```
        IDENT     PCSYSTM
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        ENTRY     P.GETB,P.PUTB,P.GETC,P.PUTC
        ENTRY     P.GETLN,P.PUTLN
        ENTRY     P.OPEN,P.CLOSE
        ENTRY     P.GETS,P.PUTS,P.RESET,P.REWRT,P.RWRTS
        ENTRY     P.TIME,P.CLOCK,P.DATE,P.MSG,P.INIT,P.SABRT
        ENTRY     P.NEW,P.DISP
        ENTRY     P.END,P.MCN

        EXT       F.MAIN




*  EFET FORMAT:
*
*       -13       LINE COUNTER              )
*       -12       CHAR BUFFER (10 WORDS)    )   FOR CHAR FILES ONLY
*        -2       SENTINEL                  )
*        -1       POINTER TO BUFFER ELEMENT
*     EFET        DISP (BITS 51-59), LRL (BITS 0-17)
*                      LRL= PASCAL LOGICAL RECORD LENGTH
*        +1       LFN  BITS 18-59), CODE/STATUS (BITS 0-17)
*        +2       FIRST
*        +3       IN
*        +4       OUT
*        +5       LIMIT
*
*  DISPOSITION FORMAT (6 BITS)
*       59        EOF FOR NON-SEG. FILES, EOS FOR SEG. FILES
*       58        EOF
*       57        0= NON SEG, 1=SEGMENTED
*       55        0= WORDFILE, 1= CHARFILE
*    51-53        DISPOSITION; 0= LOCAL, 1= READ ONLY, 3= READ/WRITE
```

```
              USE        /PASCAL./                                       MSUMEM
STAK.FWA      BSS        0                                               MSUMEM
              USE        *                                               MSUMEM
STAK.LWA      BSS        0                                               MSUMEM
*             P.MON ISUES A MONITOR REQUEST                             SYS
*                                                                       SYS
*             X4 PARAMETER         -> EIT 0 .. 35                       SYS
*             X5 AUTO RECALL FLAG-> EIT 40                              SYS
*             X6 NAME              -> EIT 42 .. 59                      SYS
*                                                                       SYS
*             X5, X6, A5, A6 DESTROIED                                  SYS
*                                                                       SYS
 P.MON        DATA       0                                              SYS
              LX6        42                                             SYS
              LX5        40                                             SYS
              BX6        X6+X5                                          SYS
              BX6        X6+X4                                          SYS
 P.MON1       SA5        B1                                             SYS
              NZ         X5,P.MON1                                      SYS
              SA6        B1                                             SYS
              SA5        668                                            SYS
              PL         X5,P.MON2                                      SYS
              XJ                                                        SYS
 P.MON2       SA5        1                                             SYS
              NZ         X5,P.MON2                                      SYS
              EQ         P.MCN                                          SYS
                                                                       SYS
                                                                       SYS
                                                                       SYS
              IPARAMS                                                   SYS
              IF         -DEF,IP.C63                                    SYS
 IP.C63       EGU        2                                              SYS
              ENDIF                                                     SYS
 IP1          IF         -DEF,IP.CSET                                   SYS
 IP2          IFEQ       1R#,0                                          SYS
 IF2          ELSE                                                      SYS
 IP.CSET      EQU        IP.C63                                         SYS
 IF2          ENDIF                                                     SYS
 IP1          ENDIF                                                     SYS
                                                                       SYS
                                                                       SYS
                                                                       SYS
 P.PPREQ      DATA       0                                              SYS
*             SA5        EFET+1                                         SYS          1
*             SX6        REQUEST CODE                                   SYS          1
              MX4        42                                             SYS          1
              BX4        X5*X4                                          SYS          1
              BX6        X6+X4              LFN+CODE                    SYS          1
              SA6        A5                                             SYS          1
              SX6        3RCIO                                          SYS          1
              SX5        B1                                             SYS          1
              SX4        A5                                             SYS          1
              RJ         P.MON                                          SYS          1
              SA5        X4                 RESTORE A5 FRCM X4 = FET ADDR.  SYS       1
              EQ         P.PPREQ                                        SYS          1
```

```
 P.GETB    DATA      0                                              000003    SYS      1:
 *         SA1       EFET                                                     SYS      1:
           NG        X1,EOFERR                                               SYS      1:
           SA3       A1+4                 X3= OUT                            SYS      1:
           SX1       X1                   X1= LRL                            SYS      1:
           IX7       X3+X1                OUT+LRL                            SYS      1:
           SA7       A1-B1                P                                  SYS      1:
           SA7       A3                                                      SYS      1:
           SA4       A3+B1                X4=LIMIT                           SYS      1:
           SX4       X4                                                      SYS      1:
           BX0       X7-X4                                                   SYS      1:
           NZ        X0,GB2                                                  SYS      1:
           SA4       A1+2                 X4= FIRST                          SYS      1:
           SX7       X4                                                      SYS      1:
           SA7       A3                   X7= OUT                            SYS      1:
           SA7       A1-B1                P                                  SYS      1:
 GB2       SA2       A3-B1                IN                                 SYS      1:
           IX0       X2-X7                IN-OUT                             SYS      1:
           NG        X0,P.GETB            RETURN, IF IN LT OUT               SYS      1:
           IX0       X0-X1                (IN-OUT)-LRL                       SYS      1:
           PL        X0,P.GETB            RETURN, IF (IN-OUT) GE LRL         SYS      1:
           SA5       A1+B1                LFN                                SYS      1:
           SX0       30B                                                     SYS      1:
           BX0       X0*X5                                                   SYS      1:
           BX6       X5-X0                                                   SYS      1:
           LX0       55                                                      SYS      1:
           PL        X0,GB5                                                  SYS      1:
           SA6       A5                                                      SYS      1:
           SA2       A1                                                      SYS      1:
           LX2       2                                                       SYS      1:
           NG        X2,GB4         .     JUMP IF SEGMENTED                  SYS      1:
           LX0       1                                                       SYS      1:
           AX0       1                                                       SYS      1:
 GB4       LX2       58                                                      SYS      1:
           BX6       X0+X2                                                   SYS      1:
           SA6       A1                                                      SYS      1:
           NG        X6,P.GETB            EOF EXIT                           SYS      1:
 GB5       SX6       12B                                                     SYS      1:
           RJ        P.PPREQ                                                 SYS      1:
           EQ        GB2                                                     SYS      1:
                                                                            SYS      1:
 EOFERR    SA1       P.GETB                                                  SYS      1:
           SX0       EOFMSG                                                  SYS      1:
           EQ        P.SABRT                                                 SYS      1:
```

```
P.PUTB     DATA       0                                                 000004   SYS      1
*  P.PUTB IS SUPPOSED NOT TO CHANGE A0                                           SYS      1
*          SA1        EFET                                                       SYS      1
           PL         X1,WRERR1           NOT EOS/EOF                            SYS      1
           SA2        A1+3                X2=IN                                  SYS      1
           SX1        X1                  X1=LRL                                 SYS      1
           SA3        A2+B1               X3=OUT                                 SYS      1
           IX7        X2+X1                                                      SYS      1
           SA4        A3+B1                                                      SYS      1
           SX4        X4                  X4=LIMIT                               SYS      1
           BX0        X7-X4                                                      SYS      1
           NZ         X0,PB1                                                     SYS      1
           SA5        A2-B1               X5=..., FIRST                          SYS      1
           SX7        X5                                                         SYS      1
PB1        SA7        A1-B1               P                                      SYS      1
           SA7        A2                  IN                                     SYS      1
           IX2        X3-X7               OUT-IN                                 SYS      1
           NG         X2,PB2              JUMP IF OUT LT IN                      SYS      1
           IX0        X1-X2               LRL-(OUT-IN)                           SYS      1
           NG         X0,P.PUTB           JUMP IF (OUT-IN) GT LRL                SYS      1
           EQ         PB3                                                        SYS      1
*                                                                               SYS      1
PB2        IX0        X7+X1               IN+LRL                                 SYS      1
           IX0        X0-X4               (IN+LRL)-LIMIT                         SYS      1
           NZ         X0,P.PUTB                                                  SYS      1
           SA5        A2-B1                                                      SYS      1
           SX5        X5                  X5= FIRST                              SYS      1
           IX0        X3-X5               OUT-FIRST                              SYS      1
           NZ         X0,P.PUTB                                                  SYS      1
PB3        SA5        A1+1                WRITE BUFFER, LFN                      SYS      1
           SX6        16B                                                        SYS      1
           RJ         P.PPREQ             WRITE REQ                              SYS      1
           EQ         P.PUTB                                                     SYS      1
                                                                                SYS      1
WRERR1     SA1        P.PUTB                                                     SYS      1
           SX0        WRMSG                                                      SYS      1
           EQ         P.SABRT                                                    SYS      1
```

```
  P.GETC    DATA      0                    GET FOR TEXTFILES                          SYS     1
+           SA1       EFET-1                                      000005              SYS     1
            NG        X1,GC1                                                          SYS     1
            SX6       X1+B1                                                           SYS     1
            SA6       A1                                                              SYS     2
            SA2       X6                                                              SYS     2
            PL        X2,P.GETC                                                       SYS     2
            ZR        X2,GC1                                                          SYS     2
            BX6       X6+X2                                                           SYS     2
            SA6       A1                   SET EOLN BIT                               SYS     2
            SX6       55B                                                             SYS     2
            SA6       A2                   SET BUFFER ELEMENT TO BLANK                SYS     2
            EQ        P.GETC                                                          SYS     2
                                                                                      SYS     2
  GC1       SA1       A1+B1                CHAR BUF EMPTY                             SYS     2
            RJ        P.GETB                                                          SYS     2
            SA2       A1                                                              SYS     2
            SA1       A2-B1                P                                          SYS     2
            NG        X2,GC4               EOF/S                                      SYS     2
            SA2       X1                                                              SYS     2
            MX0       54                                                              SYS     2
            ZR        X2,GC5                                                          SYS     2
  GC2       LX2       6                    UNPACK                                     SYS     2
            BX6       -X0*X2                                                          SYS     2
            SA6       A1-11                                                           SYS     2
            DUP       7,3                                                             SYS     2
            LX2       6                                                               SYS     2
            BX6       -X0*X2                                                          SYS     2
            SA6       A6+B1                                                           SYS     2
            MX6       12                                                              SYS     2
            BX6       X6*X2                                                           SYS     2
            ZR        X6,GC3                                                          SYS     2
            LX2       6                                                               SYS     2
            BX6       -X0*X2                                                          SYS     2
            SA6       A6+B1                                                           SYS     2
            LX2       6                                                               SYS     2
            BX6       -X0*X2                                                          SYS     2
            IFEQ      IP.CSET,IP.C63                                                  SYS     2
            NZ        X6,GC2.1                                                        SYS     2
            SX6       1R                                                              SYS     2
  GC2.1     BSS       0                                                               SYS     2
            ENDIF                                                                     SYS     2
            SA6       A6+B1                                                           SYS     2
            SX6       A1-11                                                           SYS     2
            SA6       A1                   P                                          SYS     2
            EQ        P.GETC                                                          SYS     2
                                                                                      SYS     2
  GC3       SA2       A6                   EOL                                        SYS     2
            NZ        X2,GC31                                                         SYS     2
+           SA2       A2-B1                                                           SYS     2
            ZR        X2,*                                                            SYS     2
  GC31      MX6       1                                                               SYS     2
            SA6       A2+B1                SET EOL-SENTINEL                           SYS     2
            SX6       A1-11                                                           SYS     2
            SA6       A1                   P                                          SYS     2
            EQ        P.GETC                                                          SYS     2
                                                                                      SYS     2
  GC4       SX6       B0                   EOF                                        SYS     2
            SA6       A1-2                 CLEAR CHAR BUF                             SYS     2
            DUP       8,1                                                             SYS     2
            SA6       A6-B1                                                           SYS     2
            SX6       A6-B1                                                           SYS     2
            SX7       1R                                                              SYS     2
            SA7       A6-B1                                                           SYS     2
            MX0       1                                                               SYS     2
            BX6       X6+X0                                                           SYS     2
            SA6       A1                                                              SYS     2
            EQ        P.GETC                                                          SYS     2
                                                                                      SYS     2
  GC5       NG        X2,GC2                                                          SYS     2
            SX6       1R                                                              SYS     2
            SA6       A1-11                SET BUFFER ELEMENT TO BLANK                SYS     2
            SX0       A6                                                              SYS     2
            MX6       1                                                               SYS     2
            BX6       X6+X0                                                           SYS     2
            SA6       A1                   SET EOLN BIT                               SYS     2
            EQ        P.GETC                                                          SYS     2
                                                                                      SYS     2
```

```
P.GETLN   DATA      0
          SA1       EFET-1
          NG        X1,GL4
          SB7       X1+1
GL1       SA2       B7
          SB7       B7+B1
          PL        X2,GL1
          NZ        X2,GL3        EOL FOUND IN SAME WORD
GL2       SA1       A1+B1
          RJ        P.GETB
          SA1       A1-B1         P
          SA2       X1
          MX0       48
          BX2       -X0*X2
          NZ        X2,GL2
GL3       MX6       1
          SA6       A1
          SA1       A6
GL4       RJ        P.GETC
          EQ        P.GETLN
```

```
P.GETLN   DATA      0
          SA1       EFET-1
          NG        X1,GL4
          SB7       X1+1
```

```
.P.PUTC    DATA      0                    PUT FOR TEXTFILES                      SYS
*          SA1       EFET-1               UPON EXIT: A1 = EFET - 1               SYS
           PL        X1,WRERR2                                                   SYS
           SX0       B1                                                          SYS
           IX6       X1+X0                                                       SYS
           SA6       A1                                          000007          SYS
           SA2       X6                                                          SYS
           PL        X2,P.PUTC                                                   SYS
           MX0       54                   CHAR BUF FULL                          SYS
           SA2       A1-11                PACK                                   SYS
           BX6       -X0*X2                                                      SYS
           DUP       9,4                                                         SYS
           SA2       A2+B1                                                       SYS
           LX6       6                                                           SYS
           BX2       -X0*X2                                                      SYS
           BX6       X6+X2                                                       SYS
           SA2       A1+4                 IN                                     SYS
           SA6       X2                                                          SYS
           SA1       A1+B1                                                       SYS
           RJ        P.PUTB                                                      SYS
           SA1       A1-B1                                                       SYS
           SX6       A1-11                                                       SYS
           MX0       1                                                           SYS
           BX6       X6+X0                                                       SYS
           SA6       A1                   P                                      SYS
           EQ        P.PUTC                                                      SYS
                                                                                SYS
WRERR2     SA1       P.PUTC                                                      SYS
           SX0       WRMSG                                                       SYS
           EQ        P.SABRT                                                     SYS
                                                                                SYS
                                                                                SYS
                                                                                SYS
.P.PUTLN   DATA      0                    UPON EXIT: A1 = EFET - 1               SYS
*          SA1       EFET-1               AT LINE END, BLANKS ARE APPENDED       SYS
           PL        X1,WRERR4                                                   SYS
           SB7       A1-11                1. IF LAST CHAR WAS COLON              SYS
           SB3       X1                   2. IF NO OF CHARS <> 8, 18, 28, ...    SYS
           SX6       B0                                                          SYS
           EQ        B3,B7,PL3.1          EMPTY CHAR BUFFER                      SYS
PL1        MX0       54                                                         SYS
           LX6       6                    PACK                                   SYS
           SA2       B7                                                          SYS
           SB7       B7+B1                                                       SYS
           BX2       -X0*X2                                                      SYS
           BX6       X6+X2                                                       SYS
           LT        B7,B3,PL1                                                   SYS
           SB3       A1-3                                                        SYS
           LT        B7,B3,PL4            FILL WORD IF LESS THAN 8 CHARS         SYS
           LT        B3,B7,PL2            APPEND ONE BLANK IF 9 CHARS            SYS
           IFEQ      IP.CSET,IP.C63                                             SYS
           SX2       X2-1R:                                                      SYS
           ENDIF                                                                SYS
           LX6       12                                                         SYS
           NZ        X2,PL5                                                      SYS
           SX0       2R                                                         SYS
           BX6       X0+X6                                                      SYS
           EQ        PL3                                                        SYS
                                                                                SYS
PL2        SX0       1R                                                        SYS
           LX6       6                                                         SYS
PL3        BX6       X6+X0                APPEND A BLANK IN POSITION 10          SYS
