A4	0008	A	A3	0006	A	A2	0004	A
A1	0002	A						
00167			:EOS					

ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
PR08	0144	UNUSED	EXE	0138	R	PR0A2	0116	R
PR07	0148	R	PR05	00EA	R	PR06	00DC	R
PR01	00D2	R	ECBRY	00BE	R	BUFRY	00AE	R
TABLE2	00A8	R	RETRY2	0016	R	TABLE1	0090	R
RETRY3	0004	R	RETRY1	0022	R	R:TUR5	0000	X
R:TUR4	0000	X	R:TURN	0000	X	HB	0000	X
BUFCP	0000	X	ECBCP	0000	X	ERHB	0000	X
CPRTN	0000	X	RDPRO	00C8	UNUSED	RYPRO	00C8	R
M:RETR	0000	UNUSED	A15	000F	UNUSED	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	A
A7	000E	A	A6	000C	A	A5	000A	A
A4	0008	A	A3	0006	A	A2	0004	A
A1	0002	A						

```
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        0C6A       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 R  000A
00014  000E  0000 R  000E        SWFUNO   DATA     BINOUT       * BASIC OUTPUT
00015  0010  0000 R  0010                    DATA     ASCOUT       *ASCII OUTPUT
00016  0012  0000 R  0012                    DATA     OBJOT4       *STANDARD BINARY OUTPUT(4X4)
00017  0014  0000 R  0014                    DATA     OBJOT8       *STANDARD BINARY OUTPUT(8X8)
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     0018                    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     0038                    RF(0)    ASRTP0
00039  003A  8258                             LD       A2,26,A6     * YES
       003C  001A
00040  003E  1A05                             SUK      A2,5
00041  0040  5200     0040                    RF(2)    ASC001
00042  0042  8438                             LDR*     A4,A6
00043  0044  EC20                             CWK      A4,/5459     test 'TY'
```

119

A4=
5
6
7
8

data systems

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```
0046 5459
0048 5820                         RB(0)    BINOT2
                        ASC000    EQU      *
004A 8420                         LDK.L    A4,/1D0A    SUK A5,10
004C 1D0A
004E 5700       004E              RF(7)    OBJ083-4
0050 1206               ASC001    ADK      A2,6
0052 E448                         LC       A4,ASCBUF,A2
0054 0000 R     0052
0056 9059                         IM       26,A6
0058 001A
005A 5F38                         RB(7)    BINOT3
005C 8258               ASRTP0    LD       A2,26,A6  <- outp on ASR punch
005E 001A
0060 1A0A                         SUK      A2,10
0062 583A                         RB(0)    BINOT2
0064 1207                         ADK      A2,7        TEST 'TAPE OFF' IN ORDER TO
0066 581E                         RB(0)    ASC000      INSERT SPACES BEFORE IT
0068 5200       0068              RF(2)    ASRTP1
006A 8258                         LD       A2,26,A6
006C 001A
006E 1A09                         SUK      A2,9        TEST
0070 5C28                         RB(4)    ASC000      LAST SPACE
0072 0204                         LDK      A2,4         A2 = POSITION OF 'TAPE OFF'
0074 5F24                         RB(7)    ASC001+2    IN ASCBUF
0076 1A02               ASRTP1    SUK      A2,2
0078 5F2A                         RB(7)    ASC001
007A 000A               ASCBUF    DATA     /A            NUL      LF
007C 130D                         DATA     /130D         XOFF     CR
007E 14FF                         DATA     /14FF         TAPE OFF DELETE
                        * THIS SEQUENCE TAKES A CHARACTER IN BUFFER,PERFORMS A CHECKSUM.
                        *                  A6= DEVICE WORK TABLE
0080 E424               OBJOT8    LCR      A4,A1  <- (8+8 obj output)
0082 F820                         CWK      A3,1
0084 0001
0086 586C                         RB(0)    BINOT4
0088 5200       0088              RF(2)    OBJ081
008A EA0C                         CWR      A2,A3
008C 5000       004E              RF(0)    OBJ083-8
008E B459                         XR.S     A4,24,A6
0090 0018
0092 5F78                         RB(7)    BINOT4      * GO TO STOTE THE CHARACTER TO OUTPUT
                        *
0094 8420               OBJ083-8  LDK.L    A4,/1D06    SUK A5,6
0096 1D06
0098 8441               OBJ083-4  ST       A4,OBJ087+2
009A 0000 R     0098
009C 8458               OBJ083    LD       A4,24,A6    * LAST CHARACTER
009E 0018
00A0 8558                         LD       A5,26,A6
00A2 001A
```

```
00083  00A4  9059                      IM      26,A6
       00A6  001A
00084  00A8  1500                      ADK     A5,0
00085  00AA  5888                      RB(0)   BINOT3
00086  00AC  0400              OBJ087  LDK     A4,0
00087                          ********************************************************************************
00088  00AE  1D06                      SUK     A5,6        WARNING . INSTRUCTION DYNAMICALLY MODIFIED
00089                          ********************************************************************************
00090  00B0  5C8E                      RB(4)   BINOT3
00091  00B2  8459                      ST      A4,24,A6
       00B4  0018
00092  00B6  5F8E                      RB(7)   BINOT2
00093                          * THIS SEQUENCE TAKES A CHARACTER IN BUFFER,PERFORMS A CHECKSUM AND
00094                          * OUTPUTS X-OFF(4X4 FORMAT
00095                          *               A6 = DEVICE WORK TABLE
00096  00B8  E424              OBJOT4  LCR     A4,A1
00097  00BA  E820                      CWK     A3,1
       00BC  0001
00098  00BE  5000      00BE            RF(0)   OBJ042
00099  00C0  5200      00C0            RF(2)   OBJ041
00100  00C2  EA0C                      CWR     A2,A3
00101  00C4  5000      00C4            RF(0)   OBJ043
00102  00C6  8558                      LD      A5,26,A6
       00C8  001A
00103  00CA  5100      00CA            RF(1)   OBJ044
00104  00CC  B459                      XR.S    A4,24,A6    * FIRST-HALF CHARACTER
       00CE  0018
00105  00D0  9059              OBJ045  IM      26,A6
       00D2  001A
00106  00D4  3C64                      SRL     A4,4
00107  00D6  5700      00D6            RF(7)   CONVE4
00108                          *
00109  00D8  0500              OBJ044  LDK     A5,0        * SECOND-HALF CHARACTER
00110  00DA  8559                      ST      A5,26,A6
       00DC  001A
00111  00DE  5700      0088            RF(7)   OBJ081
00112                          * THIS SEQUENCE CONVERTS THE CHARACTERS
00113  00E0  1408              OBJ041  ADK     A4,/8       * FIRST CHARACTER
00114  00E2  1301              OBJ081  ADK     A3,1
00115  00E4  1101                      ADK     A1,1
00116  00E6  240F              CONVE4  ANK     A4,/F       * CONVERSION TO AVOID TROUBLING CHARACTER
00117  00E8  5000      00E8            RF(0)   CONVE5
00118  00EA  EC20                      CWK     A4,/5
       00EC  0005
00119  00EE  5200      00EE            RF(2)   CONVE6
00120  00F0  2C10              CONVE5  ORK     A4,/10
00121  00F2  5F04              CONVE6  RB(7)   BINOT5
00122                          *
00123  00F4  8558              OBJ042  LD      A5,26,A6    * SECOND CHARACTER
       00F6  001A
00124  00F8  582A                      RB(0)   OBJ045
```

```
 00125  00FA  5924                          RB(1)    OBJ044
 00126                        *
 00127  00FC  8458             OBJ043       LD       A4,24,A6    * LAST CHARACTER
        00FE  0018
 00128  0100  8558                          LD       A5,26,A6
        0102  001A
 00129  0104  5836                          RB(0)    OBJ045
 00130  0106  9059                          IM       26,A6
        0108  001A
 00131  010A  1D02                          SUK      A5,2        * TEST IF THE SECOND PART OF CHECKSUM
 00132                        *                                   * IS OUTPUT
 00133  010C  5A28                          RB(2)    CONVE4
 00134  010E  5000     010E                RF(0)    OUTXOF
 00135  0110  8420                          LDK.L    A4,/1D06  SUK A5,6
        0112  1D06
 00136  0114  8441                          ST       A4,OBJ087+2
        0116  00AE R
 00137  0118  ED20                          CWK      A5,6
        011A  0006
 00138  011C  5A72                          RB(2)    OBJ087              * OUTPUT NULL CODES
 00139  011E  5000     011E                RF(0)    OUTTOF              * OUTPUT TAPE OFF
 00140  0120  ED20                          CWK      A5,7
        0122  0007
 00141  0124  59FC                          RB(1)    BINOT2              * END OF IO
 00142  0126  04FF                          LDK      A4,/FF              * OUTPUT RUB OUT
 00143  0128  5F38                          RB(7)    CONVE6
 00144  012A  0413             OUTXOF       LDK      A4,/13              * X OFF
 00145  012C  5F3C                          RB(7)    CONVE6
 00146  012E  0414             OUTTOF       LDK      A4,/14               * TAPE OFF
 00147  0130  5F40                          RB(7)    CONVE6
 00148                                      END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
OUTTOF	012E	R	OUTXOF	012A	R	CONVE6	00F2	R
CONVE5	00F0	R	CONVE4	00E6	R	OBJ045	00D0	R
OBJ044	00D8	R	OBJ043	00FC	R	OBJ041	00E0	R
OBJ042	00E4	R	OBJ087	00AC	R	OBJ081	00E2	R
ASRTP1	0076	R	ASCBUF	007A	R	OBJ083	009C	R
ASC000	004A	R	ASC001	0050	R	ASRTP0	005C	R
BINOT3	0024	R	BINOT5	0020	R	BINOT4	001C	R
BINOT1	001A	R	BINOT2	002A	R	OBJOT8	0080	R
OBJOT4	00B8	R	ASCOUT	002E	R	BINOUT	0016	R
S*FUNO	000E	R	E:NDIO	0000	X	O:TPUT	0000	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	UNUSED
A6	000C	A	A5	000A	A	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

00149 :EOS
ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
OUTTOF	012E	R	OUTXOF	012A	R	CONVE6	00F2	R
CONVE5	00F0	R	CONVE4	00E6	R	OBJ045	00D0	R
OBJ044	00D8	R	OBJ043	00FC	R	OBJ041	00E0	R
OBJ042	00F4	R	OBJ087	00AC	R	OBJ081	00E2	R
ASRTP1	0076	R	ASCBUF	007A	R	OBJ083	009C	R
ASC000	004A	R	ASC001	0050	R	ASRTP0	005C	R
BINOT3	0024	R	BINOT5	0020	R	BINOT4	001C	R
BINOT1	001A	R	BINOT2	002A	R	OBJOT8	0080	R
OBJOT4	00B8	R	ASCOUT	002E	R	BINOUT	0016	R
SAFUNO	000E	R	E:NDIO	0000	X	O:TPUT	0000	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	UNUSED
A6	000C	A	A5	000A	A	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

```
00000                                   IDENT    COMIO
00001                               * THIS MODULE IS COMMON TO ALL DRIVERS
00002                                   ENTRY    C:INPT
00003                                   ENTRY    C:OUT
00004                                   ENTRY    C:WAIT
00005                               *
00006                                   EXTRN    I:NPUT
00007                                   EXTRN    O:TPUT
00008                                   EXTRN    R:TURN
00009                                   EXTRN    PWAIT
00010                               * THIS SEQUENCE PUTS THE ASKING PROGRAM IN WAIT ON ECB
00011                               *       ENTRY CONDITIONS
00012                               *       A7 = ORDER
00013                               *       A8 = ECB ADDRESS
00014                               *       ENTRY  AB.L(7)  C:WAIT
00015                               *
00016  0000  811C    0D9C           C:WAIT   LDR      A1,A7
00017  0002  2180                            ANK      A1,/80
00018  0004  8320                            AB.L(0)  R:TURN
       0006  0000 X
00019  0008  0600                            LDK      A6,0
00020  000A  8F20                            AB.L(7)  PWAIT
       000C  0000 X
00021                               *
00022                               ********************************************************************************
00023                               *
00024                               * THIS SEQUENCE EXECUTES AN INR INSTRUCTION
00025                               * ENTRY CONDITIONS
00026                               *       A6 = DWT ADDRESS
00027                               *       ENTRY  AB.L(7)  C:INPT
00028                               *
00029  000E  8158    0DAA           C:INPT   LD       A1,2,A6     * A1 = DEVICE ADDRESS
       0010  0002
00030  0012  9120                            ADK.L    A1,/4D00
       0014  4D00
00031  0016  8141                            ST       A1,*+4      * STORE THE INR INSTRUCTION YO EXECUTE
       0018  001A R
00032  001A  0000                            DATA     0                       * INPUT -> xfer to A5
00033  001C  5400    001C                    RF(4)    C:OUT
00034  001E  F7A1                            CF       A15,I:NPUT
       0020  0000 X
00035  0022  8F20                        END      AB.L(7)  R:TURN
       0024  0000 X
00036                               *
00037                               ********************************************************************************
00038                               *
00039                               * THIS SEQUENCE EXECUTES AN OTR INSTRUCTION
00040                               * ENTRY CONDITIONS
00041                               *       A6 = DWT ADDRESS
00042                               *       ENTRY  AB.L(7)  C:OUT
00043                               *
```

