```
W       IDENT   H18 2/13/68
* ENTRY POINTS
        ENTRY   BLK31,INT31,INT33,EDFFILE,WRRLB
        ENTRY   RTK,PNK,TRK,TWK,CRK,LPK,PTOPFM
        ENTRY   TGET,TREL,MTDI,MTRDPN,MTWDPN
        ENTRY   PNEOR,MREW,MFSF,MBSF,MBSR
        ENTRY   MEOR,MEOF,MERS,MERL
        ENTRY   TRTW,CRTW,CFTW
        IF      CPXF
        ENTRY   CPX
                        ENDF
*
* 'INT31','INT33'  P. DEUTSCH  9/16/65
*
* W BUFFER INTERRUPT ROUTINES
*
* THE W BUFFER DRIVERS AND INTERRUPT ROUTINES HAVE THE FOLLOWING
*  CONVENTIONS.  IF THE ROUTINE SKIPS UPON RETURN, IT
*  HAS FAILED.  A FAILURE USUALLY OCCURS IF THE DEVICE ADDRESSED
*  IS NOT READY FOR SOME REASON.  IF THE ROUTINE RETURNS WITHOUT
*  SKIPPING, THEN IT HAS SUCCEEDED IN PERFORMING THE TASK ASSIGNED
*  TO IT.
*
BLK31   ZRO
* I31/I33 SUBROUTINE
ISA     ZRO
* SAVE (A)
ISB     ZRO
* SAVE (B)
ISK     ZRO
* SAVE (K)
WFILE   ZRO
        * FILE NUMBER
WBUFF   ZRO
* BUFFER ADDRESS
WBE     ZRO
* END OF WBUFF
WSRRL3  ZRO
* SAVE RRL3
WRRL3   ZRO
* SET UP RRL3
INTR    ZRO
* INTERRUPT ROUTINE ADDR
*
INT31   ZRO
INT33   EQU     INT31
$INT31A STA     ISA
        STB     ISB
        STK     ISK
        SKN     DSCFLG          IS DISC RUNNING?
        BRU     INTK1-1         YES - EXECUTE THE DISC ROUTINE
        LDA     WRRL3
        K4A     RRL3
        STA     WSRRL3
```

```
         LRR3
         PDT     RRL3
         LDA     WBUFF
         AXC
         XMA     BLK31
         SKE     =0
         BRU     *+2
         BRU     INTX
         STA     INTR
         BRM*    INTR
         BRU     INTF
         DIR
         BRM     EPU
INTF     LDA     BLK31
         SKG     =0
         BRU     INTU
INTX     LDA     WSRRL3
         STA     RRL3
         LRR3
         PDT     RRL3
         CLA
         SKE     BLK31          IS W BUFFER FREE NOW?
         BRU     INTX1          NO
         SKE     DSCINT         SHOULD THE DISC BE STARTED
         BRM*    DSCINT         START DISC OR EXECUTE DISC ROUTINE
INTX1    LDA     ISA
         LDB     ISB
         LDX     ISX
         EIR
         BRI     INT31
INTU     LDX     WFILE
         LDA     XN2
         ADM     FD,2
         MIN     ACTR
         LDA     WRRL3
         LDB     WBUFF
         SKB     =4000B
         LCY     6
         RCY     6
         EIR     =77B
         CAX
         SKR     RMC,2
         NOP
         BRU     INTX
*
* 'ED'  6/27/66
*
* EXECUTE DRIVER
*
FTIME    ZRO
* EXPECTED WAIT TIME
EDD      ZRO
* DRIVER ADDRESS
IORW     ZRO
```

```
* IORD INSTRUCTION
IOSW    ZRO
* IOSD INSTRUCTION
IOB     ZRO
* REAL BUFFER ADDRESS\ADMSK
*
ED      ZRO
        STB     EDD
        LDX     FILE
        LDA     FC,2
        RCY     15
        ETR     =77B
        STA     UNIT
        LDX     BUFF
        BRM     BSET
        LDX     FILE
        LDX     FD,2
        LDB     DEV,2
        LDX     BUFF
        SKB     WBDBIT
        BRU     EDW
        BRM*    EDD
        BRR ED
EDW     CLA
        SKE     BLK31
        BRU     EDWI
        SKS     140008          TEST W CHANNEL
        BRU     EDWI
        LDA     UNIT
        STA     TND
        LDA     T
        RCY     9
        ETR     =140B