           SA2       A1+4                 IN                                     SYS
           SA6       X2                                                         SYS
           SA1       A1+B1                                                      SYS
           RJ        P.PUTB                                                     SYS
           SA1       A1-B1                                                      SYS
PL3.1      SA5       LINEEND                                                    SYS
           BX6       X5                                                         SYS
           EQ        PL5                                                        SYS
                                                                                SYS
PL4        SX0       1R                                                        SYS
PL4.1      LX6       6                                                         SYS
           SB7       B7+1                                                       SYS
           BX6       X6+X0                                                      SYS
           LT        B7,B3,PL4.1                                                SYS
           LX6       12                                                         SYS
```

```
PL5         SA2     A1+4            IN                                  - 000008  SYS      3
            SA6     X2                                                            SYS      3
            SA1     A1+B1                                                         SYS      3
            RJ      P.PUTB                                                        SYS      3
            SA1     A1-B1                                                         SYS      3
            SX6     A1-11                                                         SYS      3
            MX0     1                                                             SYS      3
            BX6     X6+X0                                                         SYS      3
            SA6     A1                                                            SYS      3
            SA3     A1-12           LNCNT                                         SYS      3
            ZR      X3,LINERR                                                     SYS      3
            SX7     X3-1                                                          SYS      3
            SA7     A3                                                            SYS      3
            SA3     A1+3            -FIRST- AND -DEVICE TYPE- WORD                MSUDEVT
            MX0     6                                                             MSUDEVT
            BX3     X0*X3                                                         MSUDEVT
            LX3     6                                                             MSUDEVT
            SX0     X3-61B          IS DEVICE TYPE = CONNECTED FILE               MSUDEVT
            NZ      X0,P.PUTLN                                                    MSUDEVT
            SA5     A1+2            FET                                           MSUDEVT
            SX6     26B             WRITER CODE                                   MSUDEVT
            RJ      P.PPREQ         ISSUE WRITER REQUEST                          MSUDEVT
            EQ      P.PUTLN                                                       SYS      3
                                                                                 SYS      3
LINERR      SX0     LINEMSG                                                       SYS      3
            EQ      PUTLERR                                                       SYS      3
                                                                                 SYS      3
WRERR4      SX0     WRMSG                                                         SYS      3
PUTLERR     SA1     P.PUTLN                                                       SYS      3
            EQ      P.SABRT                                                       SYS      3
```

```
 SETWR      DATA      0                      SET EFET TO WRITE STATUS          SYS    3c
*           SA1       EFET                                                     SYS    3c
            SA2       A1+2                   FIRST              000009         SYS    4(
            SX6       X2                                                       SYS    4(
            SA6       A2+B1                  IN = FIRST                        SYS    4(
            SA6       A6+B1                  OUT = FIRST                       SYS    4(
            MX7       2                                                        SYS    4(
            BX7       X7+X1                                                    SYS    4(
            SA7       A1                                                       SYS    4(
            LX7       4                                                        SYS    4(
            PL        X7,SW2                 JUMP IF BINARY                    SYS    4(
            SX6       B0                                                       SYS    4(
            SB7       -10                                                      SYS    4:
            SX2       A1-2                                                     SYS    4:
 SW1        SA6       X2+B7                  CLEAR BUFFER                      SYS    4:
            SB7       B7+B1                                                    SYS    4:
            NE        B7,B0,SW1                                                SYS    4:
            MX0       1                                                        SYS    4:
            SX6       A1-12                                                    SYS    4:
            BX6       X6+X0                                                    SYS    4:
 SW2        SA6       A1-1                   P                                 SYS    4:
            EQ        SETWR                                                    SYS    4:
                                                                              SYS    4:
 SETRD      DATA      0                      SET EFET TO READ STATUS AND LOAD BUFF SYS  4:
*           SA1       EFET                                                     SYS    4:
            SX6       X1                     LRL                               SYS    4:
            SA2       A1+2                   FIRST                             SYS    4:
            SX7       X2                                                       SYS    4:
            IX6       X6+X7                                                    SYS    4:
            SA6       A2+B1                  IN = FIRST+LRL                    SYS    4:
            SA7       A6+B1                  OUT = FIRST                       SYS    4:
            MX6       2                                                        SYS    4:
            BX6       -X6*X1                                                   SYS    4:
            SA6       A1                                                       SYS    4:
            BX1       X6                                                       SYS    4:
            LX6       4                                                        SYS    4:
            PL        X6,SR1                                                   SYS    4:
            SX6       A1-3                   LAST CHAR                         SYS    4:
            SA6       A1-B1                  P                                 SYS    4:
            SA1       A6                                                       SYS    4:
            RJ        P.GETC                                                   SYS    4:
            SA1       A1+B1                                                    SYS    4:
            EQ        SETRD                                                    SYS    4:
                                                                              SYS    4:
 SR1        RJ        P.GETB                                                   SYS    4:
            EQ        SETRD                                                    SYS    4:
```

```
 CLEAR     DATA      0              CLEAR FILE BUFFER          000010  SYS    4
*          SA1       EFET                                              SYS    4
           BX0       X1                                                SYS    4
           LX0       4                                                 SYS    4
           PL        X0,CL1         JUMP IF BIN                        SYS    4
           SA2       A1-B1          P                                  SYS    4
           SX2       X2                                                SYS    4
           SX0       A1-12                                             SYS    4
           IX0       X2-X0                                             SYS    4
           ZR        X0,CL1                                            SYS    4
           SA1       A1-B1                                             SYS    4
 CL0       RJ        P.PUTLN        CLEAR CHAR BUF                     SYS    4
           SA1       A1+B1                                             SYS    4
 CL1       SA5       A1+1                                              SYS    4
           SX6       26B                                               SYS    4
           RJ        P.PPREQ                                           SYS    4
           EQ        CLEAR                                             SYS    4
                                                                      SYS    4
 CCLEAR    DATA      0              CLEAR BUFF IF ECF AND BUFF NOT EMPTY SYS  4
*          SA1       EFET                                              SYS    4
           PL        X1,CCLEAR      EXIT IF NOT ECF/S                  SYS    4
           BX0       X1                                                SYS    4
           LX0       4                                                 SYS    4
           PL        X0,CLR0        JUMP IF NOT CHARFILE               SYS    4
           SA2       A1-B1          P                                  SYS    4
           SX2       X2                                                SYS    4
           SX0       A1-12          TOP                                SYS    4
           IX0       X2-X0                                             SYS    4
           NZ        X0,CLR1        JUMP IF NOT EMPTY                  SYS    4
 CLR0      SA2       A1+3           IN                                 SYS    4
           SA3       A2+B1          OUT                                SYS    4
           BX0       X2-X3                                             SYS    4
           ZR        X0,CCLEAR      EXIT IF EMPTY                      SYS    4
                                                                      SYS    4
 CLR1      RJ        CLEAR                                             SYS    4
           EQ        CCLEAR                                            SYS    4
```

```
 SKIP      DATA      0                SKIP LOGICAL RECORDS                    SYS      4
*          SA1       EFET                                                     SYS      4
*          SX2       I                                    000011              SYS      4
           SX0       20B                                                      SYS      4
           NG        X1,SK1           EOS                                     SYS      4
           SA5       A1+B1            STATUS                                   SYS      4
           BX0       X0*X5                                                    SYS      4
           BX6       X5-X0                                                    SYS      4
           SA6       A5               RESET ECF/EOR                           SYS      4
                                                                              SYS      4
 SK1       NG        X2,SK3                                                   SYS      4
           ZR        X2,SK3                                                   SYS      4
           SX6       242B             SKIPF                                   SYS      4
           ZR        X0,SK2                                                   SYS      4
           SX2       X2-1                                                     SYS      4
           ZR        X2,SKIP                                                  SYS      4
                                                                              SYS      4
 SK2       SA5       A1+B1            LFN (+ STATUS)                          SYS      4
           MX4       42                                                       SYS      5
           BX5       X4*X5                                                    SYS      5
           BX6       X5+X6                                                    SYS      5
           SA6       A1+B1                                                    SYS      5
           SX4       A1+B1            FET-ADDRESS                             SYS      5
           LX2       18               SKIP COUNT                             SYS      5
           BX4       X2+X4                                                    SYS      5
           SX5       1                AUTO RECALL FLAG                       SYS      5
           SX6       3RCIO                                                    SYS      5
           RJ        P.MON                                                    SYS      5
           SA5       A1+B1            X5 = FET                               SYS      5
           SX0       30B                                                      SYS      5
           BX6       -X0*X5           CLEAR EOR/ECF-BITS                      SYS      5
           SA6       A5                                                       SYS      5
           EQ        SKIP                                                     SYS      5
                                                                              SYS      5
 SK3       LX1       1                                                        SYS      5
           BX0       X0-X0                                                    SYS      5
           SX6       642B             SKIPB                                   SYS      5
           NG        X1,SK4                                                   SYS      5
           SX0       1                                                        SYS      5
 SK4       IX2       X0-X2                                                    SYS      5
           LX1       59               RESET X1                               SYS      5
           EQ        SK2                                                      SYS      5
```

```
 P.OPEN    DATA    0                  CALLED TO INITIALISE EXTENDED FET    SYS    5
*          SA0     EFET                                                    SYS    5
*          SX1     DISP                                    000012          SYS    5
*          SA2     LFN                                                     SYS    5
*          SX3     BUFLGTH                                                 SYS    5
*          SX6     RECORDLGTH                                              SYS    5
*          SX7     BUFADR                                                  SYS    5
           SA7     A0-B1              P                                    SYS    5
           SX5     3                  SET FET LENGTH AT 3 EXTRA WORDS      MSUDEVT
           LX5     18                 LENGTH OF THE FET                    SYS    5
           BX7     X7+X5                                                   SYS    5
           SA7     A0+2               FIRST                                SYS    5
           SX7     X7                 MASK OFF LENGTH                      SYS    5
           SA7     A7+B1              IN                                   SYS    5
           SA7     A7+B1              OUT                                  SYS    5
           IX7     X7+X3                                                   SYS    5
           MX0     42                                                     SYS    5
           SA7     A7+B1                                                   SYS    5
           BX7     X7-X7                                                   SYS    5
           SA7     A7+B1                                                   SYS    5
           SA7     A7+B1                                                   SYS    5
           SA7     A7+B1                                                   SYS    5
           BX7     X0*X2                                                   SYS    5
           MX0     59                                                     SYS    5
           BX7     -X0+X7             SET CIO COMPLETION BIT               SYS    5
           SA7     A0+B1              LFN                                  SYS    5
           SX0     600B               EOF/EOS BITS                         SYS    5
           BX1     X1+X0                                                   SYS    5
           LX1     55                                                     SYS    5
           PL      X1,OPN2            JUMP IF NOT CHAR                     SYS    5
           MX7     60                 -0                                   SYS    5
           SA7     A0-2                                                    SYS    5
           MX7     59                 -1                                   SYS    5
           SA7     A0-13              LINE COUNT                           SYS    5
           SX7     A7+B1                                                   SYS    5
           MX0     1                                                      SYS    5
           BX7     X7+X0                                                   SYS    5
           SA7     A0-B1              P                                    SYS    5
           SX7     B0                 CLEAR BUFFER                         SYS    5
           SB7     -10                                                     SYS    5
           SX2     A7-B1                                                   SYS    5
 OPN1      SA7     X2+B7                                                   SYS    5
           SB7     B7+B1                                                   SYS    5
           NE      B7,B0,OPN1                                              SYS    5
 OPN2      LX1     56                                                     SYS    5
           BX6     X6+X1                                                   SYS    5
           SA6     A0                 EFET                                 SYS    5
           SA5     A0+B1              LFN                                  SYS    5
           SX6     102B               OPEN,READ,NO REWIND,BINARY MODE      MSUNREW
           RJ      P.PPREQ                                                 SYS    5
           EQ      P.OPEN                                                  SYS    5
                                                                          SYS    5
                                                                          SYS    5
 P.CLOSE   DATA    0                  CALLED AT BLOCK EXIT                 SYS    5
*          SA1     EFET                                                    SYS    5
           BX0     X1                                                     SYS    6
           LX0     8                                                      SYS    6
           NG      X0,CLS1                                                 SYS    6
           SX6     172B                                                    SYS    6
           SA5     A1+1                                                    SYS    6
           RJ      P.PPREQ                                                 SYS    6
           EQ      P.CLOSE                                                 SYS    6
 CLS1      RJ      CCLEAR                                                  SYS    6
           EQ      P.CLOSE                                                 SYS    6
```

```
  P.RESET   DATA      0                                                      SYS      6
*           SA1       EFET                                                   SYS      6
            SA2       INP                                                    SYS      6
            SA3       A1+B1                                    000013        SYS      6
            MX0       42                                                     SYS      6
            BX0       X0*X3                                                  SYS      6
            BX2       X0-X2                                                  SYS      6
            ZR        X2,P.RESET                                             SYS      6
            SA2       A2+B1                                                  SYS      6
            BX2       X0-X2                                                  SYS      6
            ZR        X2,P.RESET                                             SYS      6
            RJ        CCLEAR                                                 SYS      6
            SA5       A1+1                                                   SYS      6
            SX6       52B                                                    SYS      6
            RJ        P.PPREQ            REWIND                              SYS      6
            SA5       A1+B1              STATUS                              SYS      6
            SX0       30B                                                    SYS      6
            BX6       -X0*X5             CLEAR EOR/EOF-BITS                  SYS      6
            SA6       A5                                                     SYS      6
            RJ        SETRD              SET FET TO READ STATUS             SYS      6
            EQ        P.RESET                                                SYS      6
                                                                            SYS      6
  P.REWRT   DATA      0                                                      SYS      6
*           SA1       EFET                                                   SYS      6
            SA5       A1+B1                                                  SYS      6
            SA2       INP                                                    SYS      6
            MX0       42                                                     SYS      6
            BX0       X0*X5                                                  SYS      6
            BX2       X0-X2                                                  SYS      6
            ZR        X2,P.REWRT                                             SYS      6
            SA2       A2+B1                                                  SYS      6
            BX2       X0-X2                                                  SYS      6
            ZR        X2,P.REWRT                                             SYS      6
            SX6       52B                                                    SYS      6
            RJ        P.PPREQ            REWIND                              SYS      6
            RJ        SETWR                                                  SYS      6
            EQ        P.REWRT                                                SYS      6
                                                                            SYS      6
  P.RWRTS   DATA      0                                                      SYS      6
*           SA1       EFET                                                   SYS      6
*           SX2       I                                                      SYS      6
            RJ        SKIP                                                   SYS      6
            RJ        SETWR                                                  SYS      6
            EQ        P.RWRTS                                                SYS      6
                                                                            SYS      6
  P.GETS    DATA      0                                                      SYS      6
*           SA1       EFET                                                   SYS      6
*           SX2       I                                                      SYS      6
            RJ        SKIP                                                   SYS      6
            RJ        SETRD                                                  SYS      6
            EQ        P.GETS                                                 SYS      6
                                                                            SYS      6
  P.PUTS    DATA      0                                                      SYS      6
*           SA1       EFET                                                   SYS      6
            PL        X1,WRERR3                                              SYS      6
            RJ        CLEAR                                                  SYS      6
            EQ        P.PUTS                                                 SYS      6
                                                                            SYS      6
  WRERR3    SA1       P.PUTS                                                 SYS      6
            SX0       WRMSG                                                  SYS      6
            EQ        P.SABRT                                                SYS      6
```

```
 TIMEREQ   DATA       0                                                  SYS      6
*          SX2        I                                    000014        SYS      6
*   I= 0   X6 != CLOCK (MSEC)                                            SYS      6
*       1   X6 != DATE                                                   SYS      6
*       2   X6 != TIME (ALFA)                                            SYS      6
*                                                                        SYS      6
           SX7        B0                                                 SYS      6
           SA7        TIME.ANS        CLEAR ANSWER WORD                  SYS      6
           LX2        24                                                 SYS      6