data systems

```
00044  0026  8258      ODC2  C:OUT    LD       A2,22,A6     * A2 = CHARACTER TO OUTPUT
       0028  0016
00045  002A  8158                     LD       A1,2,A6      Device addr.
       002C  0002
00046  002E  9120                     ADK.L    A1,/4200     -> OTR  A2
       0030  4200                                                                      126
00047  0032  8141                     ST       A1,*+4       * STORE THE OTR INSTRUCTION TO EXECUTE
       0034  0036 R
00048  0036  0000                     DATA     0                      * OUTPUT
00049  0038  5000    0038             RF(0)    COOUT1
00050                           *                           OUTPUT REFUSED
00051  003A  8F58                     ABI      36,A6        BACK TO INTERRUPT SEQUENCE
       003C  0024
00052  003E  F7A1           COOUT1    CF       A15,O:TPUT
       0040  0000 X
00053  0042  5F22                     RB(Z)    END
00054                           *
00055                                 END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
COOUT1	003E	R	END	0022	R	PWAIT	0000	X
R:TURN	0000	X	O:TPUT	0000	X	I:NPUT	0000	X
C:WAIT	0000	UNUSED	C:OUT	0026	R	C:INPT	000E	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	A
A6	000C	A	A5	000A	UNUSED	A4	0008	UNUSED
A3	0006	UNUSED	A2	0004	A	A1	0002	A

00056 *EOS
ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
COOUT1	003E	R	END	0022	R	PWAIT	0000	X
R:TURN	0000	X	O:TPUT	0000	X	I:NPUT	0000	X
C:WAIT	0000	UNUSED	C:OUT	0026	R	C:INPT	000E	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	0008	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	A
A6	000C	A	A5	000A	UNUSED	A4	0008	UNUSED
A3	0006	UNUSED	A2	0004	A	A1	0002	A

```
0000                                    IDENT   INPUT
0001                                    ENTRY   I:NPUT
0002                                    EXTRN   F:NDIO
0003                            * THIS SEQUENCE IS CALLED BY THE DRIVERS AND SWITCH TO SPECIFIC SEQUENCE
0004                            *                   A5= CHARACTER WHICH HAS BEEN INPUT
0005                            *                   A6= DEVICE WORK TABLE ; CALL:  CF  A15,I:NPUT
0006 0000 BA58      ODEO        I:NPUT  ML      4,12,A6     * INITIALISE THE REGISTERS
     0002 000C
0007                            *       A1 = CHARACTAR ADDRESS
0008                            *       A2 = REQUESTED LENGTH
0009                            *       A3 = EFFECTIVE LENGTH
0010                            *       A4 = ORDER
0011 0004 24FF                          ANK     A4,/FF                                          008
0012 0006 1C01                          SUK     A4,1
0013 0008 9410                          ADR     A4,A4
0014 000A AF50                          ARI(7)  SWFUNI,A4   order=
     000C 0000 R  000A
0015 000E 0000 R  000E      SWFUNI      DATA    BININP      1 * BASIC INPUT
0016 0010 0000 R  0010                  DATA    ASCINP      2 * ASCII INPUT
0017 0012 0000 R  0012                  DATA    OBJIN4      3 * STANDARD BINARY INPUT(4X4)
0018 0014 0000 R  0014                  DATA    OBJIN8      4 * STANDARD BINARY INPUT(8-8)
0019                            * THIS SEQUENCE STORES A CHARACTER IN THE USER BUFFER
0020                            *                   A6= DEVICE WORK TABLE
0021                            *                   A5= CHARACTER WHICH HAS BEEN INPUT
0022 0016 E525              BININP      SCR     A5,A1
0023 0018 1101                          ADK     A1,1
0024 001A 1301                          ADK     A3,1
0025 001C EA0C                          CWR     A2,A3
0026 001E 5000      001E                RF(0)   ENDINP
0027 0020 B9D9              BINIEN      MS      3,12,A6     * RETURN TO CALLING OROGRAM
     0022 000C
0028 0024 F03E                          RTN     A15
0029                            * THIS SEQUENCE STORES A CHARACTER AND UPTATES THE ORDER
0030                            *                   A6= DEVICE WORK TABLE
0031                            *                   A5= CHARACTER WHICH HAS BEEN INPUT
0032 0026 257F              ASCINP      ANK     A5,/7F      * ANALYSE THE CHARACTER
0033 0028 8458                          LD      A4,26,A6    * HAS A DELETE CODE BEEN READ?
     002A 001A                                                  time
0034 002C 5000      002C                RF(0)   ASCIN7      * NO
0035 002E 1D0D                          SUK     A5,/0D      * YES
0036 0030 5C12                          RB(4)   BINIEN      * IT IS NOT A CR
0037 0032 0400                          LDK     A4,0        * IT IS A CR
0038 0034 8459                          ST      A4,26,A6
     0036 001A
0039 0038 5F1A                          RB(7)   BINIEN
0040 003A ED20              ASCIN7      CWK     A5,/20      * IS THE CHARACTER RANGING FROM 0 TO 1F
     003C 0020
0041 003E 5200      003E                RF(2)   ASCIN1
0042 0040 ED20                          CWK     A5,/5E
     0042 005E
0043 0044 5400      0044                RF(4)   ASCIN2
```

```
00044  0046  990C                    SUR     A1,A3       * VERTICAL ARROW
00045  0048  0300                    LDK     A3,0
00046  004A  9059                    IH      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    0054            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  1801                    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    006E            RF(4)   ASCI66      * NO
00063  0070  8458                    LD      A4,22,A6    * YES
       0072  0016
00064  0074  5000    006E            RF(0)   ASCI66      * NO TABULATION
00065  0076  E730                    LCR     A7,A4               * A7 = NUMBER OF TABULATION
00066  0078  27FF                    ANK     A7,/FF
00067  007A  5000    0074            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  E831                    CCR     A3,A4
00072  0082  5200    0082            RF(2)   FILBLK      * IT IS POSSIBLE TO FILL WITH BLANK
00073  0084  1801                    SUK     A3,1        RESTORE A3
00074  0086  1F01                    SUK     A7,1
00075  0088  5000    007A            RF(0)   ASCI66
00076  008A  5F10                    RB(7)   ASCI67
00077  008C  E430            FILBLK  LCR     A4,A4
00078  008E  24FF                    ANK     A4,/FF
00079  0090  1801                    SUK     A3,1        RESTORE A3
00080  0092  1C02                    SUK     A4,2
00081  0094  E810                    CWR     A3,A4
00082  0096  5000    0088            RF(0)   ASCI66
00083  0098  594C                    RB(1)   ASCIEN
00084  009A  0520                    LDK     A5,/20
00085  009C  E525            FILBL1  SCR     A5,A1       * STORE BLANK
00086  009E  1101                    ADK     A1,1
00087  00A0  1301                    ADK     A3,1        * UPDATE POINTERS
00088  00A2  E808                    CWR     A3,A2
00089  00A4  5858                    RB(0)   ASCIEN
```

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```
00090  00A6  E810                          CUR     A3,A4
00091  00A8  5A0F                          RB(2)   FILBL1      * TABULATION NOT REACHED
00092  00AA  E525                ASCI66    SCR     A5,A1       * STORE CHARACTER
00093  00AC  1101                          ADK     A1,1
00094  00AE  1301                          ADK     A3,1
00095  00B0  5F64                          RB(7)   ASCIEN
00096                             *
00097  00B2  1300                ASCIN1    ADK     A3,0        * SPECIAL CHARACTER
00098  00B4  5100    00B4                 RF(1)   ASCIN5
00099  00B6  ED20                          CWK     A5,/18
       00B8  0018
00100  00BA  5200    00BA                 RF(2)   ASCIN4
00101  00BC  1518                          SUK     A5,/18
00102  00BE  0401                           LDK      A4,1
00103  00C0  9459                ASCIN8     AD.S     A4,18,A6   * UPDATE ORDER
       00C2  0012
00104  00C4  5F1C                          RB(7)   ASCI66
00105                             *
00106  00C6  ED20                ASCIN4    CWK     A5,/10
       00C8  0010
00107  00CA  5000    00CA                 RF(0)   ASCIN9
00108  00CC  ED20                          CWK     A5,/14
       00CE  0014
00109  00D0  5100    00CA                 RF(1)   ASCIN9
00110  00D2  1500                          ADK     A5,/0
00111  00D4  5388                          RB(0)   ASCIEN
00112  00D6  ED20                          CWK     A5,/4
       00D8  0004
00113  00DA  5100    00B4                 RF(1)   ASCIN5
00114  00DC  250F                ASCIN9    ANK     A5,/F
00115  00DE  0402                           LDK      A4,2
00116  00E0  5F22                          RB(7)   ASCIN8
00117  00E2  ED20                ASCIN5    CWK     A5,/0D      *CARRIAGE RETURN
       00E4  000D
00118  00E6  5C9A                          RB(4)   ASCIEN
00119  00E8  B9D9                ENDINP    MS      3,12,A6
       00EA  000C
00120  00EC  8F20                          AB.L(7)  F:NDIO
       00EE  0000 X
00121                             * THIS SEQUENCE STORES THE HALF-CHARACTER AND PERFORMS CHECKSUN
00122                             *                A6 = DEVICE WORK TABLE
00123                             *                A5 = HALF CHARACTER
00124                             * THIS SEQUENCE USES OBJIN8
00125  00F0  250F                OBJIN4    ANK     A5,/F
00126  00F2  8458                          LD      A4,26,A6
       00F4  001A
00127  00F6  5000    00F6                 RF(0)   FIRST
00128  00F8  0400                          LDK     A4,0
00129  00FA  8459                          ST      A4,26,A6
       00FC  001A
00130  00FE  E424                          LCR     A4,A1
```

```
 00131  0100  9510                          ADR     A5,A4
 00132  0102  5700   0014                   RF(7)   OBJIN8
 00133                              *
 00134  0104  9059                FIRST     IM      26,A6
        0106  001A
 00135  0108  3D44                          SLL     A5,4
 00136  010A  E525                          SCR     A5,A1
 00137  010C  5FC0                          RB(7)   ASCIEN
 00138                              * THIS SEQUENCE STORES THE CHAPACTER AND PERFORMS CHECKSUM
 00139                              *               A6 = DEVICE WORK TABLE
 00140                              *               A5 = CHARACTER TO STORE
 00141  010E  8458                OBJIN8  LD      A4,10,A6
        0110  000A
 00142  0112  E550                          CW      A3,4,A4
        0114  0004
 00143  0116  5600   0116                   RF(6)   OBJMOD
 00144  0118  E525                          SCR     A5,A1
 00145  011A  1101                          ADK     A1,1
 00146  011C  1301                OBJMOD    ADK     A3,1
 00147  011E  E620                          CWK     A3,2
        0120  0002
 00148  0122  5000   0122                   RF(0)   OBJI81
 00149  0124  B559                          XR.S    A5,24,A6    * CHECKSUM
        0126  0018
 00150  0128  E308                          CWR     A3,A2
 00151  012A  5CDE                          RB(4)   ASCIEN
 00152  012C  8558                          LD      A5,24,A6    * TEST IF CHECKSUM IS NULL
        012E  0018
 00153  0130  584A                          RB(0)   ENDINP
 00154  0132  0504                          LDK     A5,4
 00155  0134  AD51                          OR.S    A5,8,A4
        0136  0008
 00156  0138  5F52                          RB(7)   ENDINP
 00157  013A  9514                OBJI81    ADR     A5,A5
 00158  013C  1503                          ADK     A5,3
 00159  013E  8708                          LDR     A7,A2
 00160  0140  8214                          LDR     A2,A5
 00161  0142  ED1C                          CWR     A5,A7
 00162  0144  5DF8                          RB(5)   ASCIEN
 00163                              *
 00164  0146  0508                OBJI83    LDK     A5,8        *ERROR OF LENGTH
 00165  0148  AD51                          OR.S    A5,8,A4
        014A  0008
 00166  014C  8F20                          AB.L    ASCIEN
        014E  004E R
 00167                                      END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
OBJI83	0146	UNUSED	OBJI81	013A	R	OBJMOD	011C	R
FIRST	0104	R	ASCIN9	00DC	R	ASCIN8	00C0	R
ASCIN4	00C6	R	ASCIN5	00E2	R	FILBL1	009C	R
FILBLK	008C	R	ASCI67	007C	R	ASCI66	00AA	R
ASCIN6	006A	UNUSED	ASCIN3	0060	R	ASCIEN	004E	R
ASCIN2	0050	R	ASCIN1	00B2	R	ASCIN7	003A	R
BINIEN	0020	R	ENDINP	00E8	R	OBJIN8	010E	R
OBJIN4	00F0	R	ASCINP	0026	R	BININP	0016	R
SAFUNI	000E	R	E:NDIO	0000	X	I:NPUT	0000	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	A
A6	000C	A	A5	000A	A	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

00168 *EOS
ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
OBJI83	0146	UNUSED	OBJI81	013A	R	OBJMOD	011C	R
FIRST	0104	R	ASCIN9	00DC	R	ASCIN8	00C0	R
ASCIN4	00C6	R	ASCIN5	00E2	R	FILBL1	009C	R
FILBLK	008C	R	ASCI67	007C	R	ASCI66	00AA	R
ASCIN6	00EA	UNUSED	ASCIN3	0060	R	ASCIEN	004E	R
ASCIN2	0050	R	ASCIN1	00B2	R	ASCIN7	003A	R
BINIEN	0020	R	ENDINP	00E8	R	OBJIN8	010E	R
OBJIN4	00F0	R	ASCINP	0026	R	BININP	0016	R
S*FUNI	000E	R	E:NDIO	0000	X	I:NPUT	0000	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	A
A6	000C	A	A5	000A	A	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

