```
SEQ. BRK. ROUTINES (SBROUT.55) 9/1/72  BPC/JBL

0/          OFFSET DCH
7/          JMP DATACH      /1  DATA CHANNEL
13/         JMP READER      /2  READER
17/         JMP PRINTER     /3  LINE PRINTER
23/         JMP CONTRL      /4  CONTROLLERS
27/         JMP LD          /5  SWAPPING DRUM
33/         JMP TTSERV      /6  SCANNER
37/         JMP 1SEC        /7  1 SEC CLOCK
43/         JMP 1MIN        /10 1 MIN CLOCK
47/         JMP NETINT      /11 ARPA NETWORK INTERFACE
53/         JMP PUNCH       /12 PUNCH
57/         JMP PDP7        /13 PDP-7'S
63/         JMP SOROBA      /14 TYPEWRITER
67/         JMP IOP         /15 IO PROCESSOR ISB'S
73/         JMP DISPAT      /16 RESTRICT MODE TRAP
77/         JMP SWAP        /17 32 MSEC. CLOCK

200/STAT.   TYIHNG          /STAT+177 MUST BE LESS THAN 8 BITS (377)
            REPEAT 77,      UNUSED

WHERE,      402             /XDDT IS IN CORE XCT
            REPEAT 77,300   /ALL OTHERS ARE UNUSED
↑L
```

```
/TELETYPE TRANSLATION TABLES
600/       /TABLES START AT ODD MULTIPLE OF 200

/BIT 0 INDICATES 12 BIT CHAR. ON INPUT
/BITS 1-6 ARE INTERNAL CODE OF INPUT CHAR.
/BIT 7 INDICATES CHAR. IS CT ALARM CHAR.
/BIT 8 INDICATES CHAR. IS NON-CT ALARM

/BITS 16-17 ARE TT OUTPUT CODE

W=402000   /WARNING ALARM CHARACTERS
C=002000   /6 BIT CT ALARM CHARACTERS
L=000000   /NON ALARM CHARACTERS
U=000177   /OUTPUT CHARACTER FOR UNUSED INTERNAL CODES

DEFINE M TYPE,IN,OUT
IN↑T4000+TYPE+OUT
TERMINATE M

TTTBL,                          /INPUT CHAR     /OUTPUT CHAR
M L,00,040                      /NULL           /SPACE
M W,01,041                      /↑A             /!
M W,02,042                      /↑B             /"
M W,03,043                      /↑C             /#
M W,04,044                      /EOT            /$
M W,05,045                      /WRU            /%
M W,06,046                      /RU             /&
M W,07,047                      /BELL           /'

M W,10,050                      /↑H             /(
M W,11,051                      /TAB            /)
M W,12,052                      /LF             /*
M W,13,053                      /VT             /+
M W,14,054                      /FORM           /,
M C,76,055                      /CR             /-
M W,16,056                      /↑N             /.
M W,17,057                      /↑O             //

M W,20,060                      /↑P             /0
M W,21,061                      /↑Q             /1
M W,22,062                      /TAPE           /2
M W,23,063                      /XOFF           /3
M W,24,064                      /↑T             /4
M W,25,065                      /↑U             /5
M W,26,066                      /↑V             /6
M W,27,067                      /↑W             /7

M W,30,070                      /↑X             /8
M W,31,071                      /↑Y             /9
M W,32,072                      /↑Z             /:
363073                          /"["=AM         /;
M W,34,074                      /"BS"           /<
M W,35,075                      /"]"            /=
M W,36,076                      /"↑"            />
M W,37,077                      /"←"            /?
↑L
```

```
M C.00.100          /SPACE      /@
M C.01.101          /!          /A
M L.02.102          /"          /B
M C.03.103          /#          /C
M C.04.104          /$          /D
M C.05.105          /%          /E
M C.06.106          /&          /F
M C.07.107          /'          /G

M C.10.110          /(          /H
M C.11.111          /)          /I
M C.12.112          /*          /J
M C.13.113          /+          /K
M C.14.114          /,          /L
M C.15.115          /-          /M
M L.16.116          /.          /N
M C.17.117          //          /O

M L.20.120          /0          /P
M L.21.121          /1          /Q
M L.22.122          /2          /R
M L.23.123          /3          /S
M L.24.124          /4          /T
M L.25.125          /5          /U
M L.26.126          /6          /V
M L.27.127          /7          /W

M L.30.130          /8          /X
M L.31.131          /9          /Y
M C.32.132          /:          /Z
M C.33.133          /;          /[
M C.34.175          /<          /AM
M C.35.135          /=          /]
M C.36.015          />          /CRLF
M C.37.  0          /?