           SX4        A7                                                 SYS      6
           BX4        X4+X2                                              SYS      6
           SX5        0                                                  SYS      6
           SX6        3RTIM                                              SYS      6
           RJ         P.MON                                              SYS      6
           SA2        A7                                                 SYS      6
           BX6        X2                                                 SYS      6
           EQ         TIMEREQ                                            SYS      6
                                                                        SYS      6
 P.CLOCK   DATA       0                                                  SYS      6
           SX2        B0                                                 SYS      6
           RJ         TIMEREQ                                            SYS      6
           MX2        24                                                 SYS      6
           BX6        -X2*X6          MASK OUT TIMELIMIT                 SYS      6
           MX2        48                                                 SYS      6
           BX2        -X2*X6          SEC                                SYS      6
           AX6        12              MSEC                               SYS      6
           SX0        1000                                               SYS      6
           IX6        X0*X6                                              SYS      7
           IX6        X6+X2                                              SYS      7
           EQ         F.CLOCK                                            SYS      7
                                                                        SYS      7
 P.DATE    DATA       0                                                  SYS      7
*          SX1        VARADDR                                            SYS      7
           SX2        B1                                                 SYS      7
           RJ         TIMEREQ                                            SYS      7
           SA6        X1                                                 SYS      7
           EQ         P.DATE                                             SYS      7
                                                                        SYS      7
 P.TIME    DATA       0                                                  SYS      7
*          SX1        VARADDR                                            SYS      7
           SX2        B1+B1                                              SYS      7
           RJ         TIMEREQ                                            SYS      7
           SA6        X1                                                 SYS      7
           EQ         P.TIME                                             SYS      7
```

```
P.MSG      DATA       0                                              SYS    7:
*          SX1        ADDR MSG                                       SYS    7:
*          SX2        LENGTH OF MSG (CHAR)                  000015   SYS    7:
           SA1        X1                                             SYS    7:
           BX2        -X2                                            SYS    7:
           SX0        X2+40                                          SYS    7:
           PL         X0,MSG1                                        SYS    7:
           SX2        -40                                            SYS    7:
MSG1       BX6        X1                                             SYS    7:
           SA6        MSG0                                           SYS    7:
MSG2       SX2        X2+10                                          SYS    7:
           PL         X2,MSG3                                        SYS    7:
           SA1        A1+B1                                          SYS    7:
           BX6        X1                                             SYS    7:
           SA6        A6+B1                                          SYS    7:
           EQ         MSG2                                           SYS    7:
                                                                     SYS    7:
MSG3       ZR         X2,MSG4                                        SYS    7:
           LX2        1                                              SYS    7:
           BX0        X2                                             SYS    7:
           LX0        1                                              SYS    7:
           IX2        X0+X2                                          SYS    7:
           SB7        X2-60             X2 < 0                       SYS    7:
           MX0        1                                              SYS    7:
           LX0        B7,X0                                          SYS    7:
           BX6        X6*X0                                          SYS    7:
           SA6        A6                                             SYS    7:
MSG4       SX6        B0                                             SYS    7:
           SA6        A6+B1                                          SYS    7:
           SA1        MSGP                                           SYS    7:
           MX0        30                                             SYS    7:
           BX6        X1*X0                                          SYS    7:
           SA6        A1                                             SYS    7:
           SX5        B1                                             SYS    7:
           SX6        3RMSG                                          SYS    7:
           SX4        MSGP                                           SYS    7:
           RJ         P.MON                                          SYS    7:
           EQ         P.MSG                                          SYS    7:
```

```
*                                                               000016    SYS   7
P.NEW      DATA       0                                                   SYS   7
*          SX1        AODR. OF POINTER                                    SYS   7
*          SB7        SIZE IN WORDS                                       SYS   7
           SA2        P.FREE          THIS := FREELIST                    SYS   7
           MX0        42                                                  SYS   7
NEW1       SA3        A2              LAST := THIS                        SYS   7
           SA2        X3              THIS := THIS↑.N                     SYS   7
           SX4        A2                                                  SYS   7
           AX2        18                                                  SYS   7
           SB3        X2              THIS↑.L                             SYS   7
           ZR         X4,NEW3         IF THIS = 0                         SYS   7
           LT         B3,B7,NEW1      IF THIS↑.L < L                      SYS   7
           EQ         B3,B7,NEW2      IF THIS↑.L = L                      SYS   7
           SX5        B7              L                                   SYS   7
           SA2        A2                                                  SYS   7
           LX5        18                                                  SYS   7
           IX7        X2-X5                                               SYS   7
           SA7        A2              THIS↑.L := THIS↑.L - L              SYS   7
           SB3        B3-B7                                               SYS   7
           SX6        A2+B3           THIS := THIS + THIS↑.L              SYS   7
           SA6        X1              P := THIS                           SYS   7
           EQ         P.NEW                                               SYS   7
NEW2       SA5        A2                                                  SYS   7
           BX3        X0*X3                                               SYS   7
           SX5        X5                                                  SYS   7
           IX7        X3+X5           LAST↑.N := THIS↑.N                  SYS   7
           SA7        A3                                                  SYS   7
           SX6        A2                                                  SYS   7
           SA6        X1+             P := THIS                           SYS   7
           EQ         P.NEW                                               SYS   7
NEW3       BSS        0                                                   SYS   7
           SB4        B4-B7                                               SYS   7
           SX6        B4                                                  SYS   7
           SB3        B4-100                                              SYS   7
           GE         B6,B3,OVLERR                                        SYS   7
           SA6        X1+                                                 SYS   7
           EQ         P.NEW                                               SYS   7
*                                                                         SYS   7
 OVLERR    SA1        F.NEW                                               SYS   7
           SX0        OVFLMSG                                             SYS   7
           SB4        B4+B7                                               SYS   7
           EQ         P.SABRT                                             SYS   7
                                                                          SYS   8
                                                                          SYS   8
                                                                          SYS   8
P.DISP     DATA       0                                                   SYS   8
*          SX1        AODR. OF POINTER                                    SYS   8
*          SB7        SIZE IN WORDS                                       SYS   8
           SA5        P.FL                                                SYS   8
           SB3        X1                                                  SYS   8
           SA1        X1                                                  SYS   8
           SX7        X1+B7           T1 := P + L                         SYS   8
           SX6        B7                                                  SYS   8
           IX6        X1+X6                                               SYS   8
           SX3        B4                                                  SYS   8
           IX6        X5-X6           FL - (P+L)                          SYS   8
           IX2        X1-X3           P - (TCP OF RTHP)                   SYS   8
           BX6        X6+X2                                               SYS   8
           PL         X6,DISP0        IF NODE IS IN RTHP                  SYS   8
                                                                          SYS   8
           SA1        P.DISP                                              SYS   8
           SX0        BPVMSG                                              SYS   8
           EQ         P.SABRT                                             SYS   8
                                                                          SYS   8
DISP0      ZR         B7,DISP7        IF L = 0                            SYS   8
           SA2        P.FREE          THIS := FREELIST                    SYS   8
           SX7        X1+B7           T1 := P + L                         SYS   8
DISP1      SA3        A2              LAST := THIS                        SYS   8
           SA2        X2              THIS := THIS↑.N                     SYS   8
           SX4        A2              THIS                                SYS   8
           IX5        X7-X4           T1 - THIS                           SYS   8
           NG         X5,DISP1        IF THIS > T1                        SYS   8
           ZR         X4,DISP5        IF THIS = 0                         SYS   8
DISP2      SA0        X2              THIS↑.N                             SYS   8
           AX2        18              THIS↑.L                             SYS   8
           IX5        X4+X2           T2 := THIS + THIS↑.L                SYS   8
```

```
         IX2     X5-X1           T2 - P                        SYS      8
         NG      X2,DISP5        IF P > T2                     SYS      8
         IX6     X4-X1           THIS - P            000017    SYS      8
         PL      X6,DISP3        IF F <= THIS                  SYS      8
         SX1     X4              P := MIN(F,THIS)              SYS      8
DISP3    IX6     X7-X5           T1 - T2                       SYS      8
         PL      X6,DISP4        IF T1 >= T2                   SYS      8
         BX7     X5              T1 := MAX(T1,T2)              SYS      8
DISP4    SA2     A0              THIS := THIS↑.N               SYS      8
         SX4     A2                                            SYS      8
         EQ      DISP2                                         SYS      8
DISP5    SB7     X1                                            SYS      8
         GT      B7,B4,DISP6     IF P > (TOP OF RTHP)          SYS      8
         SB4     X7              (TOP OF RTHP) := T1           SYS      8
         SX5     X3                                            SYS      8
         BX6     X3-X5           LAST↑.N := 0                  SYS      8
         SA6     A3                                            SYS      8
         EQ      DISP7                                         SYS      8
DISP6    IX7     X7-X1           P↑.L := T1 - P                SYS      8
         LX7     18                                            SYS      8
         BX7     X7+X4           P↑.N := THIS                  SYS      8
         SA7     X1                                            SYS      8
         SX5     X3                                            SYS      8
         BX3     X3-X5                                         SYS      8
         IX6     X3+X1           LAST↑.N := P                  SYS      8
         SA6     A3                                            SYS      8
DISP7    BSS     0                                             SYS      8
         SX6     NIL                                           SYS      8
         SA6     B3+                                           SYS      8
         EQ      P.DISP                                        SYS      8
                                                               SYS      8
                                                               SYS      8
```

```
         IX2     X5-X1           T2 - P                        SYS      8
         NG      X2,DISP5        IF P > T2                     SYS      8
         IX6     X4-X1           THIS - P                      SYS      8
         PL      X6,DISP3        IF F <= THIS                  SYS      8
         SX1     X4              P := MIN(F,THIS)              SYS      8
```

```
* P.INIT INITIALIZES B1,B2,B4,B5 AND STARTS RPV          SYS      8
* B7 = NUMBER OF FORMAL PARAMETERS               000018   SYS      8
*                                                         SYS
  P.INIT    DATA      0                                   SYS
            SA1       64B                                 SYS
            SB3       X1                 B3 = NUMBER OF PARAMETERS       SYS
            BX6       )6-X6                              SYS
            SA6       57B                INIT TRAP LOCATION TO 0         SYS
            SB1       1                  INIT B1 TO 1                    SYS
            LT        B7,B3,PARERR                        SYS
            EQ        B7,B3,P.INIT2                       SYS
  P.INIT1   SA6       B7+B1                               SYS
            SB7       B7-B1                               SYS
            GT        B7,B3,P.INIT1                       SYS
  P.INIT2   EQ        B7,B0,P.INIT4                       SYS
            MX0       42                                  SYS
  P.INIT3   SA1       B7+B1                               SYS
            BX6       X0*X1                               SYS
            SB7       B7-B1                               SYS
            SA6       A1                                  SYS
            GT        B7,B0,P.INIT3                       SYS
  P.INIT4   SA1       ERRVECT            TRANSFER ERROR ENTRIES TO 46B-54B   SYS
            BX6       X1                                  SYS
            SA6       46B                                 SYS
            SB7       6                                   SYS
  P.INIT5   SA1       A1+B1                               SYS
            BX6       X1                                  SYS
            SA6       A6+B1                               SYS
            SB7       B7-B1                               SYS
            GT        B7,B0,P.INIT5                       SYS
            SA1       65B                LWA + 1 OF LOADED PROGRAM       SYS
            SB2       X1                                  SYS
            SB5       B2                                  SYS
            RJ        BINDISP                             SYS
            SA5       FLMSG+1                             SYS
            MX4       36                                  SYS
            BX5       -X4*X5                              SYS
            BX6       X5+X6                               SYS
            SA6       A5                                  SYS
            SX6       0                                   SYS
            RJ        P.MEM                               SYS
            SX1       STAK.FWA                            MSUMEM
            SX5       STAK.LWA                            MSUMEM
            BX5       X1-X5              X5=0 IF FWA = LWA              MSUMEM
            ZR        X5,MEMUP           DO MEM REQ. IF ZERO            MSUMEM
            SB2       X1                 ELSE USE /PASCAL./ FOR STACK ^ HEAP   MSUMEM
            SB5       B2                                  MSUMEM
            SA1       X1                                  MSUMEM
            SB4       B2+X1              WE EXPECT THE 1ST WORD OF /PASCAL./   MSUMEM
            SB4       B4-B1              TO BE THE LENGTH OF THE BLOCK   MSUMEM
            EQ        P.INIT6            SKIP MEMUP CODE                MSUMEM
  CPINFO    BSSZ      16                 CPSTAT INFO GETS PUT HERE      MSUMEM
  CP.RFL    EQU       4                  LOCATION OF RFL WORD IN CPINFO MSUMEM
  MEMUP     SA4       CPSTREQ            GET CPSTAT REQ. WORD           MSUMEM
            SX5       1                  AUTO-RECALL                    MSUMEM
            SX6       3RSYS                                             MSUMEM
            RJ        P.MON              MAKE REQUEST                   MSUMEM
            SA1       CPINFO+CP.RFL      GET RFL WORD                   MSUMEM
            AX1       48                 GET CORRECT BITS OUT           MSUMEM
            LX1       6                                                 MSUMEM
            BX6       X1                                                MSUMEM
            RJ        P.MEM              MAKE MEM REQ.                  MSUMEM
            SB4       X6                 X6 IS ACTUAL FL ALLOCATED      MSUMEM
  P.INIT6   SX1       B4                                  SYS
            RJ        BINDISP                             SYS
            SX0       FLMSG                               SYS
            SA6       X0+3                                SYS
            RJ        MESS                                SYS
            BX6       X6-X6                               SYS
            SA6       B2+B1              CLEAR FORTRAN-ROUTINE FLAG     SYS
            SA1       P.MAIN-3                            SYS
            SA6       X1+B2              MARK OUTPUT NOT OPENED         SYS
            SX4       RPVTAB                              SYS
            SX5       B1                                  SYS
            SX1       77B                REPREIVE ON ALL CONDITIONS     MSURPV
            LX1       24                                  SYS
            BX4       X4+X1                               SYS
```

```
             SX6        3RRPV                                                SYS      9
             RJ         P.MON                                               SYS      9
             EQ         P.INIT                             000019           SYS      9
   *                                                                        SYS      9
    PARERR   SX0        PARMSG                                              SYS      9
             SA0        3                                                   SYS      9
             EQ         P.ABRT                                              SYS      9
                                                                           SYS      9
                                                                           SYS      9
   *         P.END ISUES AN END REQUEST                                     SYS      9
                                                                           SYS      9
    P.END    DATA       0                                                   SYS      9
             SX6        3REND                                               SYS      9
             BX5        X5-X5                                               SYS      9
             BX4        X4-X4                                               SYS      9
             RJ         P.MON                                               SYS      9
             PS                                                             SYS      9
                                                                           SYS      9
                                                                           SYS      9
   *         P.MEM ISUES A MEM REQUEST                                      SYS      9
   *                                                                        SYS      9
   *                                                                        SYS      9
   *         X6 = 0: ACTUAL FL IS RETURNED IN X6 AND FL                     SYS      9
   *         X6 <> 0: X6 = NEW FIELDLENGTH                                   SYS      9
   *                                                                        SYS      9
   *         X4, X5, X6, A5, A6 DESTROIED                                    SYS      9
   *                                                                        SYS      9
    P.MEM    DATA       0                                                   SYS      9
             LX6        30                                                  SYS      9
             SX4        P.FL                                                SYS      9
             SA6        X4                                                  SYS      9
             SX5        1                                                   SYS      9
             SX6        3RMEM                                               SYS      9
             RJ         P.MON                                               SYS      9
             SA5        P.FL                                                SYS      9
             LX5        30                                                  SYS      9
             SX6        X5                                                  SYS      9
             SA6        A5                                                  SYS      9
             EQ         P.MEM                                               SYS      9
                                                                           SYS      9
                                                                           SYS      9
    ENDSR    EQU        *+1                                                 SYS      9
```

```
* MESS (ISSUES MESSAGE REQUEST WITHOUT AUTO-RECALL).                    SYS      9
* UPON ENTRY, X0= POINTER TO MESSAGE                      000020       SYS      9
* USES A2,A6, X0,X2,X6.                                                 SYS      9
 MESS       DATA       0                                                SYS      9
            SX6        3LMSG                                             SYS      9
            BX5        X5-X5                                            SYS      9
            SX4        X0                      MSG-ADDRESS               SYS      9
            RJ         F.MON                                            SYS      9
            EQ         MESS                                             SYS      9
                                                                       SYS
                                                                       SYS
* PROCHED SEARCHES THE ENTRYPOINT OF THE PASCAL PROCEDURE CORRESPONDING SYS      9
* TO THE STACKSEGMENT INDICATED BY B7.                                  SYS      9
* UPON ENTRY: B7 = POINTER TO STACK SEGMENT DESCRIPTOR                  SYS      9
* UPON EXIT:  X2 = POINTER TO ENTRYPOINT.                               SYS      9
*   REGISTERS A2,X2,X3,X4 ARE MODIFIED.                                 SYS      9
*                                                                       SYS      9
 PROCHED    DATA       0                                                SYS      9
            SX2        P.MAIN                                           SYS      9
            EQ         B7,B2,PROCHED         JUMP IF MAIN              SYS      9
            SA2        B7+B1                 SEGMENTDESCRIPTOR.RA        SYS     10
            SA2        X2-1                  FIND PROCEDURE CALL TO GET FIRST ADDR SYS  10
            LX2        15                    OF PROCEDURE               SYS     10
            SX3        77777B                                           SYS     10
 PH1        LX2        45                                               SYS     10
            BX4        X2*X3                                            SYS     10
            SX4        X4-460008                                        SYS     10