```
0000                                    IDENT    INTCP
0001                            *
0002                            *
0003                            *
0004                            * INTERRUPT  MODULE  FOR  CONTROL  PANEL
0005                            * SEND CHARACTERS M: ON ASR AND ASK  FOR THE COMMAND
0006                            * GO TO PROCESSOR  WHEN  COMMAND  IS READ
0007                            ********************************************************************************
0008                            *        UPON ENTRY  A1,A2  ARE ALREADY  IN  STACK
0009                            *
0010                                    ENTRY    I:ITCP
0011                                    ENTRY    INHCP
0012                                    ENTRY    INHST
0013                                    ENTRY    ERHB
0014                                    ENTRY    BUFCP,CPRTN
0015                                    ENTRY    FCBCP
0016                                    ENTRY    BH
0017                            *
0018                            ********************************************************************************
0019                                    EXTRN    HB
0020                                    EXTRN    DISPAT
0021                                    EXTRN    CVTSTB
0022                                    EXTRN    CHLEV
0023                                    EXTRN    LOADER
0024                                    EXTRN    LDFLAG
0025                                    EXTRN    PCT61
0026                                    EXTRN    M:CMAD
0027                                    EXTRN    RYPRO
0028                                    EXTRN    RDPRO
0029                                    EXTRN    M:ASPR
0030                                    EXTRN    ABORT
0031                                    EXTRN    PAUSE
0032                                    EXTRN    RSTART
0033                                    EXTRN    MANCT
0034                            *
0035                            ********************************************************************************
0036                            STADR   EQU      -4
0037  0000  0000          0F30  INHCP   DATA     0          IF AN UNTERRUPT  CONTROL PANEL IS
0038  0002                        RES      5
0039  000C  0000               ZON14   DATA     0
0040                            *                           BEING PROCESSED  ,ONLY  HT MSG IS PERMITED
0041                            *
0042  000E  444D                CSTAB1  DATA     'DM'
0043  0010  0000 R  0010              DATA     DMH
0044  0012  4844                CSTAB2  DATA     'HD'
0045  0014  0000 R  0014              DATA     HT
0046  0016  574D                      DATA     'WM'
0047  0018  0000 R  0018              DATA     WM
0048  001A  4C44                      DATA     'LD'
0049  001C  0000 X                    DATA     LOADER
0050  001E  5354                      DATA     'ST'
```

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```
0020  0000 R  0020                     DATA     START
0022  5259                             DATA     'RY'
0024  0000 X                           DATA     RYPRO
0026  5244                             DATA     'RD'
0028  0000 X                           DATA     RDPRO
002A  4153                             DATA     'AS'
002C  0000 X                           DATA     M:ASPR
002E  4142                             DATA     'AB'
0030  0000 X                           DATA     ABORT
0032  5053                             DATA     'PS'
0034  0000 X                           DATA     PAUSE
0036  5253                             DATA     'RS'
0038  0000 X                           DATA     RSTART
003A  4D43                             DATA     'MC'
003C  0000 X                           DATA     MANCT    ← indicates end of table
003E  0000                             DATA     0
                             *
0040  8C3F            0F70  I:ITCP     MSR      8,A15
0042  20DF                             RIT      /0F
0044  8520                             LDK.L    A5,INHCP     A5= INHCP
0046  0000 R
0048  8634                             LDR*     A6,A5
004A  EE20                             CWK      A6,2
004C  0002
004E  5800    004E                     RF(6)    NOP      ← A6≥2
0050  0131                             LDK      A1,49    ← A6<2
0052  F7A1                             CF       A15,CHLEV
0054  0000 X
                             *WE ARE NOW AT LEVEL 49 ,ENB,MASTER MODE
0056  1600                             ADK      A6,0
0058  5100    0058                     RF(1)    BUSY     ← A6=1
005A  86C1                             ST       A14,USER14 ← A6=0 of <0
005C  0000 R  005A
005E  86A0                             LDK.L    A14,ZON14
0060  000C R
0062  1602                   BUSY      ADK      A6,2
0064  8635                             STR      A6,A5
0066  0705                             LDK      A7,5     → basic write
0068  80A0                             LDK.L    A8,ECBCT
006A  0000 R  0068
006C  2804                             LKM
006E  0001                             DATA     1
0070  8122                             LDR*     A1,A8        WAIT UNTIL OUTPUT
0072  5E04                             RB(6)    *-2          IS FINISHED
0074  0702                             LDK      A7,2     ← standard read
0076  80A0                             LDK.L    A8,ECBCP     INPUT IN BUFCP
0078  0000 R  0076
007A  2804                             LKM
007C  0001                             DATA     1
007E  8122                             LDR*     A1,A8
0080  5E04                             RB(6)    *-2      ← wait until input finished
```

```
00095  0082  1E02                          ,SUK     A6,2
00096  0084  8635                          STR      A6,A5
00097  0086  0100                          LDK      A1,0
00098  0088  8141                          ST       A1,FAULT
       008A  0000 R  0088
00099  008C  8141                          ST       A1,STOPFG
       008E  0000 R  008C
00100  0090  8120                          LDK.L    A1,BUFCP
       0092  0000 R  0090
00101  0094  8424                          LDR*     A4,A1   ← first 2 char
00102  0096  1102                          ADK      A1,2
00103  0098  8740                          LD       A7,FCBCP+6 ← effective length
       009A  0000 R  0076
00104  009C  1F02                          SUK      A7,2
00105  009E  8234                          LDR*     A2,A5
00106  00A0  5400    00A0                  RF(4)    INTCP1 ← INHCP≠0
00107  00A2  0200                          LDK      A2,CSTAB1-CSTAB1 ← INHCP=0
00108  00A4  5702                          RF       *+4
00109  00A6  0204                INTCP1    LDK      A2,CSTAB2-CSTAB1
00110  00A8  8348                INTCP2    LD       A3,CSTAB1,A2
       00AA  000E R
00111  00AC  5000    00AC                  RF(0)    INTCP3
00112  00AE  EC0C                          CWR      A4,A3
00113  00B0  8848                          ABI(0)   CSTAB1+2,A2
       00B2  0010 R
00114  00B4  1204                          ADK      A2,4
00115  00B6  5F10                          RB       INTCP2
00116  00B8  9041                INTCP3    IM       FAULT
       00BA  0000 R  0088
00117  00BC  8F20                          AB.L(7)  ERHB
       00BE  0000 R  00BC
00118  00C0  9041                HT        IM       STOPFG
       00C2  0000 R  008C
00119  00C4  9035                          IMR      A5
00120  00C6  8120          OFFG  CPRTN     LDK.L    A1,FAULT
       00C8  0000 R  00B8
00121                             FAULT     EQU      *-2
00122  00CA  5400    00CA                  RF(4)    ERRET
00123  00CC  8140                          LD       A1,INHCP
       00CE  0000 R
00124  00D0  E920                          CWK      A1,2
       00D2  0002
00125  00D4  5000    00D4                  RF(0)    SECOND
00126  00D6  86A0                MAINRT    LDK.L    A14,USER14
       00D8  0000 R  005A
00127                             USER14    EQU      *-2
00128  00DA  8140                RETURN    LD       A1,INHCP
       00DC  0000 R
00129                             SECOND    EQU      RETURN
00130  00DE  1901                          SUK      A1,1
00131  00E0  8141                          ST       A1,INHCP
```

```
                00E2  0000 R
00132           00E4  0600                NOP       LDK       A6,0
00133           00E6  8F20                          AB.L      DISPAT
                00E8  0000 X
00134           00EA  9035                ERRET     INR       A5
00135           00EC  8134                          LDR*      A1,A5
00136           00EE  E320                          CWK       A1,2
                00F0  0002
00137           00F2  581A                          RB(0)     SECOND
00138           00F4  5F20                          RB        MAINRT
00139                                     ************
00140                                     ************                                *
00141           00F6  0005                ECBCT     DATA      5
00142           00F8  0000 R  00F8                  DATA      BUFCT
00143           00FA  0002                          DATA      2
00144           00FC                                RES       3
00145                                     *                                           *
00146                                     ************                                *
00147           0102  4D3A                BUFCT      DATA      /4D3A → M:
00148                                     ************
00149           0104  0005          1034  ECBCP     DATA      5
00150           0106  0000 R  0090                  DATA      BUFCP
00151           0108  0048                          DATA      72
00152           010A  0000                          DATA      0
00153           010C  0000                          DATA      0
00154           010E  0020                          DATA      X'0020'
00155           0110                1040  BUFCP     RES       40
00156                                     *
00157                                     *
00158                                     ********************************************************************************************
```

```
                                  EJECT
                         ********************************************************************************
                         *
                         ********************************************************************************
                         * WRITE  MEMORY
                         *
                         *   CONTENT  OF  BUFFER : WH ABCD  VAL0 VAL1 VAL2 ---- ----
                         *
                         *
                         ********************************************************************************
                         ********************************************************************************
0160  9035               WM        IMR      A5
0162  F6A1                         CF       A14,HB
0164  0000 X
0166  F6A1                         CF       A14,M:CMAD    GO COMPARE ADDRESS
0168  0000 X
016A  8308                         LDR      A3,A2         A3= ADDRESS  WHEREE TO WRITE
016C  1700                         ADK      A7,0
016E  8820                         AB.L(0)  FRHB
0170  0000 R  00BC
0172  1700               WM0       ADK      A7,0
0174  5000    0174                 RF(0)    WM1           NOTHING  MORE  IN  BUFFER
0176  F6A1                         CF       A14,HB
0178  0000 X
017A  822D                         STR      A2,A3         WRITE ONTO MEMORY
017C  1302                         ADK      A3,2
017E  5F0E                         RB(7)    WM0
0180  5FBC               WM1       RB(7)    CPRTN
                         *
                         *
                         *
                         ********************************************************************************
```

```
                                         EJECT
                                 ********************************************************************************
                                 *                                                                       DMH  001
                                 * HEXADECIMAL   MEMORY  DUMP                                            DMH  003
                                 *        THIS MODULE  OUTPUT THE  CONTENT OF CORE MEMORY                DMH  004
                                 *        ON ASR  , BETWEEN  TWO  GIVEN  ADDRESS                         DMH  005
                                 *                                                                       DMH  006
                                 *        SYNTAX    OF    THE  COMMAND LINE  #DH VAL1 VAL2               DMH  007
                                 *             WHERE  VAL1 AND VAL2  ARE TWO HEXADECIMAL ADDRESSES       DMH  008
                                 *                                                                       DMH  009
                                 *                                                                       DMH  010
                                 *        USE OF REGISTERS : A1 THRU A7                                  DMH  011
                                 *                                                                       DMH  012
                                 *        DMH  USES  A1,A2,A3,A4,A5,A6,A7                                DMH  013
                                 *        BH   USES  A4,A5,A6,A7,A1                                      DMH  014
                                 *                                                                       DMH  015
                                 *                                                                       DMH  016
                                 ********* VAL1,VAL2  ARE  ALREADY IN BUFCP                              DMH  017
                                 *                                                                       DMH  018
                                 *                                                                       DMH  019
                                 *                                                                       DMH  020
                                 ************************************************************************DMH
0182  9035                       DMH      IMR       A5
0184  F6A1                                CF        A14,HB
0186  0000 X
0188  F6A1                                CF        A14,M:CMAD    GO COMPARE ADDRESS
018A  0000 X
018C  8308                                LDR       A3,A2           A3 =FIRST ADDRESS            DMH  027
018E  A320                                ANK.L     A3,/FFF0
0190  FFF0
0192  F6A1                                CF        A14,HB
0194  0000 X
0196  F6A1                                CF        A14,M:CMAD    GO COMPARE ADDRESS
0198  0000 X
019A  2A0E                                ORK       A2,/E
019C  1202                                ADK       A2,2
019E  3A61                                SRL       A2,1
01A0  3B61                                SRL       A3,1
01A2  EB08                                CWR       A3,A2
01A4  8920                                AB.L(1)   ERHB
01A6  0000 R  016E
01A8  3A41                                SLL       A2,1
01AA  3B41                                SLL       A3,1
01AC  0131                                LDK       A1,/31
01AE  8141                                ST        A1,BUFCP-2
01B0  010E R
01B2  0600                                LDK       A6,0
01B4  F6A1                                CF        A14,CIO
01B6  0000 R  01B4
01B8  0120                                LDK       A1,/20
01BA  8141                                ST        A1,BUFCP-2
```

```
                01BC  010E R
00230           01BE  8620              DMH0    LDK,L   A6,BUFCP    A6= ADDRESS WHERE TO STORE CHARACTERS
                01C0  0110 R
00231           01C2  8120              LDK,L   A1,/2020
                01C4  2020
00232           01C6  870C              LDR     A7,A3
00233           01C8  F6A1              CF      A14,BH      BH  CONVERTS  NUMBER A7 AND STORES      DMH  035
                01CA  0000 R  01C8
00234                                   *                   IT  IN  BUFCP                           DMH  036
00235           01CC  8139              STR     A1,A6               STORE TWO MORE BLANKS
00236           01CE  1602              ADK     A6,2                                                DMH  039
00237                                   *                                                           DMH  040
00238                                   *                                                           DMH  041
00239           01D0  0500              LDK     A5,0        COUNT  OF WORDS                         DMH  042
00240           01D2  872C              LDR*    A7,A3       TAKE FIRST WORD
00241                                   *                                                           DMH  044
00242           01D4  1501              DMH1    ADK     A5,1                                        DMH  045
00243           01D6  1302              ADK     A3,2
00244           01D8  E808              CWR     A3,A2       IS IT FINISH
00245           01DA  5000    01DA      RF(0)   DMHA
00246           01DC  842C              LDR*    A4,A3       A4=NEXT WORD
00247           01DE  EC1C              CWR     A4,A7       IS IT THE SAME THAN FIRST WORD
00248           01E0  580F              RB(0)   DMH1        YES,LOOP
00249                                   *                                                           DMH
00250           01E2  ED20              CWK     A5,7        NO  ARE WE STILL ON FIRST LINE
                01E4  0007
00251           01E6  5100    01DA      RF(1)   DMHA            NO  GO  TO PRINT  BLANKS            DMH  053
00252           01E8  0400              LDK     A4,0            UES  ,PREPARE  THE LINE             DMH  056
00253           01EA  F6A1              DMH2    CF      A14,BH          CONVERT AND STORE  THE FIRST WORD   DMH
                01EC  0000 R  01C8
00254           01EE  F6A1              CF      A14,STOINT  STORE INTEPRATION
                01F0  0000 R  01EE
00255           01F2  1401              ADK     A4,1
00256           01F4  ED10              CWR     A5,A4                                               DMH  061
00257           01F6  590F              RB(1)   DMH2
00258                                   *                                                           DMH  063
00259           01F8  872C              DMH3    LDR*    A7,A3
00260           01FA  1302              ADK     A3,2
00261           01FC  F6A1              CF      A14,BH          CONVERT AND STORE  THE              DMH  067
                01FE  0000 R  01EA
00262           0200  F6A1              CF      A14,STOINT  REMAIN  OF  THE  LINE
                0202  0000 R  01EE
00263           0204  1401              ADK     A4,1
00264           0206  EC20              CWK     A4,8
                0208  0008
00265           020A  5A14              RB(2)   DMH3
00266           020C  0648              LDK     A6,72
00267           020E  F6A1              DMH5    CF      A14,CIO     CALL OUTPUT FUNCTION
                0210  0000 R  01B4
00268           0212  E808              CWR     A3,A2
00269           0214  5C58              RB(4)   DMH0        NO , LOOP  TO  BEGIN                    DMH  077
```

```
00270  0216  8F20                        AB.L(7)  CPRTN       RETURN
       0218  00C6 R
00271  021A  0002              ECBDH     DATA     2           LISTING STANDARD
00272  021C  010E R                       DATA     BUFCP-2
00273  021E  0049                        DATA     73
00274  0220                              RES      3
00275                            ** THIS IS THE CASE  WHERE    ALL THE NUMBERS OF THE LINE          DMH  084
00276                            **                   ARE IDENTICAL                                DMH  085
00277  0226  F6A1                DMHA     CF       A14,8H       CONVERT  AND STORE  FIRST  WORD   DMH  089
       0228  0000 R  01FC
00278  022A  A320                        ANK.L    A3,/FFF0
       022C  FFF0
00279  022E  060C                        LDK      A6,12       NUMBER OF CHARACTER IN BUFCP
00280  0230  5F24                        RB(7)    DMH5
00281                            *
00282                            *
00283                            ********************************************************************************
00284                            ********************************************************************************
00285                            *
00286                            *
00287  0232  8720                CIO      LDK.L    A7,STOPFG
       0234  0000 R  00C0
00288                            STOPFG   EQU      *-2
00289  0236  5004                        RF(0)    *+6
00290  0238  8F20                        AB.L     CPRTN
       023A  00C6 R
00291  023C  1602                        ADK      A6,2
00292  023E  8641                        ST       A6,ECBDH+4
       0240  021E R
00293  0242  80A0                        LDK.L    A8,ECBDH
       0244  021A R
00294  0246  0706                        LDK      A7,6
00295  0248  2804                        LKM
00296  024A  0001                        DATA     1
00297  024C  8722                        LDR*     A7,A8
00298  024E  5E04                        RB(6)    *-2
00299  0250  F03A                        RTN      A14
00300                            *
00301                            ********************************************************************************
00302                            ********************************************************************************
00303                            *  STORE INTEPRATION ROUTINE
00304                            * A7 CONTAINS THE CHARACTERS TO BE STORED
00305                            *
00306                            *
00307  0252  823B                STOINT   STR      A2,A14
00308  0254  9EA0                        SUK.L    A14,2
       0256  0002
00309  0258  873B                        STR      A7,A14
00310  025A  3C41                        SLL      A4,1
00311  025C  0200                        LDK      A2,0
00312  025E  E09C                        ECR      A8,A7
```

```
00313  0260  27FF                DMH2C   ANK     A7,/FF
00314  0262  EF20                        CWK     A7,/20
       0264  0020
00315  0266  5200    0266                RF(2)   DMH2A
00316  0268  EF20                        CWK     A7,/60
       026A  0060
00317  026C  5200    026C                RF(2)   DMH2B
00318  026E  0720                DMH2A   LDK     A7,/20
00319  0270  1200                DMH2B   ADK     A2,0
00320  0272  5100    0272                RF(1)   DMH2D
00321  0274  E751                        SC      A7,BUFCP+57,A4
       0276  0149 R
00322  0278  8702                        LDR     A7,A8
00323  027A  1201                        ADK     A2,1
00324  027C  5F1E                        RB(7)   DMH2C
00325  027E  E751                DMH2D   SC      A7,BUFCP+56,A4
       0280  0148 R
00326  0282  3C61                        SRL     A4,1
00327  0284  873A                        LDR*    A7,A14
00328  0286  9640                        ADK.L   A14,2
       0288  0002
00329  028A  823A                        LDR*    A2,A14
00330  028C  F03A                        RTN     A14
00331                             *
00332                             *
00333                             ********************************************************************************
00334                             ********************************************************************************
00335                             *
00336                             ********************************************************************************
```