        MRG     =2160008
        STA     IORW
        MRG     =2008
        STA     IOSW
        LDA     T
        ETR     ADMSK
        STA     IOB
        LDA     WRRL3
        STA     WRRL3
        LDA     BUFF
        STA     WBUFF
        ADD     =2
        LDB     DEV
        CBX
        SKB     OUTBIT
        ADD     BUFS,2
        ETR     ADMSK
        STA     WBE
        LDA     FILE
        STA     WFILE
        LDX     BUFF
```

```
         DIR
         BRM*     EDD
         BRU      EDWB
         BRU      EDWS
EDWB     LDA      BLK31
         SKG      =0
         BRU EDF1
EDB      LDA      I
         LRSH     11
         CAX
         MIN      R4C,2
EDF      LDX      FILE
         LDA      X2
         ADM      FD,2
EDF1     EIR
         BRR      ED
EDWI     LDB      EDCI
         MIN      ED
         BRR      ED
EDCI     1        BLK31
EDWS     LDX FILE; LDA X2; ADM FD,2; CXB
         LDA      EDD
         DIR
         BRM      EPU
         MIN      ED
         MIN      ED
         BRR      ED
*
* 'RTX','PNX'  10/18/65
*
* PAPER TAPE READER AND PUNCH DRIVERS
*
RTX      ZRO
         SETINT   RTI
         LDA      IOB
         ADD      =RTCNT*4000B+2
         STA      RTI
         EDM*     100003
         EXU      IOSW
         POT      RTI
         EDI 2604B
         BRR      RTX
*
RTI      ZRO
         ASCW
         PIN      1,2
         EAX      2,2
         STX      -2,2
         LDA      -1,2
         SUB      IOB
         ETR      ADMSK
         ADD      WBUFF
         BETW
         MRG      ERRBIT
```

```
        CZTW
        MRG     EDRBIT
        STA     -1,2
        BRR     RTI
*
        IF      PNXF
PNX     ZRO
        LDA     0,2
        SUB     WBUFF
        SUB     =2
        CLB
        LSH     14
        ADD     IOB
        ADD     =2
        STA     PNI
        SETINT  PNI
        EDM*    100003
        EXU     IOSW
        POT     PNI
        EDM     36448
        BRR     PNX
*
PNEDR   ZRO
        LDA     EDRBIT
        ADM     1,2
        CXA
        ADD     =2
        SKE     0,2
        BRU     PNX1
        BRM     PNI
        BRR     PNEDR
PNX1    BRM     PNX
        BRR     PNEDR
*
PNI     ZRO
        LDA     WBE
        XMA     1,2
        SKA     EDRBIT
        BRU     PNI1
        EAX     2,2
        STX     -2,2
        BRR     PNI
PNI1    LDA     PNI2
        XMA     31B
        EIR     ENABLE INTERRUPTS (DISABLED IN ED)
        EDM     16448
        BRU     *
PNI2    BRU     *+1
        IOPW
        STA     31B
        SETINT  PNI
        MIN     PNI
        BRI     PNI
        ELSF    1
```

```
PNX     ZRO
PNEOR   BRU     TRAP
        ENDF
*
* 'CRX'  10/18/65
*
* CARD READER DRIVER, WITH CODE CONVERSION AND SO ON
*
$CRTW   SKS     12006B
$CFTW   SKS     11006B
        IF CPXF
CPXCNT  DATA    0
BCDFLG  DATA    -1
        ENDF
        IF      CRXF
CRIS1   ZRO
* POINTER FOR FETCHING CHARS
CRIS2   ZRO
* MULTIPLE BLANK COUNT
CRIC1   BSS     0
* BCD TO INTERNAL CONVERSION TABLE
        DATA    20131500B,21415217B,22425363B,23435464B
        DATA    24445565B,25455666B,26465767B,27476070B
        DATA    30506171B,31516272B,00370176B,35160414B