            ZR         X4,PH1                                           SYS     10
            SX2        X2                    X2=0 IFF PROCEDURE FORMAL   SYS     10
            NZ         X2,PROCHED                                       SYS     10
            SA2        B5+B1                                            SYS     10
            AX2        36                                               SYS     10
            SX2        X2                                               SYS     10
            EQ         PROCHED                                          SYS     10
                                                                       SYS     10
                                                                       SYS     10
* RELADDR CONVERTS AN ABSOLUTE ADDRESS POINTING INTO A PASCAL PROCEDURE SYS     10
*  TO A RELATIVE ADDRESS CORRESPONDING TO A LISTING.                    SYS     10
* UPON ENTRY: X1= ABSOLUTE ADDR.; B7= POINTER TO CORR. STACKSEGM. DESCR. SYS   10
* RESULT IN:  X1                                                        SYS     10
*   REGISTERS A2,X2,X3,X4   ARE MODIFIED.                               SYS     10
 RELADDR    DATA       0                                                SYS     10
            RJ         PROCHED                                          SYS     10
            IX3        X1-X2                                            SYS     10
            SA4        X2-1                                             SYS     10
            LX4        30                                               SYS     10
            SX4        X4                    REL. ADDR. OF PROCEDURE IN MODULE SYS 10
            IX1        X3+X4                                            SYS     10
            EQ         RELADDR                                          SYS     10
                                                                       SYS     10
                                                                       SYS     10
* RPVOUT DEACTIVATES RPV.                                               SYS     10
*   USES X5,X6.                                                         SYS     10
 RPVOUT     DATA       0                                                SYS     10
            SX6        B0                                               SYS     10
            SA6        RPVTAB                                           SYS     10
            SX5        B1                                               SYS     10
            SX6        3RRPV                                            SYS     10
            SX4        RPVTAB                                           SYS     10
            RJ         F.MON                                            SYS     10
            EQ         RPVOUT                                           SYS     10
                                                                       SYS     10
                                                                       SYS     10
                                                                       SYS     10
* BINDISP TRANSFORMS BIN. ADDR (IN X1) INTO DISPLAYCODE (IN X6).        SYS     10
* X0,X1 REMAIN UNCHANGED                                                SYS     10
*                                                                       SYS     10
 BINDISP    DATA       0                                                SYS     10
            SB7        6                                                SYS     10
            SB3        33B                                              SYS     10
            SX6        B0                                               SYS     10
            MX2        57                                               SYS     10
 B01        BX3        -X2*X1                                           SYS     10
            SX3        X3+B3                                            SYS     10
            BX6        X6+X3                                            SYS     10
            LX6        54                                               SYS     10
```

```
            LX1      57                                           SYS    10
            SB7      B7-B1                                        SYS    10
            NE       B7,BD1                        000021         SYS    10
            LX1      18                                           SYS    10
            EQ       BINDISP                                      SYS    10
                                                                 SYS    10
                                                                 SYS    10
                                                                 SYS    10
* FPADDR TESTS WHETHER ERROR ADDR (IN X1) POINTS INTO SYSTEM PROCEDURE.  SYS  10
* IF SO, IT DELIVERS THE RETURN ADDR TO THE PASCAL-SEGMENT (IN X1).      SYS  10
*                                                                SYS    10
 FPADDR     DATA     0                                           SYS    10
 FP1        SA2      P.SIEVE                                      SYS    10
            SX1      X1                                           SYS    10
            SX5      X2                                           SYS    10
            IX3      X1-X5                                        SYS    10
            NG       X3,FPADDR     JUMP IF ADDR BEFOR FIRST SYSTEM ROUTI  SYS  10
 FP2        SX4      X2                                           SYS    10
            AX2      30                                           SYS    10
            NZ       X2,FP3                                       SYS    10
            SA2      A2+1                                         SYS    10
            ZR       X2,FPADDR                                    SYS    10
 FP3        IX3      X1-X2                                        SYS    10
            SX3      X3                                           SYS    10
            PL       X3,FP2                                       SYS    10
            SA1      X4                                           SYS    10
            LX1      30                                           SYS    10
            EQ       FP1           RET.ADDR. MAY POINT INTO SYS. PROC     SYS  10
```

```
RPVTAB    DATA      0                                                  000022   SYS    10
          BSS       16                                                          SYS    10
* ENTRYPOINT WHEN ERROR DETECTED BY SCOPE                                       SYS    10
*   FIND ADDRESS                                                                SYS    10
          SB1       1                                                           SYS    10
          SA1       RPVTAB                                                      SYS    10
          SX0       X1-2              X1#= ERROR-2                              SYS    10
          LX1       24                ADDRESS FROM XJ PACKAGE                   SYS    10
          NZ        X0,F.AD1                                                    SYS    10
          SA5       B0                                                          SYS    10
          LX5       12                                                          SYS    10
          SX6       X5                                                          SYS    10
          SA1       MODEMSG                                                     SYS    10
          IX6       X6+X1                                                       SYS    10
          SA6       A1                                                          SYS    10
          SX0       A1                                                          SYS    11
          LX5       18                                                          SYS    11
          SX1       X5                ADDRESS FROM RA[0]                        SYS    11
          RJ        MESS                                                        SYS    11
F.AD1     SA2       65B                                                         SYS    11
          SB2       X2                B2 MAY BE MODIFIED                        SYS    11
          SA2       B2+B1                                                       SYS    11
          NG        X2,TRIGERR        ERROR IN TRIGON. STANDARD FUNCTION        SYS    11
          NZ        X2,FORERR         JUMP IF ERROR IN FORTRAN SEGMENT          SYS    11
          RJ        FPADDR                                                      SYS    11
* X1= ABSOLUTE ADDRESS OF ERROR OR RETURNADDR. FROM STANDARD I/O ROUTINE SYS    11
* FIND REL. ADDR.                                                               SYS    11
          SX1       X1                                                          SYS    11
          SB7       B5                                                          SYS    11
          RJ        RELADDR           X1#= REL. ERROR ADDR.                     SYS    11
          EQ        DYADDR                                                      SYS    11
*                                                                               SYS    11
TRIGERR   BX1       -X2               X1#= REL. RETURNADDR.                     SYS    11
          EQ        DYADDR                                                      SYS    11
*                                                                               SYS    11
FORERR    RJ        BINDISP                                                     SYS    11
          SX1       FORMSG                                                      SYS    11
          SA2       X1+B1                                                       SYS    11
          MX0       36                                                          SYS    11
          BX2       -X0*X2                                                      SYS    11
          BX6       X6+X2                                                       SYS    11
          SA6       A2                                                          SYS    11
          SX2       40                                                          SYS    11
          RJ        P.MSG                                                       SYS    11
* RESET B-REGISTERS                                                             SYS    11
          SA2       B2                                                          SYS    11
          SB6       X2                                                          SYS    11
          AX2       18                                                          SYS    11
          SB5       X2                                                          SYS    11
          AX2       18                                                          SYS    11
          SB4       X2                                                          SYS    11
          SA1       B2+B1             REL ERROR ADDR FROM FORCALL               SYS    11
          SX6       B0                                                          SYS    11
          SA6       A1                CLEAR FORCALL                             SYS    11
          EQ        DYADDR                                                      SYS    11
```

```
* ENTRYPOINT WHEN ERROR DETECTED BY SYSTEM-ROUTINE OR STANDARD FUNCT.     SYS     11
*   X1= EEQ RAE, X0= POINTER TO MSG.                                      SYS     11
 P.SABRT   RJ        RPVOUT                                               SYS     11
           LX1       30                                                   SYS     11
           SX1       X1                                                   SYS     11
           RJ        MESS                               000023            SYS     11
           SB7       -B1                                                  SYS     11
           RJ        FPADDR       FIND RETURNADDR TO PASCAL-SEGMENT       SYS     11
           SX1       X1+B7                                               SYS     11
           SB7       B5                                                   SYS     11
           RJ        RELADDR                                             SYS     11
           EQ        DYADDR                                              SYS     11
                                                                         SYS     11
                                                                         SYS     11
* ENTRYPOINTS WHEN ERROR DETECTED BY PASCAL.                              SYS     11
* A0 CONTAINS RELATIVE ERRORADDR.                                        SYS     11
* P.INIT TRANSFERS THESE ENTRIES TO LOCATIONS 46B-53B. THE OVERLAY-LOADE  SYS     11
*  IS NOT ABLE TO LOAD INTO THESE LOCATIONS.                              SYS     11
 ERRVECT   SX0       ASSMSG                                               SYS     11
           EQ        P.ABRT                                               SYS     11
           SX0       INDXMSG                                              SYS     11
           EQ        P.ABRT                                               SYS     11
           SX0       DIVMSG                                               SYS     11
           EQ        P.ABRT                                               SYS     11
           SX0       OVFLMSG                                              SYS     11
           EQ        P.ABRT0                                              SYS     11
           SX0       STOPMSG                                              SYS     11
           EQ        P.ABRT                                               SYS     11
           SX0       INTOVFL      INTEGER OVERFLOW IN PACK OPERATION      SYS     11
           EQ        P.ABRT                                               SYS     11
           SX0       BPVMSG                                               SYS     11
           EQ        P.ABRT                                               SYS     11
 P.ABRT0   SB6       B5+3                                                 SYS     11
           SX6       1                                                    SYS     11
           SA6       STACKOF      STACKOF := TRUE                         SYS     11
 P.ABRT    RJ        RPVOUT                                               SYS     11
           RJ        MESS                                                 SYS     11
           SX1       A0                                                   SYS     11
           EQ        DYADDR                                               SYS     11
```

```
* COMMON END OF ERROR ENTRIES                                          SYS    11
*                                                          000024      SYS    11
* WRITE REL. ERROR ADDR. (IN X1) INTO DAYFILE                          SYS    11
 DYADDR   SX0        NADDMSG                                            SYS    11
          RJ         BINDISP                                           SYS    11
          SA2        X0+B1                                             SYS    11
          MX3        36                                                SYS    11
          BX3        -X3*X2                                            SYS    11
          BX6        X6+X3                                             SYS    11
          SA6        A2                                                SYS    11
          SB7        B5                                                SYS    11
          RJ         PROCHED                                           SYS    11
          SA2        X2-2                                              SYS    11
          BX6        X2          NAME OF LAST ACTIVATED PASCAL PROC    SYS    11
          SA6        X0+3                                              SYS    11
          RJ         MESS        IN DAYFILE                            SYS    11
*                                                                      SYS    11
* CLEAR OUTBUF IF NECESSARY.                                           SYS    11
* OPEN NEW RECORD IN FILE OUTPUT                                       SYS    11
          BX6        X1                                                SYS    12
          SA6        ERRADDR                                           SYS    12
          SA1        P.MAIN-3                                          SYS    12
          SA1        X1+B2       A1 = ADDR EFET OUTPUT                 SYS    12
          SA2        A1-B1        FILE OUTPUT NOT OPENED               SYS    12
          ZR         X1,ABTRQ                                          SYS    12
          NG         X2,WEOR     DEFINE STATE OF OUTPUT-EFET           SYS    12
          RJ         SETWR                                             SYS    12
          SA1        A1                                                SYS    12
 WEOR     RJ         P.PUTS                                            SYS    12
          SA2        57B         DECIDE WHETHER TRAP DESIRED           SYS    12
          ZR         X2,NOTRAP                                         SYS    12
          SB7        X2          TRAP ENTRY                            SYS    12
          LX2        42                                                SYS    12
          SB3        X2          STATIC LINK                           SYS    12
+         EQ         B3,B5,*+2                                         SYS    12
          SB6        B5          ADJUST B5 AND B6                      SYS    12
          SA2        B5+B1                                             SYS    12
          LX2        42                                                SYS    12
          SB5        X2                                                SYS    12
          EQ         *-1                                               SYS    12
          BX6        X6-X6                                             SYS    12
          SA6        STACKOF     STACKOF := FALSE                      SYS    12
          SA6        A2                                                SYS    12
+         JP         B7          JUMP TO TRAP LABEL                    SYS    12
 NOTRAP   SA2        F.MAIN-3                                          SYS    12
          LX2        30                                                SYS    12
          SB7        X2          ADDR OF PMD IF AVAILABLE              SYS    12
          EQ         B7,ABTRQ                                          SYS    12
          AX2        30                                                SYS    12
          BX6        X2          CLEAR PMD ADDR TO AVOID SECOND CALL   SYS    12
          SA6        A2          OF PMD IN CASE OF STACKOVERFLOW.      SYS    12
          SX6        -B1                                               SYS    12
          SA6        A1-13       CLEAR LINECOUNT                       SYS    12
          SB4        B4+100      TO PREVENT STACKOVERFLOW IN PMD       SYS    12
* SET UP PARAMETERS FOR PMD.                                           SYS    12
          BX6        X6-X6                                             SYS    12
          BX0        X0-X0                                             SYS    12
          SA6        B6+3                                              SYS    12
          SX1        P.MAIN                                            SYS    12
          BX6        X1                                                SYS    12
          SA6        A6+B1                                             SYS    12
          SA2        ERRADDR                                           SYS    12
          BX6        X2                                                SYS    12
          SA6        A6+B1                                             SYS    12
          SX3        B2                                                SYS    12
          BX6        X3                                                SYS    12
          SA6        A6+B1                                             SYS    12
          SX4        B5                                                SYS    12
          BX6        X4                                                SYS    12
          SA6        A6+B1                                             SYS    12
          SA5        F.MAIN-3                                          SYS    12
          SX5        X5-13                                             SYS    12
          SX7        X5+B2                                             SYS    12
          SA5        STACKOF                                           SYS    12
          BX6        X5                                                SYS    12
          SA6        A6+B1                                             SYS    12
          SA7        A6+B1                                             SYS    12
```

```
          SX7      RETPMD          RETURN ADDR                           SYS     12
          JP       B7                                          000025    SYS     12
RETPMD    SA1      P.MAIN-3                                               SYS     12
          SA1      X1+B2                                                  SYS     12
          RJ       P.PUTS          CLEAR OUTBUF                          SYS     12
*                                                                        SYS     12
* ABORT REQUEST                                                          SYS     12
ABTRQ     SX4      B0                                                     SYS     12
          SX5      B0                                                     SYS     12
          SX6      3RABT                                                  SYS     12
          RJ       P.MON                                                  SYS     12
          PS                                                              SYS     12
```

```
          SX7      RETPMD          RETURN ADDR
          JP       B7                                          000025
RETPMD    SA1      P.MAIN-3
          SA1      X1+B2
          RJ       P.PUTS          CLEAR OUTBUF
```

```
CPSTREQ   VFD      24/0,12/3,6/0,18/CPINFO    CPSTAT REQUEST              MSUMEM
                                                                         SYS    12
  TIME.ANS DATA     0                                                     SYS    12
  MSGP     VFD      30/MSGB,30/0                               000026     SYS    12

  MSGB     BSS      5                                                     SYS    12
  ERRADDR  EQU      MSGB                                                  SYS    12
  STACKOF  DATA     0                   STACKOF != FALSE                  SYS    12
  P.FL     BSS      1                                                     SYS    12
  INP      DATA     5LINPUT                                               SYS    12
  OUTP     DATA     6LOUTPUT                                              SYS    12
  P.FREE   VFD      42/400000000000000B,18/0                             SYS    12
  LINEEND  DATA     8L                                                    SYS    12
  NIL      EQU      377777B                                              SYS    12
                                                                         SYS    12
  MODEMSG  DIS      ,=* MODE = 0=                                         SYS    12
  NADDMSG  DIS      ,=* AT ADDR ...... IN PROCEDURE (ACTUAL N)=          SYS    12
  FORMSG   DIS      ,=* AT ADDR ...... IN FORTRAN PROC CALLED=           SYS    12
  ASSMSG   DIS      ,=* VALUE OUT OF RANGE=            C1                 SYS    12
  INDXMSG  DIS      ,=* INDEX OR CASE VAR OUT OF RANGE=     C2            SYS    12
  DIVMSG   DIS      ,=* DIVISION BY ZERO=                                 SYS    12
  OVFLMSG  DIS      ,=* RUNTIME STACK OVERFLOW=   C4                      SYS    12
  PARMSG   DIS      ,=* TOO MANY PROGRAM PARAMETERS=                      SYS    12
  STOPMSG  DIS      ,=* HALT=                                             SYS    12
  LINEMSG  DIS      ,.* LINELIMIT EXCEEDED.                               SYS    12
  EOFMSG   DIS      ,.* TRIED TO READ PAST EOS/EOF.                       SYS    12
  WRMSG    DIS      ,=* TRIED TO WRITE WHILE NOT EOS/EOF=                 SYS    12
  INTOVFL  DIS      ,=* INTEGER OVERFLOW=                                 SYS    12
  BPVMSG   DIS      ,=* BAD POINTER VALUE=                                SYS    12
  FLMSG    DIS      ,=- LOAD FL ......        RUN FL ......=              SYS    12
                                                                         SYS    12
  P.SIEVE  VFD      30/P.PPREQ,30/F.MON                                   SYS    13

           VFD      30/P.PUTB,30/P.GETB                                   SYS    13

           VFD      30/P.GETLN,30/P.GETC                                  SYS    13

           VFD      30/P.PUTLN,30/P.PUTC                                  SYS    13

           VFD      30/SETRD,30/SETWR                                     SYS    13

           VFD      30/CCLEAR,30/CLEAR                                    SYS    13

           VFD      30/P.OPEN,30/SKIP                                     SYS    13

           VFD      30/P.RESET,30/P.CLOSE                                 SYS    13

           VFD      30/P.RWRTS,30/P.REWRT                                 SYS    13

           VFD      30/P.PUTS,30/P.GETS                                   SYS    13

           VFD      30/P.CLOCK,30/TIMEREQ                                 SYS    13

           VFD      30/P.TIME,30/P.DATE                                   SYS    13

           VFD      30/P.NEW,30/F.MSG                                     SYS    13

           VFD      30/P.INIT,30/P.DISP                                   SYS    13

           VFD      30/P.MEM,30/P.END                                     SYS    13

           VFD      30/0,30/ENDSR                                         SYS    13
           DATA     0                   TERMINATES P.SIEVE               SYS    13
                                                                         SYS    13
           END                                                           SYS    13
```

```
STORAGE USED             1385 STATEMENTS        161 SYMBOLS
MODEL 73 ASSEMBLY        8.451 SECONDS           520 REFERENCES

          1 ERROR IN  PCSYSTM
```