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```
                                 EJECT
                          ***********************************************************************
                          * BH SUBROUTINE     CONVERT THE NUMBER GIVEN IN A7                  DMH 100
                          *         INTO      HEXADECIMAL  CHARACTERS , AND STORE IN BUFCP     DMH 101
                          *         AFTER  THAT PUT A BLANK LOCATION IN  BUFCP                 DMH 102
                          *                                                                    DMH 103
                          *                                                                    DMH 104
                          *         UPON  ENTRY       A7=  NUMBER (BINARY) TO  CONVERT)        DMH 105
                          *                           A6=  ADDRESS OF STORING AREA             DMH 106
                          *                           A1=  BLANKS                              DMH 107
                          *                                                                    DMH 108
                          *         UPON  EXIT        A6  IS  UPDATED                          DMH 109
                          *                           A7  NOT  DESTROYED                       DMH 110
                          *                                                                    DMH 111
                          *                                                                    DMH 112
                          *********************************************************************DMH 113
                          *********************************************************************DMH 114
 028E  853B       11BE    BH      STR     A5,A14                                               DMH 115
 0290  9EA0                       SUK.L   A14,2
 0292  0002
 0294  843B                       STR     A4,A14                                               DMH 116
 0296  0404                       LDK     A4,4                                                 DMH 118
 0298  3FEC               BH0     SRC     A7,12                                                DMH 125
 029A  050F                       LDK     A5,X'F'       CONVERT                                DMH 126
 029C  A51C                       ANR     A5,A7                                                DMH 126
 029E  1530                       ADK     A5,X'30'                                             DMH 127
 02A0  ED20                       CWK     A5,X'3A'                                             DMH 128
 02A2  003A
 02A4  5200  02A4                 RE(2)   BH2                                                  DMH 129
 02A6  1507                       ADK     A5,X'7'                                              DMH 130
 02A8  E539               BH2     SCR     A5,A6         STORE VIA  A6                          DMH 131
 02AA  1601                       ADK     A6,1                                                 DMH 132
 02AC  1C01                       SUK     A4,1                                                 DMH 133
 02AE  EC20                       CWK     A4,0          IS IT FINISHED                         DMH 134
 02B0  0000
 02B2  591C                       RB(1)   BH0
 02B4  E139                       SCR     A1,A6
 02B6  1601                       ADK     A6,1
 02B8  E139                       SCR     A1,A6
 02BA  1601                       ADK     A6,1
 02BC  843A                       LDR*    A4,A14
 02BE  96A0                       ADK.L   A14,2
 02C0  0002
 02C2  853A                       LDR*    A5,A14
 02C4  F03A                       RTN     A14
                          ***********************************************************************
```

```
00379                                          EJECT
00380                                   ************************************************************************
00381                                   ************************************************************************
00382  02C6  9035                       START   IMR      A5
00383  02C8  8120                               LDK.L    A1,INHST
       02CA  0000 R  02C8
00384                         11FA      INHST   EQU      *-2
00385  02CC  5100    01A4                       RF(1)    ERHB
00386  02CE  8140                               LD       A1,LDFLAG
       02D0  0000 X
00387  02D2  5000    02CC                       RF(0)    ERHB
00388  02D4  8140                               LD       A1,PCT61+STADR
       02D6  FFFC X
00389  02D8  5000    02D2                       RF(0)    ERHB
00390  02DA  9041                               IM       INHST
       02DC  02CA R
00391  02DE  8F20                               AB.L     CPRTN
       02E0  00C6 R
00392                                   *                                                            DMR   001
00393                                   ************************************************************************
00394                                   ************************************************************************
00395                                   *
00396  02E2  80A0             1212 →    ERHB    LDK.L    A8,ECBER
       02E4  0000 R  02E2
00397  02E6  0706                               LDK      A7,6
00398  02E8  2304                               LKM
00399  02EA  0001                               DATA     1
00400  02EC  8122                               LDR*     A1,A8
00401  02EE  5E04                               RB(6)    *-2
00402  02F0  8F20                               AB.L     CPRTN
       02F2  00C6 R
00403                                   *
00404                                   ************************************************************************
00405  02F4  0005                       ECBER   DATA     5
00406  02F6  0000 R  02F6                       DATA     ERMSG-2
00407  02F8  0004                                DATA    4
00408  02FA                                     RES      3
00409  0300  0000                               DATA     0
00410                                   *
00411  0302  4552                       ERMSG   DATA     'ER'
00412                                   *
00413                                           END
ASS.ERR. 00000
```

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SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ERMSG	0302	R	ECBER	02F4	R	BH2	02A8	R
BH0	0298	R	DMH2D	027E	R	DMH2B	0270	R
DMH2A	026F	R	DMH2C	0260	R	ECBDH	021A	R
DMH5	020E	R	DMH3	01F8	R	STOINT	0252	R
DMH2	01EA	R	DMHA	0226	R	DMH1	01D4	R
DMH0	01BE	R	CIO	0232	R	WM1	0180	R
WM0	0172	R	BUFCT	0102	R	RETURN	00DA	R
MAINRT	00B6	R	SECOND	00DA	R	ERRET	00EA	R
INTCP3	00B8	R	INTCP2	00A8	R	INTCP1	00A6	R
STOPFG	0234	R	FAULT	00C8	R	ECBCT	00F6	R
USER14	00D8	R	BUSY	0062	R	NOP	00E4	R
START	02C6	R	WM	0160	R	HT	00C0	R
CSTAB2	0012	R	DMH	0182	R	CSTAB1	000E	R
ZON14	000C	R	STADR	FFFC	A	MANCT	0000	X
RSTART	0000	X	PAUSE	0000	X	ABORT	0000	X
MASPR	0000	X	RDPRO	0000	X	RYPRO	0000	X
MSCMAD	0000	X	PCT61	0000	X	LDFLAG	0000	X
LOADER	0000	X	CHLEV	0000	X	CVTSTB	0000	X
DISPAT	0000	X	HB	0000	X	BH	028E	R
ECBCP	0104	R	CPRTN	00C6	R	BUFCP	0110	R
ERHB	02E2	R	INHST	02CA	R	INHCP	0000	R
ITICP	0040	UNUSED	A15	000F	A	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	A
A7	000E	A	A6	000C	A	A5	000A	A
A4	0008	A	A3	0006	A	A2	0004	A
A1	0002	A						

00414 $EOS

ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ERMSG	0302	R	ECBER	02F4	R	BH2	02A8	R
BH0	0298	R	DMH2D	027E	R	DMH2B	0270	R
DMH2A	026E	R	DMH2C	0260	R	ECBDH	021A	R
DMH5	020E	R	DMH3	01F8	R	STOINT	0252	R
DMH2	01EA	R	DMHA	0226	R	DMH1	01D4	R
DMH0	01BE	R	CIO	0232	R	WM1	0180	R
WM0	0172	R	BUFCT	0102	R	RETURN	00DA	R
MAINRT	00D6	R	SECOND	00DA	R	ERRET	00EA	R
INTCP3	00B8	R	INTCP2	00A8	R	INTCP1	00A6	R
STOPFG	0234	R	FAULT	00C8	R	ECBCT	00F6	R
USER14	00D8	R	BUSY	0062	R	NOP	00E4	R
START	02C6	R	WM	0160	R	HT	00C0	R
CSTAB2	0012	R	DMH	0182	R	CSTAB1	000E	R
ZOM14	000C	R	STADR	FFFC	A	MANCT	0000	X
RSTART	0000	X	PAUSE	0000	X	ABORT	0000	X
M:ASPR	0000	X	RDPRO	0000	X	RYPRO	0000	X
M:CMAD	0000	X	PCT61	0000	X	LDFLAG	0000	X
LOADER	0000	X	CHLEV	0000	X	CVTSTB	0000	X
DISPAT	0000	X	HB	0000	X	BH	028E	R
ECHCP	0104	R	CPRTN	00C6	R	BUFCP	0110	R
ERHB	02E2	R	INHST	02CA	R	INHCP	0000	R
I:ITCP	0040	UNUSED	A15	000F	A	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	A
A7	000E	A	A6	000C	A	A5	000A	A
A4	0008	A	A3	0006	A	A2	0004	A
A1	0002	A						