↑L
```

```
M C,40,000          /@          /NULL
M L,41,001          /A          /↑A
M L,42,002          /B          /↑B
M L,43,003          /C          /↑C
M L,44,004          /D          /EOT
M L,45,005          /E          /WRU
M L,46,006          /F          /RU
M L,47,007          /G          /BELL

M L,50,010          /H          /↑H
M L,51,011          /I          /TAB
M L,52,012          /J          /LF
M L,53,013          /K          /VT
M L,54,014          /L          /FORM
M L,55,015          /M          /CR
M L,56,016          /N          /↑N
M L,57,017          /O          /↑O

M L,60,020          /P          /↑P
M L,61,021          /Q          /↑Q
M L,62,022          /R          /TAPE
M L,63,023          /S          /XOFF
M L,64,024          /T          /↑T
M L,65,025          /U          /↑U
M L,66,026          /V          /↑V
M L,67,027          /W          /↑W

M L,70,030          /X          /↑X
M L,71,031          /Y          /↑Y
M L,72,032          /Z          /↑Z
M C,73,033          /[          /"["
M W,44,034          /BS         /"BS"
M C,75,035          /]          /"]"
M W,46,036          /↑          /"↑"
M W,47,037          /←          /"←"
↑L
```

```
/LOWER CASE ASCII INPUT DEFINED AS UPPER CASE

M L, Ø,  Ø                  /          /BREAK
M L,41,377                  /A!        /RUBOUT
M L,42,  U                  /B!        /
M L,43,  U                  /C!        /
M L,44,134                  /D!        /BS
M L,45,  U                  /E!        /
M L,46,136                  /F!        /↑
M L,47,137                  /G!        /←

M L,5Ø,  U                  /H!        /
M L,51,  U                  /I!        /
M L,52,  U                  /J!        /
M L,53,  U                  /K!        /
M L,54,  U                  /L!        /
M L,55,  U                  /M!        /
M L,56,  U                  /N!        /
M L,57,  U                  /O!        /

M L,6Ø,  U                  /P!        /
M L,61,  U                  /Q!        /
M L,62,  U                  /R!        /
M L,63,  U                  /S!        /
M L,64,  U                  /T!        /
M L,65,  U                  /U!        /
M L,66,  U                  /V!        /
M L,67,  U                  /W!        /

M L,7Ø,  U                  /X!        /
M L,71,  U                  /Y!        /
M L,72,  U                  /Z!        /
M L, Ø,  U                  /          /
M L, Ø,377                  /          /RO
363ØØØ+U                    /EOM       /
363ØØØ+U                    /EOM       /
763ØØØ+U                    /RO        /

TTTBL+2ØØ,                  EXPUNGE C,L,M,W,U
↑L
```

```
1000,TTP, /TELETYPE PTRS. (200 WDS)

DEFINE TTPTRS NUM,ORG
REPEAT NUM,[
101         /LINE NOT OPEN, RNG SET
LAC 140000+[.-TTP-1]↑T2+ORG          /SERVICE PTR
LAC 140000+[.-TTP-2]↑T2+ORG          /USER PTR
0           /PGM WORD (0=DISCONNECTED)
]
TERMINATE TTPTRS

TTPTRS 10,100               /100-177 IS TT BUFFERS 0-7
TTPTRS 20,400-10↑T10        /400-577 IS TT BUFFERS 10-27
TTPTRS 10,1200-30↑T10       /1200-1277 IS TT BUFFERS 30-37

TTP/        105
TTP+3/      STAT 0

1300/
WHAT,       201             /LD FIELD 0 SAVED FOR SWAPPING
            REPEAT 37,400   /OTHER FIELDS EMPTY
            201             /BD SLOT 0 SAVED FOR SWAPPING
            REPEAT 61,400   /49. OTHER SLOTS

1422 CS1,       0
     CS2,       200         /XDDT IS IN CORE XCT
     CS3,       -3          /THERE AIN'T NO CORE DCH

     SWFLDF,    0
     SWFBDF,    40

     RCORE,     0
     ICORE,     0
     DCORE,     100000      /XDDT IS IN PHYSICAL CORE 10
     RSTAT,     0
     ERSTAT,    DCH .
     ISTAT,     0
     WTOP,      WHERE 1
     SWLGR,     0           /LAST GUY RUN, BUT NOT XDDT.