OPERATION FIELD BAD.
    3

000027

OPERATION FIELD BAD.
    3

000027

25/25	25/48	26/08 L				
24/19	27/19 L					
21/74 L	22/03					
19/34	19/65	21/69 L	22/05	23/36	25/05	
17/63	24/31	27/29 L				
11/19 L	11/21	11/33	11/36	13/63	14/12	27/42
11/04 L	11/17	11/35	14/56	27/43		
11/24	11/30 L					
11/29	11/35 L					
13/58	13/63 L					
11/12 L						
11/05	11/10	11/14 L				
19/52 L	19/58	27/01				
19/54	27/01 L					
19/53 D	19/58					
17/60	17/66 L					
17/69 L	17/73					
17/75 L	18/11					
18/04	18/06 L					
18/07	18/09 L					
17/74	18/02	18/12 L				
18/13	18/19 L					
17/66	18/18	18/27 L				
24/23	27/21 L					
23/31	23/34	23/55	24/12	24/39	25/04 L	
20/41 D	27/62					
4/03	4/42 L					
4/43	27/26 L					
25/21 S	25/62	27/07 D				
19/22	24/19 L					
19/35	19/66	27/30 L				
23/24	23/36 L					
23/37	27/18 L					
22/12 L	22/17	22/22	23/25	24/08		
22/13 L	22/28					
22/18 L	22/25					
22/20	22/23 L					
23/09	23/20 L					
4/12	4/17 L	4/40				
4/31	4/34 L					
4/27	4/38 L					
6/03	6/08	6/15 L				
6/23 L	6/70					
6/39	6/41 L					
6/32	6/48 L					
6/49	6/52 L					
6/19	6/58 L					
6/22	6/70 L					
7/08 L	7/10					
7/13 L	7/19					
7/11	7/21 L					
7/06	7/24 L					
24/21	27/20 L					
14/03	14/26	27/10 L				
24/29	27/28 L					
3/37 D	3/37					
3/32 D	3/37					
8/68	27/13 L					
9/25	27/25 L					
9/11	9/25 L					
19/45	19/54 L					
19/68	21/04 L	21/09	23/19	24/06	24/37	25/16
23/13	27/16 L					
16/10 S	27/04	27/06 L	27/07			
16/30	16/36	27/04 L				
16/07	16/09 L					
16/11 L	16/16					
16/12	16/18 L					
16/18	16/28 L					
25/04	27/17 L					
17/07 L	17/13					
17/14	17/24 L					
17/12	17/32 L					
18/28	27/14 D					
25/31 S	25/45 L					
13/42 L	13/44					
13/30	13/45 L					

000029

27/11 L							
17/41	24/25	27/22 L					
17/36	17/40 L						
19/10	20/05 L						
20/05	27/23 L						
5/12	5/15 L						
5/18	5/23 L						
5/21	5/30 L						
21/26 L	21/29						
8/41 L	8/47						
8/50	8/60 L						
8/58	8/63 L						
8/40	8/68 L						
8/49	8/72 L						
8/73 L	8/76						
8/55	8/70	9/01 L					
21/19 L	21/21	21/31	21/35	21/44	25/12		
9/26	9/29 L						
20/07	24/20	24/22	24/24	24/28	24/30	24/32	24/36 L
24/26	24/33 L						
2/25 E	15/19 L	15/30	27/52				
2/23 E	13/54 L	13/62	13/64	27/47			
2/25 E	15/32 L	15/37	27/55				
2/26 E	17/47 L	17/62	18/30	27/59			
2/27 E	20/12 L	27/61					
17/50	20/29	20/34	27/09 L				
17/05	17/67	27/12 L					
2/21 E	4/19	4/37	6/16	10/45			
3/13 L	4/21	4/42	7/14	27/35			
2/21 E	6/07	6/46	6/68	7/24	27/37		
6/01 L	6/13	6/56	6/77	10/41			
2/22 E	7/04 L	7/25	27/36				
2/24 E	14/46 L	14/51	27/51				
2/25 E	19/04 L	20/03	27/58				
19/12 L	19/14						
19/11	19/15 L						
19/17 L	19/21						
19/15	19/22 L						
19/26 L	19/30						
19/51	19/64 L						
2/29 X	19/71	21/20	25/22	25/45	25/59	25/71	26/03
19/41	19/62	20/27 L	20/38	27/60			
2/27 E	3/26	12/28	16/37	20/02	20/33	21/61	27/33
3/13 L	3/53	15/14	19/57	20/16	21/08	26/11	
3/18 L	3/19						
3/22	3/24 L	3/25					
2/25 E	15/02 L	16/38	23/44	27/57			
2/26 E	17/02 L	17/23	17/31	17/38	17/40	27/56	
2/23 E	13/00 L	13/51	27/44				
3/43 L	4/39	9/22	13/50	14/15	27/32		
3/55	5/32	11/16	13/61	14/35			
2/21 E	5/20	5/29	5/35	8/66	27/34		
5/02 L	5/25	5/33	8/20	9/04			
2/21 E	8/01 L	8/08	8/26	8/28	27/39		
2/22 E	8/34 L	9/19	9/23	9/29	11/12	27/38	
2/24 E	14/53 L	14/57	14/59	25/29	26/05	27/50	
2/24 E	13/22 L	14/08	14/11	14/21	27/46		
2/24 E	14/23 L	14/30	14/33	14/37	27/49		
2/24 E	14/39 L	14/44	27/48				
2/25 E	5/37	9/30	17/43	24/03 L			
4/44	8/30	14/61	17/64				
22/13	27/32 L						
2/25 E	15/39 L	15/44	27/54				
21/43 L	21/50	23/30	24/11				
26/01	26/03 L						
21/55 L	21/62	24/03	24/36				
19/73	21/57 S	21/60	23/01 L	23/06			
10/24 L	10/43	10/46	14/20	14/50	27/40		
10/01 L	10/22	14/36	14/43	25/27	27/41		
12/01 L	12/16	12/33	14/42	14/49	27/45		
12/05	12/11 L						
12/14	12/18 L	12/42					
12/11	12/12	12/35 L					
12/38	12/40 L						
10/37	10/45 L						
24/35 S	25/42 S	25/74	27/08 L				
3/02 L	19/42						

```
 3/04 L     19/43
24/27       27/24 L
10/15 L     10/17
10/11       10/21 L
15/19 L     15/17        15/21      15/35      15/42      27/53
15/08 S     27/03 L
23/23       23/33 L
25/26       25/29 L
 5/04        5/35 L
 8/03        8/28 L
14/55       14/59 L
 8/36        9/28 L
 5/36        8/29         9/28      14/60      27/27 L
```

```
 3/04 L     19/43
24/27       27/24 L
10/15 L     10/17
10/11       10/21 L
15/19 L     15/17        15/21      15/35      15/42      27/53
```

BINARY CONTROL CARDS.   000031

    IDENT   WRO   JENSEN
    END

ENTRY POINTS.

WRO   2+

EXTERNAL SYMBOLS.

P.PUTC

BINARY CONTROL CARDS.   000031

    IDENT   WRO   JENSEN
    END

```
           IDENT  WRO                    JENSEN                              WRO
                                                                            WRO
           ENTRY  WRO                                        000032         WRO
           EXT    P.PUTC                                                    WRO
                                                                            WRO
FILE       EQU    3                                                         WRO
VALUE      EQU    4                                                         WRO
FLDLGTH    EQU    5                                                         WRO
CNT        EQU    6                                                         WRO
                                                                            WRO
WRO.       DATA   10LWRO                                                    WRO
           VFD    12/0,18/2,15/PMCINFO,15/PMDINFO                           WRO
WRO        SX6    B5                                                        WRO
           LX6    18                                                        WRO
           BX7    X6+X7                                                     WRO
           SA7    B6+B1                                                     WRO
           SB5    B6                                                        WRO
           SB6    B6+7                                                      WRO
           SA2    B5+FLDLGTH          FETCH FIELD LENGTH                    WRO
           ZR     X2,H1                                                     WRO
           PL     X2,H2               IF <= 0 SET TO 20                     WRO
H1         SX2    20                                                        WRO
H2         BSS    0                                                         WRO
                                                                            WRO
* X2 = ACTUAL FIELD LENGTH                                                  WRO
                                                                            WRO
           LX0    B1,X2                                                     WRO
           IX2    X0+X2               X2 *= 3*X2 = NO OF BITS TO            WRO
           SX7    X2-60                         BE TRANSLATED               WRO
           NG     X7,OCT1             PRECEDING BLANKS                      WRO
           ZR     X7,OCT1                                                   WRO
                                                                            WRO
OCT0       SA7    B5+CNT              SAVE NO OF BLANKS                     WRO
           SX6    1R                                                        WRO
           SA1    B5+FILE             FETCH FILE ADDRESS                    WRO
           SA1    X1+12               FETCH PPTR                            WRO
           SA6    X1                                                        WRO
           RJ     P.PUTC                                                    WRO
           SA1    B5+CNT                                                    WRO
           SX7    X1-3                                                      WRO
           NZ     X7,OCT0                                                   WRO
           SX2    60                                                        WRO
                                                                            WRO
OCT1       SA1    B5+VALUE            FETCH VALUE TO BE OUTPUT              WRO
           SB3    X2-3                                                      WRO
           AX1    B3,X1                                                     WRO
           MX0    57                                                        WRO
           BX0    -X0*X1                                                    WRO
           SX6    X0+33B              X6 = OCTAL DIGIT                      WRO
           SX7    B3                                                        WRO
           SA7    B5+CNT              SAVE COUNT                            WRO
           SA1    B5+FILE             FETCH FILE ADDRESS                    WRO
           SA1    X1+12               FETCH PPTR                            WRO
           SA6    X1                                                        WRO
           RJ     P.PUTC                                                    WRO
           SA2    B5+CNT                                                    WRO
           NZ     X2,OCT1                                                   WRO
           SA1    B5+B1               FETCH RETURN ADDRESS                  WRO
           SB7    X1                  AND FIX UP THE STACK                  WRO
           SB6    B5                                                        WRO
           AX1    18                                                        WRO
           SB5    X1                                                        WRO
           JP     B7                                                        WRO
                                                                            WRO
INFO       DATA   0                                                         WRO
PMDINFO    EQU    INFO-WRO.                                                 WRO
           END                                                              WRO

STORAGE USED              67 STATEMENTS        13 SYMBOLS
MODEL 73 ASSEMBLY      0.514 SECONDS           34 REFERENCES
```

```
2/09 D    2/33 S    2/39      2/51 S    2/56
2/06 D    2/35      2/52
2/08 D    2/19
2/20      2/22 L
2/21      2/23 L
2/65 L    2/66
2/33 L    2/41
2/30      2/31      2/44 L    2/57
2/12      2/66 D
2/04 X    2/38      2/55
2/07 D    2/44
2/03 E    2/13 L
2/11 L    2/66
```

BINARY CONTROL CARDS.   000034

    IDENT   WRS   JENSEN
    END

ENTRY POINTS.