```
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    SYSAR
00008                                         ENTRY    ABORT
00009                                         ENTRY    MCABFL
00010                                         EXTRN    DISPAT
00011                                         EXTRN    RINIT
00012                                         EXTRN    BH
00013                                         EXTRN    CHLEV
00014                                **       ABORT    PROCESSING
00015                                *
00016                                *            IF A MACRO ABADR HAS BEEN SEND  , GIVE CONTROL TO
00017                                *            USER VIA PARAMETERS  BLOCK.
00018                                *
00019                                *            IF NOT  SEND  MESSAGE  ABORT  CODE  ADDR
00020                                *
00021                                *
00022                                *            IF ABORT FROM  OPERATOR ,  BRANCH TO RINIT
00023  0000                                      RES      4
00024                                ZON14       EQU      *-2
00025  0008  0005                    ECBAB       DATA     5
00026  000A  0000 R  000A                        DATA     ABBUF
00027  000C  0010                                DATA     16
00028  000E                                      RES      2
00029  0012  0030                    ABBUF       DATA     /0030
00030  0014  4142                                DATA     'AB  '
       0016  2020
00031  0018  4344                    CODE        DATA     'CD  '
       001A  2020
00032  001C  4144                    ADDR        DATA     'ADDR'
       001E  4452
00033  0020  0000                                DATA     0
```

```
                                        EJECT
                                *   MACRO  ABADR  PROCESSING  :
                                *
                                *       UPON ENTRY      A8=LABEL
                                *                       A7=ADDRESS OF A 3-WORDS BLOCK WHICH WILL CONTAIN
                                *                              ABORT PARAMETERS : 1ST WORD: ABORT CODE
                                *                                                 2ND WORD: ABORTED PSW
                                *                                                 3TH WORD: ABORTED ADDRESS
                                *
                                *     *** WARNING  : THIS  SEQUENCE  IS NOT A SCHEDULED LABEL SEQUENCE
                                *
                                *
0022  8741            1256 ABADR    ST        A7,CTRLBL             CBA
0024  0000 R  0022
0026  80C1                          ST        A8,CTRLBL+2           LABEL
0028  0000 R  0022
002A  9041                          IM        MCABFL
002C  0000 R  002A
002E  0700                          LDK       A7,0
0030  875F                          ST        A7,4,A15              NORMAL RETURN
0032  0004
0034  8F20                          AB.L      DISPAT
0036  0000 X
0038  0000                 CTRLBL   DATA      0
003A  0000                          DATA      0
003C  8120            1270 SYSAB    LDK.L     A1,MCABFL
003E  0000 R  002A
                      1272 MCABFL   EQU       *-2
0040  5000    0040                  RF(0)     ABRT1
0042  8740                          LD        A7,CTRLBL     TAKE  CONTROL BLOCK ADDRESS
0044  0038 R
0046  823D                          STR       A2,A7         STORE CODE IN  BLOCK+0
0048  825E                          LD        A2,18,A15
004A  0012
004C  825D                          ST        A2,2,A7               STORE USER PSW IN BLOCK+2
004E  0002
0050  835D                          ST        A3,4,A7       STORE ABORTED ADDRESS IN BLOCK+4
0052  0004
0054  8740                          LD        A7,CTRLBL+2   TAKE USER ABORT ADDRESS
0056  003A R
0058  875F                          ST        A7,20,A15
005A  0014
005C  0600                          LDK       A6,0          NO SCHEDULED LABEL
005E  8641                          ST        A6,MCABFL
0060  003E R
0062  8F20                          AB.L      DISPAT
0064  0000 X
```

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```
                                      EJECT
0066  86C1                    ABRT1   ST        A14,SAV14
0068  0000 R  0066
006A  86A0                            LDK.L     A14,ZON14
006C  0006 R
006E  0130                            LDK       A1,48
0070  F7A1                            CF        A15,CHLEV     LEVEL  48, ENB  ,C.PANEL INTERRUPT
0072  0000 X
                                                              CANT GO THRU
0074  0120                            LDK       A1,/20
0076  9220                            ADK.L     A2,/2030
0078  2030
007A  8241                            ST        A2,CODE       PUT  MESSAGE IN
007C  0018 R
007E  870C                            LDR       A7,A3         BUFFER
0080  8620                            LDK.L     A6,ADDR
0082  001C R
0084  F6A1                            CF        A14,6H
0086  0000 X
                              *
                              *
0088  80A0                            LDK.L     A8,ECBAB      OUTPUT  MESSAGE
008A  0008 R
008C  0706                            LDK       A7,6
008E  2804                            LKM
0090  0001                            DATA      1
                              *
0092  8122                            LDR*      A1,A8
0094  5E04                            RB(6)     *-2
                              *
0096  86A0                            LDK.L     A14,SAV14
0098  0000 R  0066
                              SAV14   EQU       *-2
                              *
009A  BC3E            12CE    ABORT   MLR       8,A15
009C  8F20                            AB.L      RINIT
009E  0000 X
                                      END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
SAV14	0098	R	ABRT1	0066	R	CTRLBL	0038	R
ADDR	001C	R	CODE	0018	R	ABBUF	0012	R
ECBAB	0008	R	ZON14	0006	R	CHLEV	0000	X
BH	0000	X	RINIT	0000	X	DISPAT	0000	X
MCABEL	003E	R	ABORT	009A	UNUSED	SYSAB	003C	UNUSED
ABADR	0022	UNUSED	A15	000F	A	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	A
A7	000E	A	A6	000C	A	A5	000A	UNUSED
A4	0008	UNUSED	A3	0006	A	A2	0004	A
A1	0002	A						

```
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          1204       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          12EA       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  B941                             MS      2,ECBMES+2
       0022  0000 R  0020
00024  0024  80A0                             LDK.L   A8,ECBMES
       0026  0000 R  0020
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  0005                     ECBMES  DATA    5
00038  0040  0000                             DATA    0
00039  0042  0000                             DATA    0
```

```
00040  0044                          RES     2
00041  0048  0000                    DATA    0
00042                  *
00043                                END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ECHMES	003E	R	PAUSE1	000A	UNUSED	STATUS	0000	A
CHLEV	0000	X	PCT61	0000	X	DISPAT	0000	X
ERHB	0000	X	INHST	0000	X	CPRTN	0000	X
PSHAC	0016	UNUSED	PAUSE	0000	UNUSED	A15	000F	A
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	A	A7	000E	A	A6	000C	UNUSED
A5	000A	A	A4	0008	UNUSED	A3	0006	UNUSED
A2	0004	A	A1	0002	A			

00044
ASS.ERR. 00000

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SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ECHMES	003E	R	PAUSE1	000A	UNUSED	STATUS	0000	A
CHIEV	0000	X	PCT61	0000	X	DISPAT	0000	X
ERHB	0000	X	INHST	0000	X	CPRTN	0000	X
PSNAC	0016	UNUSED	PAUSE	0000	UNUSED	A15	000F	A
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	A	A7	000E	A	A6	000C	UNUSED
A5	000A	A	A4	0008	UNUSED	A3	0006	UNUSED
A2	0004	A	A1	0002	A			

```
 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          137E      RSTART   INR      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      0014                    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     CIR      A6,A6
 00018  0020  A635                              ANR.S    A6,A5
 00019  0022  8F20                              AB.L     CPRTN
        0024  0000 X
 00020                                          END
ASS.ERR. 00000
```

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SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
SKIP	001E	R	STATUS	0000	A	HB	0000	X
ERHB	0000	X	PCT61	0000	X	CPRTN	0000	X
RSTART	0000	UNUSED	A15	000F	A	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	UNUSED
A7	000E	A	A6	000C	A	A5	000A	A
A4	0008	UNUSED	A3	0006	A	A2	0004	A
A1	0002	UNUSED						

```
00000                                   IDENT   MANCT
00001                                   ENTRY   MANCT
00002                                   EXTRN   ERHB
00003  0000  9035          1344 MANCT   IMR     A5
00004  0002  8F20                       AR.L    ERHB
       0004  0000 X
00005                                   END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ERRB	0000	X	MANCT	0000	UNUSED	A15	000F	UNUSED
A14	000D	UNUSED	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	UNUSED	A7	000E	UNUSED	A6	000C	UNUSED
A5	000A	A	A4	0008	UNUSED	A3	0006	UNUSED
A2	0004	UNUSED	A1	0002	UNUSED			

160

```
                                   IDENT    LOADER
                              *
                              ******************************************************************************
                              * SYSTEM LOADER
                              *                                                                       *
                              *        THIS MODULE LOADS A USER PROGRAM AT BASE ADDRESS CVTBKA+16     *
                              *         HAVING FIRST LEFT 16 WORDS FOR THE USER SAVE AREA             *
                              *                                                                       *
                              *         SYNTAX OF THE COMMAND LINE : #LD M                            *   {MASTER=1 -> user mode  (no'M')
                              *                                  WHERE M IS OPTIONAL(MASTER MODE FLAG) * ->}       =0 -> master mode  ('M')
                              *                  USE OF REGISTERS:  A1 THRU A8                        *
                              *                                                                       *
                              *                                                                       *
                              *************************************************************************
                              *
                                   ENTRY    LOADER,LDFLAG
                              *
                                   EXTRN    PCT61
                                   EXTRN    CVTMSZ
                                   EXTRN    CVTBKA
                                   EXTRN    CVTSBA
                                   EXTRN    CVTBBA
                                   EXTRN    CPRTN
                                   EXTRN    BUFCP
                                   EXTRN    INHCP
                                   EXTRN    ERHB
                                   EXTRN    INHST
                                   EXTRN    BH
                                   EXTRN    HB

                              *
                                   EXTRN    ECBCP
                              USPSW   EQU      /F800   <- level 62
                              STADR   EQU      -4
                              SAVADR  EQU      -2
                              COMAR   EQU      96           48 WORDS COMMUNICATON AREA
                              *
0000  0000           134A     LDFLAG  DATA     0
                              *                  -> standard obj input
0002  0004                    ECBCLU  DATA     4
0004  0000 X                          DATA     BUFCP
0006  0046                            DATA     70
0008                                  RES      2
000C  0000                            DATA     0
                              *
                              *
000E  9035           1358     LOADER  IMR      A5
0010  9035                            IMR      A5
0012  8240                            LD       A2,INHST
0014  0000 X
0016  5100     0016                   RF(1)    ER -> 14A
```