     ↑L
```

14 1'C 4
1314/
202

```
/INITIALIZER
INIT.     LAC .+2          /FLY THE SCANNER
          DAC 74
          CKS
          RIR 2S
          SPI
          RCC
          ISP 74
          JMP INIT+2
          RTB
          CAC
          CBS
          LAW DSWAP
          DAP 77
          ESM
          ISB 1700
          JMP .
DSWAP.    LAW SWAP
          DAP 77
          LIO (340000)     /MEMORY PROTECT BITS
          ERM
          ASC 100
          ASC 200
          NOP
          ASC 400
          ASC 500
          ASC 600
          ASC 700
          ASC 1000
          ASC 1100
          ASC 1200
          ASC 1300
          ASC 1400
          ISB 600          /JUST TO MAKE SURE SCANNER FLYING
          ISB 1100         /  AND START UP NETWORK
          EEM
          JMP I .+1
DSWAPX.   DCH SWORG        /DAC'ED INTO BY RESTART TAPE
↑L
```

```
/DATA CHAN SEQ BRK
DATACH. LIF↑USCF↑UCLL
        DIO DATSAV
        EEM
        JMP I DATADR

DATX.   LIO DATSAV
        LFI
        LIO 6
        LAC 4
        JMP I 5
DATSAV. Ø

/CONTROLLERS SEQ BRK
CONTRL. LIO CONSAV
        LIF↑ULFI
        DIO CONSAV
        EEM
        JMP I CONADR

CONX.   LIO CONSAV
        LIF↑ULFI
        DIO CONSAV
        LAC 2Ø
        LIO 22
        JMP I 21
CONSAV. Ø

/IO PROCESSOR LOW PRIORITY SEQ BRK
IOP.    LIF↑USCF↑UCLL
        DIO IOPSAV
        EEM
        JMP I IOPADR

IOPX.   LIO IOPSAV
        LFI
        LIO 66
        LAC 64
        JMP I 65
IOPSAV. Ø

/READER SEQ BRK
DIMENSION RDRBUF(RDLEN)

READER. JSP RDR
        LIO 12
        LAC 1Ø
        JMP I 11

RDVAR.  DCH .
RBI.    COR RDRBUF
RBO.    COR RDRBUF
RBE.    COR RDRBUF+RDLEN
RBK.    Ø
RDWHO.  -Ø
↑L
```

```
RDR,        RRB
RB1,        XX              / RPA OR DIO RB1
            DAP READEX
            LAC RBI
            SMA
            JMP RB4
            LAC I RBI
            RCL 9S
            LAC RBI
RB4,        RIL 9S
            DIO I RBI
            ADD (400000)
            SAD RBE
            SUB (RDLEN)
            DAC RBI
            ADD (1)         /NOT IDA: MIGHT BE IN RING MODE.
            SUB RBE
            RAL 1S
            SMA
            SUB (RDLEN RDLEN)
            RAR 1S
            ADD RBE
            SUB RBO
            RAL 1S
            SPA
            ADD (RDLEN RDLEN)
            SZA I
            JMP RB6
            SAS (RDLEN RDLEN-40)
            JMP RB5
7RDRI,      LAC RDWHO
            SPA             /OR SAD (-0)
            JMP RB5         /NO USER
            SAD BDSTAT
            LAW FSTAT
            DAP RDVAR
            LIO (3
            LAW I 7777      /BUFFER FILLING
            LSM
            AND I RDVAR
            SAS (RPAHNG)    /HUNG ?
            JMP RB7         /NO
            DIO I RDVAR
            DZM HOTFLG
RB7,        ESM
RB5,        RCK
            DIO RBK
READEX,     JMP .

RB6,        LIO .+1         /BUFFER FULL ON NEXT CHARACTER
CRB1,       DIO RB1
            JMP RB5
↑L
```

```
/PUNCH SEQ BRK

DIMENSION PUNBUF(PUNLEN)

PUNCH.  IDX PRUN
        LAC PSP
        SAD PUP
        JMP PUNX
        DZM PRUN
        LIO I PSP
        PPA
        IDX PSP
        SAD PEND
        SUB (PUNLEN)
        DAC PSP
        ADD (10)
        SAD PUP
        JMP PUNALM
        SUB (PUNLEN)
        SAS PUP         /10 CHARS FROM FULL?
        JMP PUNX
PUNALM. LAC PUNWHO
        SPA             /OR SAD (-0)
        JMP PUNX        /NO USER
        SAD BDSTAT
        LAW FSTAT
        DAP PVAR
        LAW I 7777
        LSM
        AND I PVAR
        SAS (PPAHNG)    /HUNG ?