        DATA    07111210B,32737505B,36343374B,40030677B
*
        IF      CPXF
CPX     ZRO     0
        EOM     0
        LDA     =-1
        STA     BCDFLG
        EXU     CPTW
        BRU     CPX1
        BRM     SETIOB
        LDA     =11
        STA     CPXCNT
        BRM     CPXINT
        BRR     CPX
CPX1    MIN     CPX
        BRR     CPX

CPXINT  ZRO     0
        CETW
        MIN     BCDFLG
        EOM*    20463
        EXU     IORW
        POT     IOB
        SKR     CPXCNT
        BRU     *+2
        BRU     *+4
        SETINT  CPXINT
        BRR     CPXINT
        SETINT  LPXINT
        BRR     CPXINT
```

```
        ENDF

CRX     ZRO     Ø
        EXU     CRTW
        BRU     CRX1
        SETINT  CRI
        LDA     IOB
        ADD     =5000002B
        STA     CRI
        EOM*    10000B
        EXU     IORW
        POT     CRI
        EOM     2006B
        BRR     CRX
CRX1    EXU     CFTW
        BRU     CRX2
        MIN     CRX
        BRR     CRX
CRX2    EAX     2,2
        STX     -2,2
        STX     -1,2
        LDA     EOFBIT
        AOM     -1,2
        BRR     CRX
*
CRI     ZRO
        BETW
        BRU     CRI2
        LDA     =-1
        STA     CRIS2
        CXA
        ADD     =CRCNT
        STA     Ø,2
        SUB     =CRCNT-2
        STA     1,2
CRI1    STA     CRIS1
        SKE     Ø,2
        BRU     CRI3
        LDA     =155B
        STA*    1,2
        MIN     1,2
        LDA     =152B
        STA*    1,2
        MIN     1,2
CRI4    EAX     2,2
        CXA
        ETR     ADMSK
        STA     -2,2
        BRR     CRI
CRI2    EAX     2,2
        EOM     Ø                   DISCONNECT W CHANNEL
        STX     -2,2
        STX     -1,2
        LDA     ERRBIT
```

```
         ADM     -1,2
         BRR     CRI
CRI3     LDA*    CRIS1
         RCY     4
         EIR     =3
         MUL     =3
         LDA*    CRIS1
         EIR     =17B
         COPY    AX,BA
         LDB     CRIC1,2
         CAX
         LCY     6,2
         EIR     =77B
         LDX     WBUFF
         SKE     =0
         BRU     CRI5
         MIN     CRIS2
CRI6     LDA     CRIS1
         ADD     =1
         BRU     CRI1
CRI5     XMA     CRIS2
         SKG     =-1
         BRU     CRI7
         SKG     =0
         BRU     CRI3
         LDB     =135B
         STB*    1,2
         MIN     1,2
         ADD     =1
CRI3     STA*    1,2
         MIN     1,2
         LDA     =-1
         XMA     CRIS2
         STA*    1,2
         MIN     1,2
         BRU     CRI6
CRI7     XMA     CRIS2
         STA*    1,2
         MIN     1,2
         BRU     CRI6
         ELSE    1
CRX      ZRO
         BRU     TRAP
         ENDF
*
         IF CPXF
SETIOB   ZRO     0
         EAX     2,2
         COPY    XA,B
         SUB     -1,2
         CNA
         LCY     14
         ADD     =2
         ADM     IOB
```

```
        BRR     SETIOB
        ENDF

* 'LPX' 5/14/66
*
* POTTER PRINTER DRIVER
*
        IF      LPXF
LPX     ZRO     0
        EOM     0
        EXU     PRTW            PRINTER READY?
        BRU     LPX1            NO
        BRM     SETIOB
        SKN     FTFLG           TEST PRINTER FAULT?