WRS   2+   WRSN   5+

EXTERNAL SYMBOLS.

P.PUTC

```
         IDENT  WRS              JENSEN                              WRS
                                                                    WRS
         ENTRY  WRS                          000035                 WRS
         ENTRY    WRSN                                              WRS
         EXT    P.PUTC                                              WRS
                                                                    WRS
FILE     EQU      3                                                 WRS
STRADDR  EQU      4                                                 WRS
FLDLGTH  EQU      5                                                 WRS
STRLGTH  EQU      6                                                 WRS
CNT      EQU      7                                                 WRS
SHORTSTR EQU      8                                                 WRS
                                                                    WRS
                                                                    WRS
WRS.     DATA     10HWRS                                            WRS
         VFD      12/0,18/2,15/PMDINFO1,15/PMDINFO1                 WRS
WRS      SA3      B6+STRLGTH                                        WRS
         EQ       WRSN1                                             WRS
                                                                    WRS
WRSN.    DATA     10HWRSN                                           WRS
         VFD      12/0,18/2,15/PMDINFO2,15/PMDINFO2                 WRS
WRSN     SA3      B6+STRLGTH                                        WRS
         SX2      X3-11                                             WRS
         PL       X2,WRSN1       11 CHARS, ITS VALUE IS TRANSFERRED WRS
         SA5      B6+STRADDR                                        WRS
         BX6      X5                                                WRS
         SA6      B6+SHORTSTR                                       WRS
         SX6      B6+SHORTSTR                                       WRS
         SA6      B6+STRADDR                                        WRS
WRSN1    SX6      B5                                                WRS
         LX6      18                                                WRS
         BX7      X6+X7                                             WRS
         SA7      B6+B1                                             WRS
         SB5      B6+0                                              WRS
         SB6      B6+9                                              WRS
         SA2      B5+FLDLGTH                                        WRS
         NG       X2,S6                                             WRS
         ZR       X2,S6                                             WRS
         IX7      X2-X3          FLDLGTH-STRLGTH                    WRS
         SB3      X7                                                WRS
         GE       B0,B3,S1                                          WRS
S0       SA7      B5+CNT         SAVE NO OF BLANKS                  WRS
         SX6      1R             BLANK                              WRS
         SA1      B5+FILE        FETCH FILE ADDRESS                 WRS
         SA1      X1+12          FETCH CURRENT POSITION IN BUFFER   WRS
         SA6      X1                                                WRS
         RJ       P.PUTC                                            WRS
         SA1        B5+CNT                                          WRS
         SX7      X1-1                                              WRS
         NZ       X7,S0                                             WRS
         SA2        B5+STRLGTH                                      WRS
                                                                    WRS
* X2 = NO OF CHARACTERS OF THE STRING TO BE PRINTED                 WRS
                                                                    WRS
S1       SB3      10             REPEAT <PROCESS NEW WORD>          WRS
         SB7      X2-10                                             WRS
         GE       B7,S2          LAST TIME THRU THE LOOP            WRS
         SB3      X2                                                WRS
         SB7      B0             SET TOTAL LEFT TO 0                WRS
S2       SA1        B5+STRADDR   (CURRENT WORD)                     WRS
         SX6      X1+1           ADR(NEXT WORD)                     WRS
         SA6        B5+STRADDR   SAVE                               WRS
         SA1      X1             CURRENT VALUE                      WRS
         SX6      B7                                                WRS
         SA6        B5+STRLGTH                                      WRS
                                                                    WRS
* B3 = NO OF CHERACTERS TO BE PRINTED THIS TIME                     WRS
                                                                    WRS
S3       SX7      B3             REPEAT <PRINT CHARACTER>           WRS
         SA7        B5+CNT       SAVE                               WRS
         MX0      54                                                WRS
         LX1      6                                                 WRS
         BX6      -X0*X1         GET CHARACTER                      WRS
         BX7      X1                                                WRS
         SA7        B5+SHORTSTR  SAVE SHIFTED WORD                  WRS
         SA1        B5+FILE      FETCH FILE ADDRESS                 WRS
         SA1      X1+12                                             WRS
                                                                    WRS
```

```
          SA6     X1                                              000036   WRS
          RJ      P.PUTC                                                   WRS
S5        SA1       B5+CNT                                                 WRS
          SB3     X1-1                                                     WRS
          SA1       B5+SHORTSTR                                            WRS
          NE      B0,B3,S3            UNTIL <END OF CURRENT WORD>          WRS
                                                                          WRS
          SA2       B5+STRLGTH                                            WRS
          NZ      X2,S1               UNTIL <ALL CHARS HAVE BEEN PRINTED>  WRS
                                                                          WRS
S6        SA1       B5+B1                                                 WRS
          SB7     X1                                                      WRS
          AX1     18                                                      WRS
          SB6     B5                                                      WRS
          SB5     X1                                                      WRS
          JP      B7                                                      WRS
                                                                          WRS
INFO      DATA    0                   PMDINFORMATION                       WRS
PMDINFO1  EQU     INFO-WRS.                                               WRS
PMDINFO2  EQU     INFO-WRSN.                                              WRS
          END                                                             WRS
```

```
STORAGE USED                98 STATEMENTS        21 SYMBOLS
MODEL 73 ASSEMBLY        0.752 SECONDS           62 REFERENCES
```

```
2/11 D      2/42 S      2/48        2/70 S      3/03
2/07 D      2/44        2/76
2/09 D      2/36
3/18 L      3/19        3/20
2/16        3/19 D
2/21        3/20 D
2/05 X      2/47        3/02
2/12 D      2/27 S      2/28        2/75 S      3/05
2/08 D      2/25        2/29 S      2/60        2/62 S
2/10 D      2/17        2/22        2/51        2/65 S      3/08
2/42 L      2/50
2/41        2/55 L      3/09
2/57        2/60 L
2/69 L      3/06
3/03 L
2/37        2/38        3/11 L
2/03 E      2/17 L
2/04 E      2/22 L
2/18        2/24        2/30 L
2/20 L      3/20
2/15 L      3/19
```

BINARY CONTROL CARDS.

IDENT   P.SINCO   000038
END

ENTRY POINTS.

P.SINCO   0+

EXTERNAL SYMBOLS.

P.SABRT

```
         IDENT    P.SINCO                                                SIN
         ENTRY    P.SINCO                                  000039        SIN
         EXT      P.SABRT                                                SIN
                                                                        SIN
P.SINCO  DATA     0                                                      SIN
         SA2      TWOPI           ASSUME ARGUMENT IN X1, B3=0 FOR SIN,   SIN
         OR       X1,ERR2                        B3=1 FOR COS.           SIN
         ID       X1,ERR2                                                SIN
         FX7      X1*X2           .N = ARG*2/PI                          SIN
         MX0      0                                                      SIN
*        SB1      1                                                      SIN
         PX2      X0              .                                      SIN
         FX4      X2+X7           .                                      SIN
         DX6      X2+X7           .                                      SIN
         RX0      X4+X6           .ROUNDED N IN X0                       SIN
         NX3      B7,X0           .NORMALIZE N FOR RANGE REDUCTION       SIN
         BX6      X2-X0           .N IN INTEGER FORMAT                   SIN
         IX0      X2+X6           .MAKE INTEGER POSITIVE                 SIN
         SA2      A2+B1           .PI/2-U                                SIN
         EQ       B7,B0,ERR1      .JUMP IF ARG TOO LARGE                 SIN
         FX7      X3*X2           .N*(PI/2-U)U = H1                      SIN
         SA4      A2+B1           .PI/2-L                                SIN
         ZR       X6,NRR          .N=0, NO RANGE REDUCTION NECESSARY     SIN
         FX6      X1-X7           .(ARG-H1)U                             SIN
         DX5      X2*X3           .N*(PI/2-U)L = H2                      SIN
         DX2      X1-X7           .(ARG-H1)L                             SIN
         NX6      B0,X6           .                                      SIN
         FX7      X4*X3           .N*(PI/2-L)U                           SIN
         FX2      X2-X5           .                                      SIN
         SX3      B3              .K TO X3                               SIN
         FX2      X2-X7           .LOW ORDER TERMS                       SIN
         IX0      X0+X3           .N + K                                 SIN
         MX5      58              .                                      SIN
         BX7      -X5*X0          . K = (N+K)MOD4                        SIN
         RX6      X6+X2           .FINAL REDUCED ARG= X                  SIN
         SB3      X7              . K BACK TO B3                         SIN
         NX1      B0,X6           .    NORMALIZED                        SIN
NRR      SX6      B3              .K TO X6                               SIN
         FX0      X1*X1           .Z=X*X                                 SIN
         LX6      59              . K = 0,2 USE SINE EVALUATION          SIN
         PL       X6,SINE         .                                      SIN
         SA1      A4+B1           .C5                                    SIN
         FX7      X0*X0           .Z**2                                  SIN
         SA2      A1+B1           .C6                                    SIN
         FX4      X0*X1           .C5*Z                                  SIN
         FX5      X2*X7           .C6*Z**2                               SIN
         SA3      A2+B1           .C4                                    SIN
         FX6      X4+X3           .C5*Z+C4                               SIN
         SA4      A3+B1           .C3                                    SIN
         FX1      X4*X0           .C3*Z                                  SIN
         FX6      X6+X5           .C6*Z*Z+C5*Z+C4 = ( 1 )                SIN
         FX2      X6*X7           .( 1 )*Z**2                            SIN
         SA3      A4+B1           .C2                                    SIN
         FX6      X1+X3           .C3*Z + C2                             SIN
         SA4      A3+B1           .C1                                    SIN
         FX6      X2+X6           .( 1 )Z**2+C3*Z+C2 = ( 2 )             SIN
         FX0      X0*X4           .C1*Z                                  SIN
         SA5      A4+B1           .C0                                    SIN
         FX7      X6*X7           .( 2 )*Z**2                            SIN
         FX6      X7+X0           .( 2 )Z**2 + C1*Z                      SIN
         RX0      X6+X5           .C3 + REST OF SERIES                   SIN
         JP       CONT            .DONE WITH COSINE SERIES               SIN
SINE     SA3      S5              .S5                                    SIN
         FX6      X3*X0           .S5*Z                                  SIN
         SA2      A3+B1           .S4                                    SIN
         FX7      X0*X0           .Z**2                                  SIN
         FX5      X2*X6           .S5*Z+S4                               SIN
         SA3      A2+B1           .S3                                    SIN
         SA2      A3+B1           .S2                                    SIN
         FX6      X5*X7           .(S5*Z+S4)*Z**2                        SIN
         FX4      X3*X0           .S3*Z                                  SIN
         FX5      X6+X2           .(S5*Z+S4)Z**2 + S2                    SIN
         SA2      A2+B1           .S1                                    SIN
         FX5      X5+X4           .(S5*Z+S4)Z**2+S2+S3*Z = ( 3)          SIN
         FX7      X5*X7           .( 3 )*Z**2                            SIN
         FX0      X2*X0           .S1*Z                                  SIN
         SA3      A2+B1           .S0                                    SIN
```

```
            FX4       X0+X7               .                                      SIN
            RX5       X4+X3               .                          000040      SIN
            RX0       X1*X5               .FINAL SINE TERM                       SIN
 CCNT       SX3       B1-B3               .1-K                                   SIN
            AX3       2                   .SIGN(1-K)                             SIN
            EX6       X0-X3                                                      SIN
            EQ        P.SINCO                                                    SIN
                                                                                SIN
 ERR2       SX0       MESG2                                                      SIN
            EQ        ERR                                                        SIN
 ERR1       SX0       MESG1                                                      SIN
 ERR        SA1       P.SINCO                                                    SIN
            EQ        P.SABRT                                                    SIN
                                                                                SIN
 MESG1      DIS       ,≡* ARG OF SIN/COS TOO LARGE≡                             SIN
 MESG2      DIS       ,≡* INFINITE OR INDEF ARGUMENT OF SIN/COS≡                SIN
 TWOPI      DATA      17175057460333447104B      2/PI                           SIN
 DCSC1      DATA      17206220773250420550B      PI/2                           SIN
 DCSC2      DATA      16406043230461461213B      5.3903028581581E-15            SIN
 C5         DATA      61053301014524016617B     -2.7555218727710E-07            SIN
 C6         DATA      16634334143344163607B      2.0629106347664E-09            SIN
 C4         DATA      17006400637375136457B      2.4801578467325E-05            SIN    1
 C3         DATA      60712237223723423125B     -1.3888888869816E-03            SIN    1
 C2         DATA      17135252525252523467B      4.1666666666470E-02            SIN    1
 C1         DATA      60610000000000000004B     -4.9999999999999E-01            SIN    1
 C0         DATA      17177777777777777778B      9.9999999999999E-01            SIN    1
 S5         DATA      61111270663112476351B     -2.4732072095246E-08            SIN    1
 S4         DATA      16755616534201617573B      2.7554856450988E-06            SIN    1
 S3         DATA      60741377140534357734B     -1.9841260735379E-04            SIN    1
 S2         DATA      17114210421041004142B      8.3333333169602E-03            SIN    1
 S1         DATA      60622525252525255342B     -1.6666666666540E-01            SIN    1
 S0         DATA      17177777777777777770B      9.9999999999997E-01            SIN    1
            END                                                                 SIN    1
```

```
STORAGE USED              110 STATEMENTS        26 SYMBOLS
MODEL 73 ASSEMBLY         0.852 SECONDS         41 REFERENCES
```

```
2/62            3/04 L
3/26 L
3/25 L
3/24 L
3/23 L
3/22 L
3/20 L
3/21 L
3/18 L
3/19 L
3/10            3/12 L
2/20            3/11 L
2/07            2/08        3/09 L
3/11            3/15 L
3/09            3/16 L
2/23            2/38 L
2/03 X          3/13
2/02 E          2/05 L      3/07        3/12
2/41            2/63 L
3/32 L
3/31 L
3/30 L
3/29 L
3/28 L
2/63            3/27 L
2/06            3/17 L
```

BINARY CONTROL CARDS.

IDENT   P.EXP   000042
END

ENTRY POINTS.

F.EXP   0+

EXTERNAL SYMBOLS.

P.SABRT

BINARY CONTROL CARDS.