```
00050  0018  0201                          LDK     A2,1
00051  001A  8241                          ST      A2,MASTER
      001C  0000 R  001A
00052  001E  81C0                          LD      A9,CVTBKA
      0020  0000 X
00053  0022  91A0                          ADK.L   A9,COMAR
      0024  0060
00054  0026  1700                          ADK     A7,0
00055  0028  5000    0028                  RF(0)   PRAFL
00056  002A  EF20                          CWK     A7,2
      002C  0002
00057  002E  5400    002E                  RF(4)   LOAD2
00058  0030  E224            LOAD1         LCR     A2,A1
00059  0032  EA20                          CWK     A2,/20
      0034  0020
00060  0036  5400    0016                  RF(4)   ER
00061  0038  1101                          ADK     A1,1
00062  003A  E224                          LCR     A2,A1
00063  003C  EA20                          CWK     A2,/4D
      003E  004D
00064  0040  5400    0036                  RF(4)   ER
00065  0042  0100                          LDK     A1,0
00066  0044  8141                          ST      A1,MASTER
      0046  0000 R  001A
00067  0048  5700    0028                  RF      PRAFL
00068                        *
00069                        *
00070  004A  8F20            ER            AB.L    ERHB
      004C  0000 X
00071                        *
00072  004E  F6A1            LOAD2         CF      A14,HB
      0050  0000 X
00073  0052  9188                          ADR     A9,A2
00074  0054  0200                          LDK     A2,0
00075  0056  1F00                          SUK     A7,0
00076  0058  592A                          RB(1)   LOAD1
00077                        *
00078  005A  81C1            PRAFL         ST      A9,PCT61+SAVADR
      005C  FFFE X
00079  005E  91A0                          ADK.L   A9,32
      0060  0020
00080  0062  82C0                          LD      A10,CVTMSZ
      0064  0000 X
00081  0066  F6A1                          CF      A14,TESTOV
      0068  0000 R  0066
00082  006A  8386                          LDR     A11,A9
00083                        *
00084  006C  8120            RAFL          LDK.L   A1,0
      006E  0000
00085                        EOTFL         EQU     *-2
00086  0070  5000    0070                  RF(0)   RAFL1
```

A7 = eff. length of TY input - 2

only 2 char input: 'LD'

not 4 char. input

3rd char in A2

blank

4th char in A2

4D = M

'LDBM' typed

A2 hex value: displacement for loading program.

A9 = CVTBKA + 160 (+ ext displacement)

A11 = CVTBKA + 180 (+ ext displacement)

161

(162)
↓
not existing

```
00087  0072  8120                        LDK.L   A1,/2045          * E
       0074  2045
00088  0076  8220                        LDK.L   A2,/4F54          *OT
       0078  4F54
00089  007A  F6A1                        CF      A14,HLTASC
       007C  0000 R  007A
00090  007E  207F                        HLT                 HALT CHANGE TAPE AND RESTART
00091  0080  0100                        LDK     A1,0
00092  0082  8141                        ST      A1,EOTFL
       0084  006E R
00093  0086  0702                RAFL1   LDK     A7,2  → standard read
00094  0088  0146                        LDK     A1,70
00095  008A  8141                        ST      A1,ECBCLU+4
       008C  0006 R
00096  008E  0504                        LDK     A5,4  → file code 4 = stand obj input
00097  0090  F6A1                        CF      A14,STIO → /11E
       0092  0000 R  0090
00098                              *
00099  0094  8140                        LD      A1,ECBCLU+8 ← status word
       0096  000A R
00100  0098  211F                        ANK     A1,/1F
00101  009A  39E1                        SRC     A1,1  → bit 15 in 0 : EOF mark read
00102  009C  5200    009C                RF(2)   EOF →/D2
00103  009E  39E2                        SRC     A1,2  → bit 13 in 0 : illegal char code
00104  00A0  5200    00A0                RF(2)   CLC01→/166          ERRONEOUS CLUSTER
00105  00A2  39F1                        SRC     A1,1  → bit 12 in 0 : requested length incorrect
00106  00A4  5200    00A0                RF(2)   CLC01→/166
00107  00A6  39F1                        SRC     A1,1  → bit 11 in 0 : end of input medium
00108  00A8  5600    00A8                RF(6)   LOAD3→/AE
00109  00AA  9041                        IM      EOTFL               END OF TAPE
       00AC  006E R
00110                              *
00111  00AE  0100                LOAD3   LDK     A1,0
00112  00B0  E140                        LC      A1,BUFCP ← 1st char in A1
       00B2  0000 X
00113  00B4  E920                        CWK     A1,/20      IS IT A CLUSTER
       00B6  0020
00114  00B8  5200    00B8                RF(2)   PROL01+2    YES GO TO PROCESS IT
00115                              *                  → /13E
00116  00BA  0120                        LDK     A1,/20
00117  00BC  870E                        LDR     A7,A11 ← A11 = CVTBKA + /80
00118  00BE  8620                        LDK.L   A6,BUFCP
       00C0  0000 X
00119  00C2  9640                        AD      A6,ECBCLU+6  → effective length
       00C4  0008 R
00120  00C6  1602                        ADK     A6,2
00121  00C8  F6A1                        CF      A14,BH
       00CA  0000 X
00122  00CC  F6A1                        CF      A14,ASCII   GO PRINT  IDENT
       00CE  0000 R  00CC                                  ↳ /112
00123                              *
```

```
00124  0000  5F66                    RB      RAEL        BACK TO READING
```

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```
                              EJECT
                       ***********************************************************************
00D2  0722             EOF    LDK      A7,/22       OUTPUT  EOF
0OD4  F6A1                    CF       A14,ASCII+2
0OD6  0000 R  00CC
0OD8  8140                    LD       A1,PCT61+STADR
0ODA  FFFC X
0ODC  5400    0044            RF(4)    MASTER-2
0ODE  8120                    LDK.L    A1,/204E     204E= N
00E0  204E
00E2  8220                    LDK.L    A2,/5320     5320=S
00E4  5320
00E6  F6A1                    CF       A14,HLTASC
00E8  0000 R  007A
00EA  5700    00EA            RF       EXIT
00EC  8120                    LDK.L    A1,MASTER
00EE  0000 R  00DC
                       MASTER EQU      *-2          ← master mode indicator
00F0  9141                    AD.S     A1,PCT61+STADR
00F2  FFFC X
00F4  9041             EXIT   IM       LDFLAG
00F6  0000 R
00F8  8120             EXIT1  LDK.L    A1,-1
00FA  FFFF
00FC  9141                    AD.S     A1,INHCP
00FE  0000 X
0100  8F20                     AB.L    CPRTN
0102  0000 X
                       ***********************************************************************
                       *
0104  8141             HLTASC ST       A1,BUFCP
0106  0000 X
0108  8241                    ST       A2,BUFCP+2
010A  0002 X
010C  0106                    LDK      A1,6
010E  8141                    ST       A1,ECBCLU+4
0110  0006 R
0112  0706             ASCII  LDK      A7,6   → start write
0114  0505                    LDK      A5,5   → T4
0116  8120                    LDK.L    A1,-2
0118  FFFE
011A  9141                    AD.S     A1,ECBCLU+2
011C  0004 R
011E  80A0             STIO   LDK.L    A8,ECBCLU
0120  0002 R
0122  8523                    STR      A5,A8
0124  2804                    LKM
0126  0001                    DATA     1
0128  8222                    LDR*     A2,A8
012A  5E04                    RB(6)    *-2
012C  8120                    LDK.L    A1,BUFCP
```

```
                012E  0000 X
00159           0130  8141                    ST      A1,ECBCLU+2
                0132  0004 R
00160           0134  0148                    LDK     A1,72
00161           0136  8141                    ST      A1,ECBCLU+4
                0138  0006 R
00162           013A  F03A                    RTN     A14
```

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```
                                    EJECT
                              ***********************************************************************
                              *PROCESS LOADING  :  THIS  MODULE  READ A  CLUSTER
                              *     AND BRANCH ACCORDING TO  THE  CLUSTER  TYPE
                              *
                              *     ON  EXIT   A1= BUFF ADDRESS  PLUS ONE
                              *                A2= WORD COUNT
                              *                A3= TYPE
                              *     THE  TYPE  MUST BE    3,4,7   IF NOT THIS : HALT
                              ***********************************************************************
                              ABA      EQU      0
0130  5FD2                    PROLO1   RB(7)    RAFL          READ A CLUSTER
                              PROLO    EQU      PROLO1
013E  818E                             LDR      A9,A11
0140  8120                             LDK.L    A1,BUFCP
0142  0000 X
0144  0200                             LDK      A2,0
0146  0300                             LDK      A3,0
0148  0401                             LDK      A4,1
014A  E324                             LCR      A3,A1         A3 = TYPE of cluster
014C  1101                             ADK      A1,1
014E  E224                             LCR      A2,A1         A2= WORD COUNT
0150  1101                             ADK      A1,1
0152  EB20                             CWK      A3,3
0154  0003
0156  5000      0156                   RF(0)    CLCODE <- type3 -> /174   BRANCH ON  CLUSTER CODE
0158  EB20                             CWK      A3,4
015A  0004
015C  5000      015C                   RF(0)    CLIMOD <- type4 -> /1AA        INTERNAL MODIFICATION
015E  EB20                             CWK      A3,7
0160  0007
0162  5000      0162                   RF(0)    CLEND <- type7 -> /1D2         END/START
0164  5F2A                             RB(7)    PROLO1 -> /13C
                              *
0166  8120                    CLC01    LDK.L    A1,/2045      2045=bE
0168  2045
016A  8220                             LDK.L    A2,/4320      4320=Cb
016C  4320
016E  F6A1                             CF       A14,HLTASC -> /104
0170  0104 R
0172  5F7C                             RB       EXIT1 -> /F8
                              *
                              *
```

```
                                        EJECT
                                  *
                                  ****************************************************************
                                  ****************************************************************
                                  *CLUSTER CODE  (TYPE 3)
                                  *       UPON ENTRY : A1=ADDRESS OF  BUFF+1 (RBK)   word ; A4=1
                                                       A2= WORD COUNT
                                                       A9= BADDRESS  = base address (= CVTBK+180)
                                                       A10=ENDADDRESS  =CVTMSZ
                                  ****************************************************************
                                  *
                                  *
     0174  8340                   CLCODE   LD       A3,BUFCP+6
     0176  0006 X
     0178  5C3E                            RB(4)    PROL01     EMBK SET SKIP THE CLUSTER
     017A  8340                   CLC01A   LD       A3,BUFCP+4   -> base addr for this cluster?
     017C  0004 X
     017E  A311                            TM       A3,A4      IS IT RELOCATABLE SECTION
     0180  5000        0180                RF(0)    CLC02      NO
     0182  9306                            ADR      A3,A9      YES
     0184  F6A1                            CF       A14,TESTAD   -> 1278
     0186  0000 R  0184
     0188  5700        0188                RF(7)    CLC04
     018A  81A0                   CLC02    LDK.L    A9,ABA
     018C  0000
     018E  8524                   CLC04    LDR*     A5,A1      A5 =(RBK)  -> relocation bits key
     0190  1106                            ADK      A1,6       A1 = ADDRESS OF FIRST CODE WORD  IN BUFF
     0192  1A03                            SUK      A2,3       A2 = NUMBER  OF  CODE  WORD
                                  *                            A3 = STORAGE ADDRESS
                                  *                            A4 = MASK  FOR RBK
                                  *                            A6= CODE WORD
     0194  3CE1                   CLC05    SRC1     A4
     0196  8624                            LDR*     A6,A1
     0198  A311                            TM       A5,A4
     019A  5000        019A                RF(0)    CLC07   -> NOT RELOCATABLE
     019C  960E                            ADR      A6,A11
     019E  862D                   CLC07    STR      A6,A3      YES STORE CODE WORDS
     01A0  1102                            ADK      A1,2       UPDATE
     01A2  1302                            ADK      A3,2
                                  *                            POINTERS
     01A4  1A01                            SUK      A2,1
     01A6  5C14                            RB(4)    CLC05
     01A8  5F6F                            RB(7)    PROL0
                                  *
                                  *
```

```
                                    EJECT
                              *
                              ****************************************************************************
                              *INTERNAL MODIFICATION CLUSTERS
                              *
                              *      UPON ENTRY : A1 = ADDRESS OF  BUFF+1 (RBK)
                                                  A2 = WORD  COUNT
                                                  A9 = BASE  ADDRESS
                                                  A10= END   ADDRESS
                              ****************************************************************************
   01AA  8524                 CLIMOD  LDR*     A5,A1          A5= (RBK)
   01AC  1A01                         SUK      A2,1
   01AE  0701                 CLIM1   LDK      A7,1          A7= MASK FOR ADDRESS
   01B0  3CE1                         SRC      A4,1
   01B2  1102                         ADK      A1,2
   01B4  8324                         LDR*     A3,A1          A3 = ADDRESS
   01B6  A31D                         TM       A3,A7          IS IT RELOCATABLE
   01B8  5000      01B8               RF(0)    CLIM2          NO
   01BA  9306                         ADR      A3,A9          YES  ADD  BASE
   01BC  F6A1                         CF       A14,TESTAD
   01BE  0000 R    0184
   01C0  1102                 CLIM2   ADK      A1,2          YES
   01C2  8624                         LDR*     A6,A1         TAKE   CODE  VORD
   01C4  A511                         TM       A5,A4         IS IT RELOCATABLE
   01C6  5000      01C6               RF(0)    CLIM3         NO
   01C8  960E                         ADR      A6,A11
   01CA  862D                 CLIM3   STR      A6,A3         YES  STORE  CODE WORD
                              *                              UPDATE
   01CC  1A02                         SUK      A2,2          POINTERS
   01CE  5C22                         RB(4)    CLIM1         CONTINUE
   01D0  5F96                         RB(7)    PROLD
                              *
                              *
```