        BRU     *+3             NO
        SKS     11060B          PRINTER FAULT?
        BRU     LPX4            YES
        CLA
        STA     PFCNT
        SKN     PFLAG           PRINTING?
        BRU     LPX3            NO
        SKS     14060B          END OF PAGE?
        BRU     LPX2            YES
        SKN     TOFLGP          WANT TOP OF FORM?
        BRU     *+2             NO
        BRU     LPX2
        EOM     116603          SPACE ONE LINE
        BRU     LPX2+2
LPX2    EOM     114603          GO TO TOP OF FORM
        MIN     TOFLGP          CLEAR TOP OF FORM FLAG
        SETINT  LPI
        LDA     =-1             SET TO TEST FAULT
        STA     FTFLG
        EOM*    20603
        EXU     IOSW            PRINT THE LINE
                                                    POT     IOB
        MIN     ED
        MIN     ED
        BRR     LPX
LPX1    MIN     LPX
        BRR     LPX
LPX4    MIN     PFCNT
        LDA     PFCNT
        SKG     =1              TWO FAULTS ON THIS LINE?
        BRU     LPX2+2          NO
        CLA
        STA     FTFLG           STOP FAULT CHECK TO IGNORE THIS LINE
LPX3    LDA     =-1
        STA     PFLAG           SET TO PRINT
        STA     BCDFLG
        LDX     BUFF
        BRM     LPXINT
        CLA
        STA     FTIME
```

```
        BRR     LPX
* PRINTER INTERRUPT ROUTINE

LPI     ZRO     0
        CETW
        BRR     LPI
        MIN     PFLAG           SET TO NOT PRINT THIS LINE AGAIN
        BRR     LPI
$PFLAG  ZRO     0               -1 PRINT LINE , >-1 DONT PRINT
$FTFLG  ZRO     0               -1 TEST PRINTER FAULTS, >-1 DONT
PFCNT   ZRO     0               PRINTER FAULT COUNT FOR CURRENT LINE
LPXINT  ZRO     0               PRINTER INTERRUPT ROUTINE
        CETW
        MIN     BCDFLG
        SKN     BCDFLG
        BRR     LPXINT
        CXA
        ADD     =2
        STA     0,2
        LDA     WBE
        STA     1,2
        BRR     LPXINT
PTOPFM  LDA     =-1
        STA     TOFLGP
        BRU     POPX
        ELSE    1
LPX     ZRO
        BRU     TRAP
PTOPFM  BRU     TRAP
        ENDF
*
* 'TRK','TWK'   10/24/65
*
* THESE ARE THE BASIC TAPE READING AND WRITING ROUTINES
*
        TDT     TRT,SKS,10410
        TDT     BTT,SKS,12010
        TDT     ETT,SKS,11010
        TDT     TFT,SKS,13610
        TDT     FPT,SKS,14010
        TDT     RTB,EOM,3610
        TDT     WTB,EOM,3650
        TDT     WFM,EOM,2050
        TDT     SFB,EOM,3630
        TDT     SRB,EOM,7630
        TDT     ETF,EOM,3670
        TDT     ETR,EOM,7670
        TDT     REW,EOM,14010
TXC1    DATA    TCNT*400000B+400001B
* BUFFER CONTROL WORD
TXC2    DATA    17000000B
* FILE MARK
TNO     ZRO
* TAPE NUMBER
```

```
TXS1    ZRO
* ASCW WORD FROM BUFFER
TXS2    ZRO
* SPACING CTRL FILE COUNT
TXS3    ZRO
* TRY AGAIN COUNT
TXS4    ZRO
* INTERLACE WORD
*
SRB     ZRO; EOM* 10000B; EOM 16000B; POT SRB1
        EXU SRBW,2; BRR SRB
SRB1    ZRO* TXS1
SFB     ZRO; EOM* 10000B; EOM 16000B; POT SRB1
        EXU SFBW,2; BRR SFB
* OPEN MAG TAPE
MTWOPN  ZRO
        LDX     SS01