IDENT   P.EXP   000042
END

```
          IDENT    P.EXP                                              EXP
          ENTRY    P.EXP                                              EXP
          EXT      P.SABRT                                            EXP
P.EXP     DATA     0              ARGUMENT X IN X1        000043       EXP
          OR       X1,ERR2        TEST FOR BAD ARG                    EXP
          ID       X1,ERR2                                            EXP
          SA3      XMAX                                               EXP
*         SB1      1                                                  EXP
          SA5      A3+B1          GET XMIN                            EXP
          FX7      X3-X1          XMAX-X                              EXP
          SA2      A5+B1          GET LOG2(E)                         EXP
          FX3      X1-X5          X-XMIN                              EXP
          MX0      0                                                  EXP
          PX4      X0                                                 EXP
          BX7      X7-X3          SIGN OF (XMAX-X)*(X-XMIN)           EXP
          FX6      X2*X1          X*LOG2(E)                           EXP
          NG       X7,EXTR        TEST FOR ARG OUT OF (XMIN,XMAX) RANGE EXP
          FX7      X4+X6                                              EXP
          DX6      X4+X6                                              EXP
          RX7      X7+X6          .N IS NOW INTEGER WITH A 2000 EXPON EXP
          NX6      B7,X7          .NORMALIZE N FOR RANGE REDUCTION    EXP
          SA4      A2+B1          .LN(2) UPPER                        EXP
          SA5      A4+B1          .LN(2) LOWER                        EXP
          FX0      X6*X4          .N*LN(2) UPPER                      EXP
          FX3      X6*X5          .N*LN(2) LOWER                      EXP
          FX6      X1-X0          .                                  EXP
          NX2      B0,X6          .                                  EXP
          DX1      X1-X0          .                                  EXP
          FX3      X1-X3          .                                  EXP
          FX1      X2+X3          .                                  EXP
          NX0      B0,X1          .FINAL VALUE OF X                  EXP
          SB7      X7             .PICK UP N                         EXP
          RX7      X0*X0          .Z=X**2                            EXP
          SA1      A5+B1          .C1=420.0                          EXP
          SA2      A1+B1          .C0=15120.0                        EXP
          FX6      X1*X7          .C1*Z                              EXP
          FX5      X7*X7          .Z**2                              EXP
          RX3      X6+X2          .C1*Z + C0                         EXP
          SA1      A2+B1          .C3=28.0                           EXP
          FX6      X1*X7          .C3*Z                              EXP
          RX3      X3+X5          .C1*Z + C0 + Z*Z = B               EXP
          SA2      A1+B1          .C4=2520.0                         EXP
          FX5      X0*X3          .X*B                               EXP
          RX2      X6+X2          .C4 + C3*Z = T                     EXP
          FX4      X7*X2          .Z*T                               EXP
          FX1      X3+X3          .2*B                               EXP
          RX6      X1-X5          .2*B - X*B                         EXP
          RX1      X6+X4          .Z*T + 2*B - X*B = DENOM           EXP
          NX1      B0,X1                                             EXP
          RX7      X0/X1          .TERM1 = X/DENOM                   EXP
          RX4      X5-X4          .X*B - Z*T = TERM2                 EXP
          RX5      X7*X4          .Q = TERM1*TERM2                   EXP
          SA1      A2+B1          .LOAD 1.0                          EXP
          FX2      X1+X0          .1.0+X                             EXP
          DX3      X1+X0                                             EXP
          NX2      B0,X2                                             EXP
          FX4      X2+X5          .1.0+X+Q                           EXP
          DX7      X2+X5                                             EXP
          RX7      X3+X7                                             EXP
          RX6      X4+X7                                             EXP
          UX7      B3,X6                                             EXP
          SB7      B7+B3                                             EXP
          PX6      B7,X6                                             EXP
          EQ       P.EXP                                             EXP
EXTR      SX6      B0                                                EXP
          NG       X3,P.EXP       RETURN WITH ZERO IF X < XMIN       EXP
          SX0      MESG1                                             EXP
          EQ       ER                                                EXP
ERR2      SX0      MESG2                                             EXP
ER        SA1      P.EXP                                             EXP
          EQ       P.SABRT                                           EXP
MESG1     DIS      ,=* ARG OF EXP TOO LARGE=                        EXP
MESG2     DIS      ,=* INFINITE OR INDEF ARGUMENT OF EXP=           EXP
XMAX      DATA     741.67                                           EXP
```

```
XMIN     DATA    -675.82                                              EXP
LOG2E    DATA    17205612507312256030B    1/LN(2)       000044        EXP
LOG2U    DATA    17175427102775750000B    LN(2)                       EXP
LOG2L    DATA    16530717363257117073B    LN(2)                       EXP
C1       DATA    420.0                                                EXP
C0       DATA    15120.0                                              EXP
C3       DATA    28.0                                                 EXP
C4       DATA    2520.0                                               EXP
ONE      DATA    1.0                                                  EXP
         END                                                          EXP
```

```
STORAGE USED              87 STATEMENTS       17 SYMBOLS
MODEL 73 ASSEMBLY      0.676 SECONDS          29 REFERENCES
```

000045

```
3/06 L
3/05 L
3/07 L
3/08 L
2/70        2/72 L
2/06        2/07      2/71 L
2/18        2/67 L
3/02 L
3/04 L
3/03 L
2/69        2/75 L
2/71        2/76 L
3/09 L
2/02 E      2/05 L    2/65      2/68      2/72
2/03 X      2/73
2/08        2/77 L
3/01 L
```

BINARY CONTROL CARDS.   000046

    IDENT   P.LN
    END

ENTRY POINTS.

P.LN   0+

EXTERNAL SYMBOLS.

P.SABRT

```
            IDENT     P.LN                                                    LN
            ENTRY     P.LN                                                    LN
            EXT       P.SABRT                                       000047   LN
P.LN        DATA      0              ASSUME ARGUMENT X IN X1                  LN
            ZR        X1,ERR1                                                 LN
            OR        X1,ERR3                                                 LN
            ID        X1,ERR3                                                 LN
            NG        X1,ERR2                                                 LN
*           SB3       -47            .TRY K=- 47                             LN
            SB1       1                                                       LN
            SA2       SQ2            . 1.414...*2+47                          LN
            UX7       B7,X1          .                                        LN
            IX6       X7-X2          .                                        LN
            NG        X6,GL          .                                        LN
            SB3       B3-B1          .K = -48                                 LN
GL          PX7       B3,X7          .W = 2+K*C                               LN
            SA5       A2+B1          .1.0                                     LN
            FX0       X7-X5          .(W-1.0)                                 LN
            NX2       B0,X0                                                   LN
            DX0       X7-X5                                                   LN
            RX0       X2+X0                                                   LN
            RX2       X7+X5                                                   LN
            RX0       X0/X2          .(W-1.0)/(W+1.0) = T                     LN
            FX7       X0*X0          .Z=T*T                                   LN
            SA1       A5+B1          .D0                                      LN
            SA2       A1+B1          .D1                                      LN
            SA3       A2+B1          .D2                                      LN
            FX6       X7*X2          .Z*D1                                    LN
            FX5       X7*X7          .Z*Z                                     LN
            FX1       X1+X6          .D0 + Z*D1                               LN
            FX6       X5*X3          .D2*Z*Z                                  LN
            FX4       X5*X7          .Z**3                                    LN
            SA2       A3+B1          .D3                                      LN
            FX1       X1+X6          .D0 + D1*Z + C2*Z*Z                      LN
            FX3       X4*X2          .D3*Z**3                                 LN
            FX1       X1+X3          .TOTAL DENOMINATOR                       LN
            NX4       B0,X1                                                   LN
            FX6       X0/X4                                                   LN
            SA2       A2+B1          .C1                                      LN
            SA1       A2+B1          .C2                                      LN
            FX7       X7*X2          .C1*Z                                    LN
            FX5       X1*X5          .C2*Z**2                                 LN
            FX3       X3+X3          .2*C3*Z**3                               LN
            FX0       X0+X0          .2*T                                     LN
            FX4       X7+X3          .C1*Z+2*C3*Z**3                          LN
            SX3       B7-B3                                                   LN
            FX4       X4+X5          .C1*Z+C2*Z**2+2*C3*Z**3                  LN
            PX1       X3                                                      LN
            FX7       X6*X4          .FINAL TERM OF Q                         LN
            NX5       B0,X1                                                   LN
            SA3       A1+B1          .LN(2.0)                                 LN
            SA2       A3+B1                                                   LN
            FX6       X5*X3                                                   LN
            FX4       X0-X7          .2*T-Q                                   LN
            FX1       X5*X2                                                   LN
            DX5       X0-X7                                                   LN
            NX4       B0,X4                                                   LN
            RX5       X4+X5                                                   LN
            RX5       X5+X1                                                   LN
            RX5       X5+X6                                                   LN
            NX6       B0,X5                                                   LN
            EQ        P.LN                                                    LN
ERR1        SX0       MESG1                                                   LN
            EQ        ER                                                      LN
ERR2        SX0       MESG2                                                   LN
            EQ        ER                                                      LN
ERR3        SX0       MESG3                                                   LN
ER          SA1       P.LN                                                    LN
            EQ        P.SABRT                                                 LN
MESG1       DIS       ,=* ZERO ARGUMENT OF LN=                               LN
MESG2       DIS       ,=* NEGATIVE ARGUMENT OF LN=                           LN
MESG3       DIS       ,=* INFINITE OR INDEF ARGUMENT OF LN=                  LN
SQ2         DATA      55202363147747368                                      LN
ONE         DATA      1.0                                                     LN
```

D0	DATA	10395.0		LN
D1	DATA	6042103045655630403 3B	4.7788376999535E+03	LN
D2	DATA	1734452532634700042018		LN
D3	DATA	-230.4191303939 80937		LN
C1	DATA	604311667777777767728	-6.9300000000150E+03	LN
C2	DATA	1734515270155526 76278	5.3337566937178E+03	LN
LOGE2	DATA	17175427102775 7500008	LN(2)	LN
	DATA	16530717363257 1100008	LN(2)	LN
	END			LN

STORAGE USED   86 STATEMENTS   19 SYMBOLS
MODEL 73 ASSEMBLY   0.662 SECONDS   34 REFERENCES

000048

```
3/05 L
3/06 L
3/01 L                                                          000049
3/02 L
3/03 L
3/04 L
2/66          2/68        2/70 L
2/06          2/65 L
2/09          2/67 L
2/07          2/08        2/69 L
2/15          2/17 L
3/07 L
2/65          2/73 L
2/67          2/74 L
2/69          2/75 L
2/77 L
2/02 E        2/05 L      2/63        2/70
2/03 X        2/71
2/12          2/76 L
```

BINARY CONTROL CARDS.   000050

```
        IDENT     P.SQRT
        END
```

ENTRY POINTS.
P.SQRT   0+

EXTERNAL SYMBOLS.

P.SABRT

```
        IDENT   P.SQRT                                              SQRT
        ENTRY   P.SQRT                                              SQRT
        EXT     P.SABRT                                             SQRT
                                                                    SQRT
P.SQRT  DATA    0           ARGUMENT X IN X1            000051      SQRT
        ZR      X1,ZERO                                             SQRT
        NG      X1,ERR1                                             SQRT
        OR      X1,ERR2                                             SQRT
        ID      X1,ERR2                                             SQRT
*       SB1     1                                                   SQRT
        SB7     -48                                                 SQRT
        SA5     CA          .LOAD CA                                SQRT
        PX7     B7,X1       .W*2(-48)                               SQRT
        SA4     A5+B1       .LOAD CB                                SQRT
        FX0     X5*X7       .CA*W                                   SQRT
        UX5     B3,X1       .PICK OFF N-48 AND COEFFICIENT OF W     SQRT
        SX3     B3-B7       .N-48 -(-48) = N = 2*K + R              SQRT
        FX2     X4+X0       .CA*W + CB = INITIAL GUESS              SQRT
        AX6     X3,B1       .K = N DIV 2                            SQRT
        IX5     X3-X6       .N-K                                    SQRT
        FX4     X2*X2       .B*B                                    SQRT
        IX3     X5-X6       .N-K-K = R                              SQRT
        SA5     X3+TWOR     LOAD 2.**(R/2)*2(-1)                    SQRT
        SB7     X6          .B7 = K                                 SQRT
        FX0     X4+X7       .B*B + W                                SQRT
        FX3     X2*X0       .B*(B*B + W) = DENOM                    SQRT
        UX6     B3,X5       .                                       SQRT
        SB7     B7+B3       .INCORP K INTO EXPONENT OF 2**(R/2)*2   SQRT
        PX6     B7,X6       . 2(K)*2(R/2)*2(-1)                     SQRT
        NX3     B0,X3                                               SQRT
        FX2     X6/X3       .(2(K)*2(R/2)*2(-1) )/DENOM = TERM1     SQRT
        FX5     X0*X0       .(B*B + W)**2                           SQRT
        FX7     X7+X7       .2*W                                    SQRT
        FX7     X7+X7       .4*W                                    SQRT
        FX3     X7*X4       .4*W*B*B                                SQRT
        FX7     X3+X5       .NUM = (B*B+W)**2 + 4*W*B*B             SQRT
        FX0     X7*X2       .TERM1*NUM = 2*U                        SQRT
        SA5     A4+B1       .LOAD .25                               SQRT
        NX0     B0,X0                                               SQRT
        FX2     X1/X0       .ARG/(2*U)                              SQRT
        FX3     X5*X0       . .25*(2*U)                             SQRT
        FX6     X2+X3       .SUM OF ABOVE = SQRT(ARG)               SQRT
        EQ      P.SQRT                                              SQRT
                                                                    SQRT
ZERO    SX6     B0                                                  SQRT
        EQ      P.SQRT                                              SQRT
ERR1    SX0     MESG1                                               SQRT
        EQ      ERR                                                 SQRT
ERR2    SX0     MESG2                                               SQRT
ERR     SA1     P.SQRT                                              SQRT
        EQ      P.SABRT                                             SQRT
                                                                    SQRT
MESG1   DIS     ,=* NEGATIVE ARGUMENT OF SQRT=                      SQRT
MESG2   DIS     ,=* INFINITE OR INDEF ARGUMENT OF SQRT=             SQRT
CA      DATA    .585786437                                          SQRT
CB      DATA    .4204951288                                         SQRT
QUART   DATA    17164000000000000001B                              SQRT
        DATA    .353553390593                                      SQRT
TWOR    DATA    .5                                                  SQRT
        DATA    .707106781186                                      SQRT
        END                                                         SQRT
```

STORAGE USED   61 STATEMENTS   12 SYMBOLS
MODEL 73 ASSEMBLY   0.502 SECONDS   26 REFERENCES

```
2/12         2/55 L
2/56 L
2/48         2/50 L
2/07         2/47 L
2/08         2/09         2/49 L
2/47         2/53 L
2/49         2/54 L
2/03 X       2/51
2/02 E       2/05 L       2/43         2/46         2/50
2/57 L
2/23         2/59 L
2/06         2/45 L
```

BINARY CONTROL CARDS.

000053

      IDENT   P.ATAN
      END

ENTRY POINTS.
P.ATAN   0+

EXTERNAL SYMBOLS.
P.SABRT

BINARY CONTROL CARDS.