```
                                      EJECT
                              *
                              ****************************************************************
                              ****************************************************************
                              * CLUSTER   END/START
                              *       UPON  ENTRY      A1 = ADDRESS  OF BUFF+1  (START ADDRESS)
                                                       A2 = WORD COUNT
                                                       A9 = BADDRESS → base address
                                                       A10= ENDADDRESS
01D2  8324               CLEND   LDR*     A3,A1
01D4  5000     01D4              RF(0)    CLEN3A      FINISHED   NO  START ADDRESS
01D6  A311                       TM       A3,A4       IS START ADDRESS RELOCATABLE
01D8  5000     01D8              RF(0)    CLEN1       NØ
01DA  9306                       ADR      A3,A9       YES
01DC  A320               CLEN1   ANK.L    A3,/FFFE
01DE  FFFE
01E0  F6A1                       CF       A14,TESTAD
01E2  0000 R   01BC
01E4  8341                       ST       A3,PCT61+STADR
01E6  FFFC X
01E8  8140               CLEN3A  LD       A1,BUFCP+6  UPDATE BASE ADDRESS
01EA  0006 X
01EC  9184                       ADR      A9,A1
01EE  8386                       LDR      A11,A9
01F0  F6A1                       CF       A14,TESTOV
01F2  0000 R   0066
01F4  0100                       LDK      A1,0
01F6  81C1                       ST       A9,CVTSBA
01F8  0000 X
01FA  8127                       STR      A1,A9       INITIALIZE GET CORE AREA
01FC  8140                       LD       A1,CVTMSZ
01FE  0000 X
0200  1902                       SUK      A1,2
0202  8141                       ST       A1,CVTBBA
0204  0000 X
0206  5FCC                       RB       PROLO
                              *
```

```
00301                                   EJECT
00302                           *
00303                           ********************************************************************************
00304                           *
00305  0208  8120               OUTOV   LDK.L   A1,/204F    204F= 0
       020A  204F
00306  020C  8220                       LDK.L   A2,/5620    5620=V
       020E  5620
00307  0210  F6A1                       CF      A14,HLTASC
       0212  0104 R
00308                           ********************************************************************************
00309  0214  8F20                       AB.L    EXIT1
       0216  00F8 R
00310                           ********************************************************************************
00311
00312                           *
00313                           ********************************************************************************
00314                           *
00315  0218  8704               TESTAD  LDR     A7,A1
00316  021A  8088                       LDR     A8,A2
00317  021C  8106                       LDR     A1,A9
00318  021E  820A                       LDR     A2,A10
00319  0220  3961                       SRL     A1,1
00320  0222  3A61                       SRL     A2,1
00321  0224  3861                       SRL     A3,1
00322  0226  E804                       CWR     A3,A1
00323  0228  5A22                       RB(2)   OUTOV
00324  022A  E808                       CWR     A3,A2
00325  022C  5926                       RB(1)   OUTOV
00326  022E  3841                       SLL     A3,1
00327  0230  811C                       LDR     A1,A7
00328  0232  8202                       LDR     A2,A8
00329  0234  F03A                       RTN     A14
00330                           *
00331                           ********************************************************************************
00332                           *
00333  0236  8106               TESTOV  LDR     A1,A9
00334  0238  820A                       LDR     A2,A10
00335  023A  5000    023A               RF(0)   TSTOV1
00336  023C  3961                       SRL     A1,1
00337  023E  3A61                       SRL     A2,1
00338  0240  E908                       CWR     A1,A2
00339  0242  593C                       RB(1)   OUTOV
00340  0244  F03A                       RTN     A14
00341  0246  1100               TSTOV1  ADK     A1,0
00342  0248  5E42                       RB(6)   OUTOV
00343  024A  F03A                       RTN     A14
00344                           *
00345                           ********************************************************************************
00346                                   END
ASS.ERR. 00000
```

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test if A9 ≤ A3 ≤ A10 ← word compare
A9 → base address
A10 → CVTMSZ

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
TSTOV1	0246	R	OUTOV	0208	R	CLEN1	01DC	R
CLEN3A	01E8	R	CLIM3	01CA	R	CLIM2	01C0	R
CLIM1	01AE	R	CLC07	019E	R	CLC05	0194	R
CLC04	018E	R	TESTAD	0218	R	CLC02	018A	R
CLC01A	017A	UNUSED	CLEND	01D2	R	CLIMOD	01AA	R
CLC00E	0174	R	PROLO	013C	R	ABA	0000	A
EXIT1	00F8	R	EXIT	00F4	R	ASCII	0112	R
PROLO1	013C	R	LOAD3	00AE	R	CLC01	0166	R
EOF	00D2	R	STIO	011E	R	HLTASC	0104	R
RAFL1	0086	R	EOTFL	006E	R	RAFL	006C	R
TESTOV	0236	R	LOAD1	0030	R	LOAD2	004E	R
PRAFL	005A	R	MASTER	00EE	R	ER	004A	R
ECBCLU	0002	R	COMAR	0060	A	SAVADR	FFFE	A
STADR	FFFC	A	USPSW	F800	UNUSED	ECBCP	0000	X
HB	0000	X	BH	0000	X	INHST	0000	X
ERHR	0000	X	INHCP	0000	X	BUFCP	0000	X
CPRTN	0000	X	CVTBBA	0000	X	CVTSBA	0000	X
CVTBKA	0000	X	CVTMSZ	0000	X	PCT61	0000	X
LDFLAG	0000	R	LOADER	000E	UNUSED	A15	000F	UNUSED
A14	000D	A	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	A	A10	0005	A	A9	0003	A
A8	0001	A	A7	000E	A	A6	000C	A
A5	000A	A	A4	0008	A	A3	0006	A
A2	0004	A	A1	0002	A			

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```
                                       IDENT      M:CMAD
                               *   THIS SUBROUTINE COMPARE THE ADDRESS CONTAINED IN A2                  *
                                                  WITH CVTMSZ  MEMORY SIZE                              *
                               *                  THIS ROUTINE DESTROYS A4                              *
                               *                                                                        *
                               **************************************************************************
                                       ENTRY      M:CMAD
                                       EXTRN      CVTMSZ,ERHB
                               *
0000  8440           1596      M:CMAD  LD         A4,CVTMSZ
0002  0000 X
0004  5000     0004                    RF(0)      CMADEX         CVTMSZ NULL = 32K
0006  3C61                             SPL        A4,1
0008  3A61                             SPL        A2,1
000A  EA10                             CWR        A2,A4
000C  8E20                             AB.L(6)    ERHB
000E  0000 X
0010  3A41                             SLL        A2,1
0012  F03A                     CMADEX  RTN        A14
                                       END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
CMADEX	0012	R	ERHB	0000	X	CVTMSZ	0000	X
M$CMAD	0000	UNUSED	A15	000F	UNUSED	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	UNUSED
A7	000E	UNUSED	A6	000C	UNUSED	A5	000A	UNUSED
A4	0008	A	A3	0006	UNUSED	A2	0004	A
A1	0002	UNUSED						

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```
                                  IDENT    HEBIN
                          *
                          ***********************************************************************
                          *THIS MODULE  CONVERTS A NUMBER  IN  HEXADECIMAL                HEBIN001
                          *      FORM  INTO A  BINARY FORM
                          *   UPON ENTRY , THE  NUMBER IS IN BUFF,CHARACTER ADDRESS IN A1       HEBIN003
                          *   EXIT IF BLANK OR  END OF BUFF ENCOUNTERED                   HEBIN004
                          *   A7 GIVE THE CHARACTERS NUMBER STILL IN BUFFER.              HEBIN005
                          *   A2 BINARY  RESULT                                           HEBIN006
                          *******************************************************************
                          *       A4,A5,A6 CAN BE USED AS  WORK  REGISTERS                HEBIN007
                                  ENTRY    HB
                                  EXTRN    ERHB
                          *
0000  1101                HB0     ADK      A1,1                                           HEBIN009
0002  1F01                        SUK      A7,1
0004  5000    0004                RF(0)    ER3
0006  0200         15B0   HB      LDK      A2,0
0008  0400                        LDK      A4,0
000A  E424                        LCR      A4,A1
000C  EC20                        CWK      A4,X'20'
000E  0020
0010  5812                        RB(0)    HB0                                            HEBIN014
0012  EC20                AGAIN   CWK      A4,X'30'    30= 0
0014  0030
0016  5200    0004                RF(2)    ER3                                            HEBIN016
0018  EC20                        CWK      A4,X'3A'
001A  003A
001C  5200    001C                RF(2)    CHIF                                           HEBIN018
001E  EC20                        CWK      A4,X'41'    41= A
0020  0041
0022  5200    0016                RF(2)    ER3                                            HEBIN020
0024  EC20                        CWK      A4,X'46'
0026  0046
0028  5100    0022                RF(1)    ER3                                            HEBIN022
002A  1409                        ADK      A4,9
002C  240F                CHIF    ANK      A4,X'F'
002E  3A44                        SLL      A2,4
0030  AA10                        ORR      A2,A4                                          HEBIN029
0032  1101                        ADK      A1,1                                           HEBIN030
0034  1F01                        SUK      A7,1
0036  5000    0036                RF(0)    HB2
0038  E424                        LCR      A4,A1
003A  EC20                        CWK      A4,X'20'
003C  0020
003E  5000    0036                RF(0)    HB2
0040  EC20                        CWK      A4,X'2E' -> '.'
0042  002E
0044  5C34                        RB(4)    AGAIN
0046  F03A                HB2     RTN      A14         NORMAL  EXIT
0048  8F20                ER3     AB.L(7)  ERHB       ERROR EXIYT
```

```
        004A  0000 X
 00044                          *
 00045                          *
 00046                          *****************************************************************************************
 00047                                    END
ASS.ERR. 00000
```

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SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
HB2	0046	R	CHIF	002C	R	AGAIN	0012	R
E&3	0048	R	HB0	0000	R	ERHB	0000	X
HB	0006	UNUSED	A15	000F	UNUSED	A14	000D	A
A13	000B	UNUSED	A12	0009	UNUSED	A11	0007	UNUSED
A10	0005	UNUSED	A9	0003	UNUSED	A8	0001	UNUSED
A7	000E	A	A6	000C	UNUSED	A5	000A	UNUSED
A4	0008	A	A3	0006	UNUSED	A2	0004	A
A1	0002	A						

```
0000                                    IDENT    CHLEV
0001                                *THIS    ROUTINE   INSERT  THE CALLING
0002                                *PROGRAM IN THE A15-STACK   ACCORDING TO THE LEVEL
0003                                *SPECIFIED IN A1
0004                                *REGISTERS A5, A6  ARE SAVED IN THE STACK
0005                                *REGISTERS A1 TO A4 DESTROYED
0006                                *
0007                                *        CALLING  SEQUENCE      A1= LEVEL  (NORMALLY  48-49)
0008                                *
0009                                *                                CF  A15,CHLEV
0010                                *
0011                                *        AT THE END OF THE ROUTINE ,BRANCH TO THE DISPATCHER
0012                                         ENTRY    CHLEV
0013                                         EXTRN    DISPAT
0014                                *
0015                                *
0016                                *
0017  0000                          SAVE     RES      8
0018  0010  0000                    SAV15    DATA     0
0019  0012  BC41          1608      CHLEV    MS       8,SAVE
      0014  0000 R
0020  0016  831E                             LDR      A3,A15
0021  0018  1302                             ADK      A3,2
0022                                *
0023  001A  1314                    CHLEV1   ADK      A3,20       FIND AN ENTRY  SO
0024                                *                              THAT  LEVEL OF THIS ENTRY =A1
0025  001C  822C                             LDR*     A2,A3
0026  001E  3A6A                             SBL      A2,10
0027  0020  EA04                             CWR      A2,A1
0028  0022  5A0A                             RB(2)    CHLEV1
0029                                *
0030                                *
0031  0024  1B12                             SUK      A3,18
0032                                *
0033  0026  821E                             LDR      A2,A15      SHIFT UP  THE STACK OF 10 LOCATIONS
0034  0028  1202                    CHLEV2   ADK      A2,2        FROM THE TOP END DOWN TO THE ENTRY
0035  002A  8428                             LDR*     A4,A2
0036  002C  8449                             ST       A4,-20,A2
      002E  FFEC
0037  0030  EA0C                             CWR      A2,A3
0038  0032  5C0C                             RB(4)    CHLEV2
0039  0034  9FA0                             SUK.L    A15,20
      0036  0014
0040                                *                              SET ENTRY ELEMENT
0041  0038  825E                             LD       A2,4,A15
      003A  0004
0042  003C  822D                             STR      A2,A3       A0 SETTING
0043                                *
0044  003E  825E                             LD       A2,2,A15    PSW  SETTING
      0040  0002
0045  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  8C40                          ML      8,SAVE
        0058  0000 R
00053   005A  8C3F                          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
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
CHLEV2	0028	R	CHLEV1	001A	R	SAV15	0010	R
SAVE	0000	R	DISPAT	0000	X	CHLEV	0012	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	UNUSED
A6	000C	A	A5	000A	UNUSED	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

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00061 *EOS
ASS.ERR. 00000

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
CHLEV2	0028	R	CHLEV1	001A	R	SAV15	0010	R
SAVF	0000	R	DISPAT	0000	X	CHLEV	0012	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	UNUSED	A7	000E	UNUSED
A6	000C	A	A5	000A	UNUSED	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