        LDA     MTWOPN
        STA     MTROPN
        EXU     FPTW,2
        BRU     TOPN2
        BRU     MTROPN+1
MTROPN  ZRO
        LDX     SS01
        LDA     TUNO,2
        SKE     JOB
        SKG     =-1
        BRU     *+2
        BRU     TOPN1
        EXU     TRTW,2
        BRU     TOPN3
        LDA     =-1
        MIN     MTROPN
        BRR     MTROPN          (NOT READY)
TOPN3   LDB     X2
        STB     MTFL,2
        BRR     MTROPN
TOPN2   LDA     =1
        MIN     MTROPN
        BRR     MTROPN
TOPN1   LDA     =2
        BRU     TOPN2+1
* TURN OFF RUN-AWAY TAPE
        IF -1
MTDI    CLA
        SKE     BLK31
        SKN     POU,2
        BRU     TRAP
        SKN DSCFLG; BRU MTDSC
        DISW
        LDX     WFILE
        LDA     FD,2
        SKA     X2
        BRU     *+2
```

```
        BRU     POPX
        LDA     =T2X
        STA     BLK31
        LDA     =POPX
        STA*    31B
        BRR     31B
MTDSC   EQU 0; BRU POPX
* LOCK TAPE
        ENDF
TGET    SKN     PQU,2
        BRU     TRAP
        SKG     =NTAPE-1
        SKG     =-1
        BRU     TRAP
        CAX
        SKN     TJN,2
        BRU     TGET1
        LDA     JOB
        STA     TJN,2
        MIN     0
        BRU     POPX
TGET1   LDA     TJN,2
        SKE     JOB
        BRU     POPX
        BRU     TGET1-2
* UNLOCK TAPE
TREL    SKN     PQU,2
        BRU     TRAP
        SKG     =NTAPE-1
        SKG     =-1
        BRU     TRAP
        CAX
        LDA     =-1
        STA     TJN,2
        BRU     POPX
*
* TAPE READ DRIVER
TRX     ZRO
        LDX     TN
        LDA     MTFL,2
        SKG     =0
        BRU     TR5
        EXU     ETTW,2
        BRU     TR4
        EXU     TRTW,2
        BRU     TR3
* EXIT SINCE TAPE NOT READY
        MIN     TRX
        BRR     TRX
                * NO READ BEYOND EOT
TR4     LDA     EOTBIT
        BRM     TOI
        BRR     TRX
* PSEUDO EOF
```

```
TR5     LDA     EOFBIT
        BRU     TR4+1
* START READ
TR3     SKR     MTFL,2
        LDA     =NTRTRY-1
        STA     TXS3
        BRM     T2I
        BRR     TRX
* SIGNAL EOT (NOT INT. RTN.)
T0I     ZRO
        LDX     WBUFF
        EAX     2,2
        STX     -2,2
        MRG     WBE
        STA     -1,2
        BRR     T0I
* READ BUFFER
T2I     ZRO
        LDA     IOB
        ADD     TXC1
        STA     TXS4
        SETINT  T1I
        LDX     TNO
        ED4*    100003
        EXU     IORW
        POT     TXS4
        EXU     RTBW,2
        BRR     T2I
* CLEAN UP AFTER READ
T1I     ZRO
        LDX     WBUFF
        EAX     2,2
        STX     -2,2
        COPY    XA,XB
        ADD     -1,2
        LDX     TNO
        EXU     TFTW,2
        BRU     T1I3
        BETW
        BRU     T1I1
T1I2    EXU     ETTW,2
        MRG     EOTBIT
        LDX     WBUFF
        STA     1,2
        BRR     T1I
* EOF WAS READ
T1I3    CBA
        MRG     EOFBIT
        BRU     T1I2
* TAPE ERROR ON READ
T1I1    ASCW
        PIN     TXS1
        XMA     TXS1
        SUB     IOB
```

```
        ETR     AD4SK
        SKG     =150
        BRU     T1I4