000053

      IDENT   P.ATAN
      END

```
              IDENT     P.ATAN                                              ATAN
              ENTRY     P.ATAN                                              ATAN
              EXT       P.SABRT                                             ATAN
                                                                  000054   ATAN
P.ATAN        DATA      0                 ARGUMENT X IN X1                  ATAN
              OR        X1,ERR1           TEST FOR EAD ARG                  ATAN
              SA4       TANP1             LOAD TAN(PI/16)                   ATAN
              IO        X1,ERR1                                            ATAN
*             SB1       1                                                   ATAN
              SA2       ONE                                                 ATAN
              BX0       X1                                                  ATAN
              AX1       59                                                  ATAN
              SB7       X1+777777B        SAVE SIGN IN B7                   ATAN
              BX3       X1-X0             X3  =  ABS(ARG)                   ATAN
AT1           FX7       X3-X2             .X-1                              ATAN
              SA5       A4+B1             .SQ2-1= .414.....                 ATAN
              PL        X7,LARG           .GO TO LARG IF X .GE. 1.0         ATAN
              IX7       X3-X4             .X-TAN(PI/16)                     ATAN
              FX6       X3-X5             .X-(SQ2-1)                        ATAN
              SB3       B0                .FLAG = 0                         ATAN
              SA5       A5+B1             .LOAD TAN(3PI/16)                 ATAN
              NG        X7,NRR            .IF X .LT. TAN(PI/16)             ATAN
              PL        X6,T2                                               ATAN
T1            FX7       X3*X4             .X*TAN(PI/16)                     ATAN
              RX6       X3-X4             .X-TAN(PI/16)                     ATAN
              SB3       B1                .FLAG = 1                         ATAN
              NX0       B0,X6                                               ATAN
              RX7       X2+X7             . 1.0 + X*TAN(PI/16)              ATAN
              RX3       X0/X7             .DIVIDE TO GET R                  ATAN
              JP        NRR                                                 ATAN
T2            FX7       X3*X5             .X*TAN(3PI/16)                    ATAN
              RX6       X3-X5             .X-TAN(3PI/16)                    ATAN
              SB3       B1+B1             .FLAG=2                           ATAN
              NX0       B0,X6                                               ATAN
              RX7       X2+X7             .1.0 + X*TAN(3PI/16)              ATAN
              RX3       X0/X7             .DIVIDE TO GET R                  ATAN
              JP        NRR                                                 ATAN
T4            FX7       X3*X4             .X*TAN(PI/16)                     ATAN
              FX0       X3+X4             .X*TAN(PI/16)                     ATAN
              SB3       B3+B3             .FLAG = 4                         ATAN
              FX6       X7-X2             .X*TAN(PI/16) - 1.0               ATAN
              NX5       B0,X6             .                                 ATAN
              FX3       X5/X0             .R                                ATAN
              JP        NRR               .                                ATAN
LARG          SA1       A2-B1             .SQ2+1= 2.1414.....               ATAN
              SA5       A5+B1             .TAN(3PI/16)                      ATAN
              FX0       X3-X1             .X-(SQ2+1)                        ATAN
              SB3       B1+B1             .                                .ATAN
T3            PL        X0,T4             .                                 ATAN
              FX7       X3*X5             .X*TAN(3PI/16)                    ATAN
              RX0       X3+X5             .                                 ATAN
              RX6       X7-X2             .X*TAN(3PI/16) - 1.0              ATAN
              NX5       B0,X6             .                                 ATAN
              RX3       X5/X0             .R                                ATAN
              SB3       B3+B1             .FLAG = 3                         ATAN
NRR           RX0       X3*X3             .Z = R*R                         ATAN
              SA1       A5+B1             .DB3                              ATAN
              SA2       A1+B1             .DB2                              ATAN
              FX7       X0*X0             .Z**2                            ATAN
              FX6       X1*X0             .DB3*Z                           ATAN
              FX5       X6+X2             .(DB3*Z+DB2)                     ATAN
              SA4       A2+B1             .DB1                              ATAN
              FX1       X4*X0             .DB1*Z                           ATAN
              FX2       X5*X7             . ( )*Z**2                       ATAN
              SA5       A4+B1             .DB0                              ATAN
              FX6       X2*X1             .                                 ATAN
              FX1       X6+X5             .TOTAL DENOMINATOR                ATAN
              RX6       X3/X1             .R/DENOM                          ATAN
              SA2       A5+B1             .DA3                              ATAN
              FX5       X2*X0             .DA3*Z                           ATAN
              SA1       A2+B1             .DA2                              ATAN
              SA4       A1+B1             .DA1                              ATAN
              FX2       X5+X1             .(DA3*Z+DA2) = ( 2)               ATAN
              FX7       X7*X2             .( 2)*Z**2                        ATAN
              FX0       X4*X0             . DA1*Z                           ATAN
              SA1       A4+B1             .DA0                              ATAN
              FX2       X7+X0             .( 2)*Z**2 + DA1*Z                ATAN
```

```
          FX2     X1+X2              .DA0 + ABOVE                     000055 ATAN
          RX7     X6*X2              .REST OF SERIES                         ATAN
          RX2     X3-X7              .ATAN(R)                                ATAN
          SA4     COR0+B3            .LOAD CORRECTION TERM 1                 ATAN
          SA1     A4+5               .LOAD CORRECTION TERM 2                 ATAN
          NX2     B0,X2              .                                       ATAN
          RX5     X2+X4              .                                       ATAN
          NX4     B0,X5              .                                       ATAN
          RX5     X4+X1              .                                       ATAN
          NX3     B0,X5              .                                       ATAN
          SX2     B7-B0                                                      ATAN
          BX6     X3-X2              .SIGN(ARG)*ATAN(ABS(ARG)  )             ATAN
          EQ      P.ATAN                                                     ATAN
                                                                            ATAN
ERR1      SX0     MESG1                                                     ATAN
          SA1     P.ATAN                                                    ATAN
          EQ      P.SABRT                                                   ATAN
                                                                            ATAN
MESG1     DIS     ,=* INFINITE OR INDEF ARGUMENT OF ATAN=                   ATAN
SQ2PI     DATA    2.414213                                                  ATAN
ONE       DATA    1.0                                                       ATAN
TANP1     DATA    17156272765700524613B                                    ATAN    1
SQ2M1     DATA    .414213                                                   ATAN    1
TAN3P     DATA    17175260670125337715B                                    ATAN    1
DB3       DATA    17355170257740451612B                                    ATAN    1
DB2       DATA    17405760164664461126B                                    ATAN    1
DB1       DATA    17416476573535613424B                                    ATAN    1
DB0       DATA    17414077370000000000B                                    ATAN    1
DA3       DATA    17354115643217650102B                                    ATAN    1
DA2       DATA    17375417632175023115B                                    ATAN    1
DA1       DATA    17375377237777777770B                                    ATAN    1
DA0       DATA    16507544514504101314B                                    ATAN    1
COR0      DATA    0.0                                                       ATAN    1
          DATA    16366000000000000000B                                    ATAN    1
          DATA    17156220773250420550B                                    ATAN    1
          DATA    17167665172122524702B                                    ATAN    1
          DATA    17175376673723356473B                                    ATAN    1
          DATA    0.0                                                       ATAN    1
          DATA    17156220773250420550B                                    ATAN    1
          DATA    17166220773250420551B                                    ATAN    1
          DATA    17167665172122524703B                                    ATAN    1
          DATA    17175376673723356474B                                    ATAN    1
          END                                                               ATAN    1

STORAGE USED              120 STATEMENTS        25 SYMBOLS
MODEL 73 ASSEMBLY         0.943 SECONDS         42 REFERENCES
```

```
2/15 L
3/04          3/33 L
3/32 L
3/31 L
3/30 L
3/29 L                                                   000056
3/28 L
3/27 L
3/26 L
3/25 L
2/06          2/08        3/15 L
2/17          2/45 L
3/15          3/19 L
2/22          2/30        2/37        2/44        2/56 L
2/10          3/21 L
2/02 E        2/05 L      3/13        3/16
2/03 X        3/17
3/23 L
3/20 L
2/07          3/22 L          .
3/24 L
2/24 L
2/23          2/31 L
2/49 L
2/38 L        2/49
```

BINARY CONTROL CARDS.

IDENT   P.RAND   000057
END

BLOCKS	TYPE	ADDRESS	LENGTH
PROGRAM*	LOCAL	0	13
LITERALS*	LOCAL	13	1

ENTRY POINTS.

P.RAND   0+

000057

```
          IDENT     P.RAND                                              MSURAND
          ENTRY     P.RAND                                              MSURAND
P.RAND    DATA      0                                                   MSURAND
          NZ        X1,RESET                              . 000058      MSURAND
          SA2       =7777377777777777777B                               MSURAND
          SA3       RHO            GET MULTIPLIER                       MSURAND
          SA4       XLOC           GET LAST RANDOM NUMBER IN CHAIN      MSURAND
          DX4       X3*X4          THE FULL LENGTH PRODUCT              MSURAND
          BX6       X2*X4          MODULO (2**47) GIVES RESULT          MSURAND
          SA6       A4             NEW RANDOM NUMBER IS FROM 0 TO 1     MSURAND
          NX6       X6                                                  MSURAND
          EQ        P.RAND                                              MSURAND
RESET     UX6       B7,X1          GET AND RESET PREVIOUS NUMBER        MSURAND
          SB7       B7+47          NOW GET MANTISSA IN THE RANGE        MSURAND
          AX6       B7             0 - 2**27-1                          MSURAND
          MX2       13                                                  MSURAND
          BX6       -X2*X6                                              MSURAND
          SA1       XLOC           GET PREVIOUS RANDOM NUMBER           MSURAND
          LX2       1              AND EXTRACT EXPONENT AND BIT ZERO    MSURAND
          BX3       X2*X1                                               MSURAND
          BX6       X3+X6          INSERT EXPONENT AND SET BIT ZERO     MSURAND
          SA6       A1             SET NEW PREVIOUS RANDOM NUMBER       MSURAND
          NX6       X1             AND RETURN OLD PREVIOUS ONE          MSURAND
          EQ        P.RAND                                              MSURAND
RHO       DATA      20000000343272446158B    MULTIPLIER IS 5**19       MSURAND
XLOC      DATA      17200000250000000251B    INITAIL RANDOM NUMBER     MSURAND
          END                                                          MSURAND

STORAGE USED              27 STATEMENTS          4 SYMBOLS
MODEL 73 ASSEMBLY      0.317 SECONDS            11 REFERENCES
```

```
2/02 E     2/03 L     2/12        2/24
2/04       2/13 L
2/06       2/25 L
2/07       2/18       2/26 L
```

        BINARY CONTROL CARDS.
        IDENT   PASCERR   000060
        END

ENTRY POINTS.
PASCERR   0+

EXTERNAL SYMBOLS.
P.MON   P.PUTS

```
          IDENT     PASCERR                                              PASCERR
          ENTRY     PASCERR                                              PASCERR
          EXT       P.MON,P.PUTS                           000061        PASCERR
                                                                         PASCERR
PASCERR   SA5       X0+14             FET ADDR OF OUTPUTFILE             PASCERR
          MX4       42                                                   PASCERR
          BX6       X4*X5                                                PASCERR
          SA6       B1+B1             LFN OF OUTPUTFILE INTO RA[2]       PASCERR
          SA5       64B                                                  PASCERR
          BX6       X4*X5                                                PASCERR
          SX5       B1                PROGRAM.HAS 1 PARAMETER            PASCERR
          BX6       X5+X6                                                PASCERR
          SA6       A5                                                   PASCERR
          SX6       X1                                                   PASCERR
          SA6       45B               STORE ADDR CF ERLIST IN RA[45B]   PASCERR
          SA1       X0+13                                                PASCERR
          RJ        P.PUTS            WRITE .EOR. ON OUTPUT FILE         PASCERR
          SX4       RPVTAB            DEACTIVATE RPV                     PASCERR
          SX5       1                                                    PASCERR
          SX6       3RRPV                                                PASCERR
          RJ        P.MON                                                PASCERR
          SA5       65B                                                  PASCERR
          LX5       59-18                                                PASCERR
          NG        X5,LOAD           JUMP IF COMPILER LOADED FROM LIBRARY PASCERR
          SA5       LDVREQ+1          LOAD FROM FILE                     PASCERR
          MX4       1                                                    PASCERR
          LX4       1+42                                                 PASCERR
          BX6       -X4*X5                                               PASCERR
          SA6       A5                                                   PASCERR
          SA5       64B               FILE NAME IN RA[64B]              PASCERR
          MX4       42                                                   PASCERR
          BX6       X4*X5                                                PASCERR
          SA6       LDVREQ                                               PASCERR
LOAD      SX4       LDVREQ            LOAD NEXT PROGRAM                  PASCERR
          SX5       0                                                    PASCERR
          SX6       3RLDV                                                PASCERR
          RJ        P.MON                                                PASCERR
LCOP      BX4       X4-X4                                                PASCERR
          BX5       X5-X5                                                PASCERR
          SX6       3RRCL                                                PASCERR
          RJ        P.MON                                                PASCERR
          EQ        LOOP                                                 PASCERR
                                                                         PASCERR
LDVREQ    VFD       36/6LPASCAL,24/0                                     MSUPASCAL
          VFD       6/0,6/0,2/1,4/1,3/4,3/1,18/0,18/100B                 PASCERR
          VFD       42/7LPASCMSG,18/0                                    PASCERR
                                                                         PASCERR
RPVTAB    VFD       60/0                                                 PASCERR
                                                                         PASCERR
          END                                                           PASCERR

STORAGE USED                50 STATEMENTS          7 SYMBOLS
MODEL 73 ASSEMBLY        0.484 SECONDS        18 REFERENCES
```

```
2/25        2/33 S      2/34        2/44 L
2/24        2/34 L
2/38 L      2/42
2/02 E      2/05 L
2/03 X      2/21        2/37        2/41
2/03 X      2/17
2/18        2/48 L
```

000062

BINARY CONTROL CARDS.

        IDENT   PASCELP
        END

ENTRY POINTS.

PASCELP   0+

```
        IDENT   PASCELP                                           PASCELP
        ENTRY   PASCELP                                           PASCELP
                                                                  PASCELP
PASCELP SA5     45B             THE ADDRESS OF ERLIST IS STORED   PASCELP
        BX6     X5              IN RA[45B]                        PASCELP
        SA6     X0              COPY ADDRESS TO PROGRAM           PASCELP
        SB7     X7                                                PASCELP
        JP      B7                                                PASCELP
                                                                  PASCELP
        END                                                       PASCELP
```

STORAGE USED   10 STATEMENTS   1 SYMBOLS
MODEL 73 ASSEMBLY   0.193 SECONDS   2 REFERENCES

BINARY CONTROL CARDS.

//////// END CARD MISSING.   000066
//////// END CARD MISSING.

BINARY CONTROL CARDS.

//////// END CARD MISSING.   000066
//////// END CARD MISSING.

```
*JOBCARD*,CM100000,JC4000,T200,L400.                                    INSTALL
ATTACH,OLDPL,PASCAL3PL.                                                 INSTALL
UPDATE,F.                                                               INSTALL
COPYCR,COMPILE,COMPS.                                                   INSTALL
COPYCR,COMPILE,SYSIOS.                                  000067          INSTALL
COPYCR,COMPILE,PASMSGS.                                                 INSTALL
COPYCR,COMPILE,SYSS.                                                    INSTALL
REWIND,COMPS,SYSIOS,PASMSGS,SYSS.                                       INSTALL
RETURN,OLDPL,COMPILE.                                                   INSTALL
COMPASS,I=SYSS,S=IPTEXT,B=SYSB.                                         INSTALL
RFL,60000.                                                              INSTALL
ATTACH,PASCAL,PASCAL3.                                                  INSTALL
PASCAL,SYSIOS,,SYSIOB.                                                  INSTALL
PASCAL,PASMSGS,,PASMSGB.                                                INSTALL
RFL,100000.                                                             INSTALL
PASCAL,COMPS,,COMPB.                                                    INSTALL
RETURN,SYSS,COMPS,SYSIOS,PASMSGS.                                       INSTALL
REWIND,SYSIOB,SYSB,PASMSGB,COMPB.                                       INSTALL
EDITLIB,USER.                                                           INSTALL
RETURN,PASCAL.                                                          INSTALL
COPYCR,INPUT,LDCOMPB.                                                   INSTALL
SKIPF,COMPB,133.                                                        INSTALL
COPYBR,COMPB,LDCOMPB.                                                   INSTALL
REWIND,COMPB.                                                           INSTALL
COPYBR,COMPB,LDCOMPB,133.                                               INSTALL
LDSET,LIB=LIB1.                                                         INSTALL
LOAD,LDCOMPB.                                                           INSTALL
NOGO.                                                                   INSTALL
NEWNAME,PASCAL,PASCOVL.                                                 INSTALL
RETURN,COMPB,LDCOMPB.                                                   INSTALL
COPYCR,INPUT,LDMSG.                                                     INSTALL
COPYBR,PASMSGB,LDMSG.                                                   INSTALL
LDSET,LIB=LIB1.                                                         INSTALL
LOAD,LDMSG.                                                             INSTALL
NOGO.                                                                   INSTALL
RETURN,LDMSG,PASMSGB.                                                   INSTALL
REWIND,PASCOVL,PASCMSG,SYSB,SYSIOB.                                     INSTALL
EDITLIB,USER.                                                           INSTALL
CATALOG,PASCAL,PASCAL3FUTURE,RP=999,ID=SCHEEL,CN=DANGER,MD=MOD,EX=EXT.  INSTALL
//////// END CARD MISSING.
```

```
STORAGE USED                 40 STATEMENTS          0 SYMBOLS
MODEL 73 ASSEMBLY          0.238 SECONDS            0 REFERENCES

          1 ERROR IN  CARD
```

OPERATION FIELD BAD.
          2

000068

LOCATION SYMBOL BAD.   SYMBOL NOT DEFINED.
          2

```
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NES PRINT, FOR $ 003.27 AT RG2.