        JMP PUNCH1      /NO
        LAW 3
        DAC I PVAR
        DZM HOTFLG
PUNCH1. ESM
PUNX.   LIO 52
        LAC 50
        JMP I 51

PUNWHO. -0
PSP.    COR PUNBUF
PUP.    COR PUNBUF
PEND.   COR PUNBUF+PUNLEN
PVAR.   DCH .
PRUN.   .
↑L
```

```
/SOROBAN SEQ BRK
SOROBA.   EEM
          LSM
          JSP I SORADR
SORX.     ESM
          LIO 62
          LAC 60
          JMP I 61


/1 SEC CLOCK
1SEC.     LIO (1)          /CHANNEL 7 ROUTINE TO UNHANG
          LAW STAT         /USERS WHO ARE CLOCK HUNG
1SECL1.   DAP 1PTR
1SECL2.   LAW I 7777       /LOOP TO SEARCH FOR CLOCK-HUNG
          LSM
1PTR.     AND .
          SAD (CLKHNG)
          JMP 1SECT2       /FOUND ONE
1SECT1.   ESM
          IDX 1PTR
          SAD (AND FSTAT+1)
          JMP HUNG
          ADD (WHERE-STAT-AND)
          SAS WTOP
          JMP 1SECL2
          LAW FSTAT
          JMP 1SECL1

1SECT2.   IDX I 1PTR       /COUNT TOWARD 777
          AND (777)        /SEE SPP & DDTWNT
          SZA              /TIME TO UNHANG?
          JMP 1SECT1       /NO
          DIO I 1PTR
          DZM HOTFLG
          JMP 1SECT1
↑L
```

```
RRI=IOT 37
RRO=IOT 17

TXHUNG:   702445          677756
HUNGFC,   123456
HUNGHS,   123456
HUNGTR,   123456
HUNGRRO,  0
HUNGCTR,  -5

HUNG,     EEM
          LAC I XNUMRRO   /INDEXED ON EVERY "RRO+500"
          SAD HUNGRRO
          JMP HUNG2
          DAC HUNGRRO
          LAW I 5
          DAC HUNGCTR
          JMP 1SECC
HUNG2,    LSM
          RRI
          LAI
          AND (400027)
          SAD (400021)    /ABN,BSY,CONNECTED ?
          ISP HUNGCTR
          JMP HUNG3
          LIO (700000)
          RRO+500
           NOP            /DIAG SWITCH UP ?
          LAC HUNGCTR
          SZA
          JMP HUNG3
          RRI+100
          DIO HUNGFC
          RRI+1000
          DIO HUNGHS
          RRI+1100
          DIO HUNGTR
          LAC (TXHUNG)
          JDA 14STXT      /"HUNG" ON SOROBAN
HUNG3,    ESM
↑L
```

```
1SECC,    LSM
          LAC ØCTR
          DZM ØCTR
          ESM
          SZA
          JSP I 1SECJA
1SECA,    LSM
          LAC 1CTR
          DZM 1CTR
          ESM
          SZA
          JSP I 1SECJB
1SECB,    SZS I 40
7TT2,     JSP .+1          /NORMAL .+1; ABNORMAL 7TT4, SET ON CH6
          LAC RB1
          SAS RB2
          JMP 7RDRX
          LSM
          RCK
          LAI
          SUB RBK
          ESM
          SPA
          ADD (60000.)
          SUB (100.)
          SPA
          JMP 7RDRX
          LIO .+1
          DIO RB1
          DSC 200
          LAW 7RDRXX
          DAP READEX
          JMP 7RDRI

7RDRXX,   ASC 200
7RDRX,    LIO 36
          LAC 34
          JMP I 35

ØCTR,     Ø
1CTR,     Ø
/1 MINUTE CLOCK
↑L
```

```
1MIN.   EEM
        JMP I 1MIADR
1MIX.   LIO 42
        LAW 1000
        DAP TTF         /SEE SWNN DISPLAY HACK
        LAC 40
        JMP I 41

/LINE PRINTER INTERRUPTS (CHANNEL 3?!)
PRINTER.  EEM
        JMP I PTRBRK

PTRRTN.   LIO 16
        LAC 14
        JMP I 15

/PDP-7 INTERRUPTS (CHANNEL 13)
PDP7.   EEM
        JMP I TELINT
PDP7X.  LIO 56
        LAC 54
        JMP I 55

/NETWORK INTERRUPTS (CHANNEL 11)
NETINT.   EEM
        JSP I NTINT
        ESM
        LAC 44
        LIO 46
        JMP I 45

START
↑L
```