        EXU     BTTW,2
        BRU     T1I4
        MIN     TRERR
        SKR     TKS3
        BRU     T1I5
        MIN     TURGRR
        LDA     TKS1
        MRG     ERRBIT
        BRU     T1L2            (PERM ERROR)
* NOISE- READ AGAIN
T1I4    MIN     TNERR
        BRM     T2I
        BRR     T1I
* TRY RE-READ, SCAN BACK
T1I5    SETINT T2I; BRM SRB; BRR T1I
* TAPE WRITE DRIVER
TWX     ZRO
        LDX     TNO
        LDA     MTFL,2
        SKG     =0
        BRU     TRAP
        EXU     ETTW,2
        BRU     TW4
        EXU     TRTW,2
        BRU     TW3
        MIN     TWX
        BRR     TWX             (NOT READY)
* NO WRITE BEYOND EOT
TW4     LDA     EOTBIT
        BRM     T0I
        BRR     TWX
* START WRITE
TW3     LDB     =NTWTRY-1
        STB     TXS3
        SKR     MTFL,2
        LDX     WBUFF
        LDA     1,2
        ETR     EORBIT
        ADD     0,2
        SUB     WBUFF
        SUB     =2
        STA     1,2
        LDX     TNO
        EXU     BTTW,2
        BRU     TW2
        BRM     T0J
        BRR     TWX
* WRITE 3-INCH GAP AT LD PT
TW2     LDA     =T0J
        BRM     T1J
        BRR     TWX
```

```
* WRITE 3 INCH GAP (NOT INTERRUPT ROUTINE)
T1J     ZRO
        EOM*    100008
        EXU     IORW
        POT     K4
        EXU     ETFW,2
        STA     BLK31
        BRR     T1J
* WRITE BUFFER
T0J     ZRO
        LDX     WBUFF
        LDA     1,2
        SKG     =0
        BRU     T0J1
        LDA     IOB
        ADD     TXC1
        STA     TXS4
        SETINT  T3J
        LDX     TNO
        EOM* 100008
        EXU     IORW
        POT     TXS4
        EXU WTBW,2
        BRR     T0J
T0J1    BRM     T2K
        BRR     T0J
* WRITE FILE MARK
T2J     ZRO
        LDX     TNO
        EOM* 100008
        EOM     160008
                                POT     =400008+TXC2
        EXU WFMW,2
        SETINT  T2K
        BRR     T2J
* CLEAN UP AFTER WRITE
T3J     ZRO
        LDX     TNO
        LDA     =BE
        BETW
        BRU     T3J1
T3J2    EXU     ETTN,2
        MRG     EOTBIT
        LDX     WBUFF
        STA     1,2
        EAX     2,2
        STX     -2,2
        BRR     T3J
T3J1    MIN     TWERR
        SKR     TXS3
        BRU     T3J3
        MRG     ERRBIT
        BRU     T3J2            (PERM ERR)
* TRY RE-WRITE, ERASE BACKWARDS
```

```
T3J3    ASCW
        PIN     TXS1
        LDA     IOB
        XMA     TXS1
        SUB     IOB
        CLB
        LSH     14
        STA     TXS1
        EOM* 10000B
        EXU     IORW
        POT     TXS1
        EXU ETRW,2
        SETINT  T0J
        BRR     T3J
*-ERASE BEFORE FILE MARK
T4J     ZRO
        LDX TNO
        LDA     =T2J
        BRM     T1J
        BRR     T4J
*
* 'MEOR','MBSF','MFSF','MBSR','MEOF','MERS','MREW','MERL'  12/15/65
*
* MAG TAPE CONTROL ROUTINES
*
* CLEAN UP AFTER SPACING (I33)
T2X     ZRO
        LDX     WBUFF
        EAX     2,2
        STX     -2,2
        LDA     WBE
        STA     -1,2
        BRR     T2X
* FORWARD SPACE FILE I31
T5X     ZRO
        LDX     TNO
        EXU     TFTW,2