```
00000                                  IDENT    ENDIO
00001                              * THIS MODULE CONTAINS ALL THE OUTPUTS OF THE TO MODULES
00002                                  ENTRY    E:NDIO
00003                                  ENTRY    E:S015
00004                                  ENTRY    E:S014
00005                                  ENTRY    E:S013
00006                                  ENTRY    E:S012
00007                                  ENTRY    E:S011
00008                                  ENTRY    E:S000
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   1660 ->L:VCH   INH
00023  0002  813F                  STR      A1,A15
00024  0004  8120                  LDK.L    A1,/C000 = 48
       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 = DMT ADDRESS
00033                              *        AB.L(7)  E:NDIO
00034  000C  8158   166C ->E:NDIO   LD       A1,2,A6     * A1 = DEVICE ADDRESS
       000E  0002
00035  0010  9120                  ADK.L    A1,/4280    -> CIO 42,0,Dev
       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  001E  20BF   167E ->R:TURN   INH                  * RETURN TO INTERRUPTED PROGRAM
00041  0020  FC3E                  MLR      8,A15
00042  0022  F03E                  RTN      A15
00043                              *
00044                              ********************************************************************************
00045                              *
```

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```
                          *
                          * END OF IO
                          *           A2 = STATUS
                          *
0024  8158   1684      -> R:TUR4   LD       A1,16,A6      * A1 = EFFECTIVE LENGTH
0026  0010
0028  8558                          LD       A5,10,A6      * A5 = ECB ADDRESS
002A  000A
002C  5700   002C                   RF(7)    R:TUR1
                          *
002E  0100                ERSOFT    LDK      A1,0
0030  5702                          RF(7)    *+4
                          *
0032  8094   1692      -> R:TUR1    LDR      A8,A5         * A8 = ECB ADDRESS
0034  8720                          LDK.L    A7,DISPAT
0036  0000 X
                          *
0038  0380   1698         R:TUR5    LDK      A3,/80        * A3 = EVENT BYTE
003A  E323                          SCR      A3,A8
003C  B943                          MS       2,6,A8   -> store eff length and status in ECB
003E  0006
0040  EA20                          CWK      A2,/C001
0042  C001
0044  5000   0044                   RF(0)    RETU11
0046  F379                          SC*      A3,32,A6     * CONTROLLER STATUS
0048  0020
004A  8658                          LD       A6,30,A6
004C  001E
004E  208F                RETU11    INH
0050  8140                          LD       A1,PCT61
0052  0000 X
0054  217F                          ANK      A1,/7F
0056  5000   0056                   RF(0)    RETU12
0058  8120                          LDK.L    A1,-1
005A  FFFF
005C  9141                          AD.S     A1,PCT61
005E  0000 X
0060  801C                RETU13    LDR      0,A7  -> branch to DISPAT
0062  0600                RETU12    LDK      A6,0
0064  801C                          LDR      0,A7
                          *
                          * THIS SEQUENSES GIVE STATUS FOR ERRORS
0066  0200   16C6         E:S000    LDK      A2,0
0068  0100                          LDK      A1,0
006A  B943                          MS       2,6,A8
006C  0006
006E  0380                          LDK      A3,/80
0070  E323                          SCR      A3,A8
0072  8720                          LDK.L    A7,DISPAT
0074  0000 X
0076  5F2A                          RB       RETU11
```

data systems

```
0078  8220      16D8  [E:S011]  LDK.L    A2,/C010     * FUNCTION UNKNOWN OR NOT COMPATIBLE WITH DEVICE
007A  C010
007C  5F50                      RB(7)    ERSOFT
007E  8220      16DE  [E:S012]  LDK.L    A2,/C008     * BUFFER SIZE OR ADDRESS ILLEGAL
0080  C008
0082  5F56                      RB(7)    ERSOFT
0084  8220      16E4  [E:S013]  LDK.L    A2,/C004     * ECB ADDRESS ILLEGAL
0086  C004
0088  5F5C                      RB(7)    ERSOFT
008A  8220      16EA  [E:S014]  LDK.L    A2,/C002     * DEVICE ATTACHED TO ANOTHER PROGRAM
008C  C002
008E  5F62                      RB(7)    ERSOFT
0090  8220      16F0  [E:S015]  LDK.L    A2,/C001     * FILE CODE ILLEGAL
0092  C001
0094  5F68                      RB(7)    ERSOFT
                          *
                          * END OF IO * SOFTWARE
0096  8558      16F6 -> [R:TUR2] LD      A5,10,A6     * A5 = ECB ADDRESS
0098  000A
009A  8254                AGAIN  LD      A2,8,A5
009C  0008
009E  5C7C                      RB(4)    R:TUR4       * SOFTWARE ERROR IN READING
                          *
00A0  8120      1700 -> [R:TUR3] LDK.L   A1,*+8       * CHANGE LEVEL
00A2  00A8 R
00A4  8F20                      AB.L(7)  L:VCH
00A6  0000 R
00A8  9882                      SUR      A8,A8
00AA  8158                      LD       A1,18,A6     * IS IT ORDER 2 ?
00AC  0012
00AE  21FD                      ANK      A1,/FD
00B0  5400   00B0               RF(4)    SUITE
00B2  69D8                      ML       3,12,A6      * IS IT AN EOS OR EOF ?
00B4  000C
00B6  E820                      CWK      A3,4         * IS THERE 4 CHARACTER ?
00B8  0004
00BA  5400   00BA               RF(4)    FILL
00BC  990C                      SUR      A1,A3
00BE  8424                      LDR*     A4,A1
00C0  EC20                      CWK      A4,/3A45     * :E
00C2  3A45
00C4  5400   00BA               RF(4)    FILL
00C6  8444                      LD       A4,2,A1
00C8  0002
00CA  EC20                      CWK      A4,/4F46     * OF
00CC  4F46
00CE  5400   00CE               RF(4)    FILL3
00D0  0401                      LDK      A4,/01
00D2  5700   00D2               RF(7)    FILL4
00D4  EC20               FILL3  CWK      A4,/4F53     * OS
00D6  4F53
```

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```
 0120  00D8  5400  00C4              RF(4)    FILL
 0121  00DA  0402                   LDK      A4,/02
 0122  00DC  8090            FILL4  LDR      A8,A4
 0123  00DE  8158            FILL   LD       A1,12,A6
       00E0  000C
 0124  00E2  8420                   LDK.L    A4,/2020     * FILL THE BUFFER WITH BLANK
       00E4  2020
 0125  00E6  9A0C                   SUR      A2,A3
 0126  00E8  5000  00B0             RF(0)    SUITE
 0127  00EA  E425                   SCR      A4,A1
 0128  00EC  1101                   ADK      A1,1
 0129  00EE  1A01                   SUK      A2,1
 0130  00F0  5000  00E8             RF(0)    SUITE
 0131  00F2  8425            FILL1  STR      A4,A1
 0132  00F4  1102                   ADK      A1,2
 0133  00F6  1A02                   SUK      A2,2
 0134  00F8  5908                   RB(1)    FILL1
 0135  00FA  8158            SUITE  LD       A1,18,A6
       00FC  0012
 0136  00FE  5200  00FE             RF(2)    AGAIN1
 0137  0100  8202            END3   LDR      A2,A8
 0138  0102  8158                   LD       A1,16,A6
       0104  0010
 0139  0106  5FD6                   RB(7)    RETUR1
 0140  0108  8102            AGAIN1 LDR      A1,A8
 0141  010A  2103                   ANK      A1,/03
 0142  010C  E104                   ECR      A1,A1
 0143  010E  A158                   AN       A1,18,A6
       0110  0012
 0144  0112  5C14                   RB(4)    END3
 0145  0114  0402            AGAIN3 LDK      A4,2         * ORDER 2
 0146  0116  E459                   SC       A4,19,A6
       0118  0013
 0147  011A  B954            AGAIN4 ML       2,2,A5       * READ AGAIN
       011C  0002
 0148  011E  0300                   LDK      A3,0
 0149  0120  B9D9                   MS       3,12,A6
       0122  000C
 0150  0124  0100                   LDK      A1,0
 0151  0126  0200                   LDK      A2,0
 0152  0128  B959                   MS       2,24,A6
       012A  0018
 0153  012C  B955                   MS       2,6,A5
       012E  0006
 0154  0130  8F58                   AB.I(7)  6,A6
       0132  0006
 0155                               END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
AGAIN4	011A	UNUSED	AGAIN3	0114	UNUSED	END3	0100	R
AGAIN1	0108	R	FILL1	00F2	R	FILL4	00DC	R
FILL3	00B4	R	FILL	00DE	R	SUITE	00FA	R
AGAIN	009A	UNUSED	RETU13	0060	UNUSED	RETU12	0062	R
RETU11	004E	R	ERSOFT	002E	R	PCT61	0000	X
DISPAT	0000	X	R:TUR5	0038	UNUSED	R:TUR4	0024	R
R:TUR3	00A0	UNUSED	R:TUR2	0096	UNUSED	R:TUR1	0032	R
R:TURN	001E	UNUSED	L:VCH	0000	R	E:S000	0066	UNUSED
E:S011	0078	UNUSED	E:S012	007E	UNUSED	E:S013	0084	UNUSED
E:S014	008A	UNUSED	E:S015	0090	UNUSED	E:NDIO	000C	UNUSED
A15	000F	A	A14	000D	UNUSED	A13	000B	UNUSED
A12	0009	UNUSED	A11	0007	UNUSED	A10	0005	UNUSED
A9	0003	UNUSED	A8	0001	A	A7	000E	A
A6	000C	A	A5	000A	A	A4	0008	A
A3	0006	A	A2	0004	A	A1	0002	A

```
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:NTEN      END OF  DWT
00009                           FCTY    EQU     5
00010  0000  9035        1794   M:ASPR  IMR     A5
00011  0002  F6A1               CF      A14,HB
       0004  0000 X
00012  0006  8308               LDR     A3,A2       A3=FCODE
00013  0008  E620               CWK     A3,FCTY
       000A  0005
00014  000C  8820               AB.L(0) ERHB        ASSIGN ON TY FILE CODE FORBIDDEN
       000E  0000 X
00015  0010  3841               SLL     A3,1        A3= FCT INDEX
00016  0012  E340               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
       0028  4E4F
00025  002A  5400   002A        RF(4)   ASPR1A
00026  002C  0500               LDK     A5,0
00027  002E  5700   002E        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   003E        RF(4)   ASPR02      NAME  NOT  FOUND
00036  0040  EA54               CW      A2,2,A5
       0042  0002
00037  0044  5400   003E        RF(4)   ASPR02      ADDRESS NOT FOUND
00038  0046  B54D         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                      ASPR02   ADK.L    A5,P:DWLG
        0050  0000 X
 00043  0052  ED20                               CWK      A5,D:WTEN
        0054  0000 X
 00044  0056  5A1C                               RB(2)    ASPR01          LOOP
 00045  0058  8F20                               AB.L     ERHB            THE NAME DOES NOT EXIST IN TABLE
        005A  0000 X
 00046                                          END
ASS.ERR. 00000
```

SYMBOL	**VALUE*		**SYMBOL**	**VALUE*		**SYMBOL**	**VALUE*	
ASPR02	004E	R	ASPR01	003C	R	ASPR2A	0046	R
ASPR1A	0030	R	ERROR	0016	UNUSED	FCTY	0005	A
D:WTEN	0000	X	F:CT	0000	X	D:WT	0000	X
P:DWLG	0000	X	ERHR	0000	X	H8	0000	X
CPRTN	0000	X	M:ASPR	0000	UNUSED	A15	000F	UNUSED
A14	000D	A	A13	000B	UNUSED	A12	0009	UNUSED
A11	0007	UNUSED	A10	0005	UNUSED	A9	0003	UNUSED
A8	0001	UNUSED	A7	000E	A	A6	000C	A
A5	000A	A	A4	0008	A	A3	0006	A
A2	0004	A	A1	0002	A			

```
EXIT CODE=0000
```