        BRU     T5X1
* NOT EOF, CONTINUE
T5X2    SETINT  T5X
        BRM SFB
        BRR     T5X
* EOF SENSED, DONE
T5X1    MIN     TXS2
        SKN     TXS2
        BRU     *+2
        BRU     T5X2
        BRM T2X
        BRR     T5X
* BACKSPACE FILE FORWARD SPACE I31
* BACKSPACE RECORD I31
T1X     ZRO
        LDA     =10000B
T1X0    LDX     TNO
```

```
        MIN     TKS2
        SKA     TKS1
        BRU     T1K2
        EXU     BTTW,2
        BRU     T1K4
        EXU     TFTW,2
        BRU     T1K2
* NOT EOR, CONTINUE
T1K1    LDA     INTR
        STA     BLK31
        BRM SRB
        BRR     T1K
T1K2    SKN     TKS2
        BRU     *+2
        BRU     T1K1
* END SENSED, GO FORWARD
T1K3    BRM T3K; BRR T1K; MIN T1K; BRR T1K
* BOT SENSED (ACTUALLY I33)
T1K4    BRM     T2K
        BRR     T1K
* BACKSPACE FILE I33
T3K     ZRO
        LDX     TWO
        EXU     TRTW,2
        BRU     T3K2
        BRU *-2
T3K2    EXU     BTTW,2
        BRU     T3K1
        SETINT  T2K
        BRM SFB
        BRR     T3K
T3K1    BRM     T2K
        BRR     T3K
* BACKSPACE FILE I31
T6K     ZRO
        LDA     T6K
        STA     T1K
        CLA
        BRU     T1K0
*
* PREPARE FOR MAG TAPE CTRL
MTTR    ZRO
        MIN     MTTR
        LDX     TWO
        EXU     TRTW,2
        BRU     MTT1
        CKB
        LDX     MTTR
        MIN     -3,2
        BRR     -3,2            (NOT READY)
* SET UP INTERRUPT, EXIT
MTT1    EXU*    MTTR
        BRU     MTT2
        STA     BLK31
```

```
        BRR     MTTR
* EOT/BOT SENSED
MTT2    LDA     EOTBIT
        BRM     TØI
        LDX     MTTR
        BRR     -3,2
* MAG TAPE CTRLS
* REWIND
MREW    ZRO
        LDX     TWO
        EXU     TRTW,2
        BRU     MREW1
        CXB
        MIN     MREW
        BRR     MREW            (NOT READY)
MREW1   EXU     REWW,2
        BRM     T2K
        BRR     MREW
* WRITE EOR
MEOR    ZRO
        LDX     WBUFF
        LDA     1,2
        MRG     EORBIT
        STA     1,2
        BRM     TWX
        BRR     MEOR
        MIN     MEOR
        BRR     MEOR
* ERASE
MERS    ZRO
        LDA     =T2K
        BRM     MTTR
        EXU     ETTW,2
MERS1   BRM     T1J
        BRR     MERS
* LONG ERASE
MERL    ZRO
        LDA     IORW
        MRG     =2
        STA     IORW
        LDA     MERL
        STA     MERS
        BRU     MERS+1
* WRITE EOF
MEOF    ZRO
        LDA     =T4J
        BRM     MTTR
        EXU     ETTW,2
        EXU     BTTW,2
        BRU     MEOF1           (ERASE IF EOF AT BOT)
        BRM     T4J
        BRR     MEOF
MEOF1   BRM T1J; BRR MEOF
* FORWARD SPACE FILE
```

```
MFSF    ZRO
        LDA     =T5K
        BRM     MTTR
        EXU     ETTW,2
        LDA     =-1
        STA     TXS2
        BRM SFB
        BRR     MFSF
* BACKSPACE FILE
MBSF    ZRO
        LDA     =T6K
MBSP    BRM     MTTR
        EXU     BTTW,2
        LDA     =-2
        STA     TXS2
        BRM SRB
        BRR     MBSF
* BACKSPACE RECORD
MBSR    ZRO
        LDA     MBSR
        STA     MBSF
        LDA     =T1K
        BRU     MBSP
        END
```