```
                               1                IDENT     IFHNDLR
                               1+001            INCLUDE   ↑SYSMAC
                               1+002            UWBDEF
                             102      . *                                              *
                             103      . ******************************************************************
                             104      . *                                              *
                             105      . *           UWBLOCK BLOCK DEFINITIONS          *
                             106      . *                                              *
                             107      . *                                              *
 00000                       108      CONBLOCK EQU      0               POINTER TO 8 WORD CONTROL BLOCK *
 00001                       109      BFPTR    EQU      CONBLOCK+1      POINTER TO CURRENT CORE BUFFER  *
                             110      . *                              -0 IF NO BUFFER PRESENT          *
 00002                       111      BLKPOS   EQU      BFPTR+1         CURRENT BLOCK POSITION          *
 00003                       112      IMADR    EQU      BLKPOS+1        ADDRESS OF WORD COUNT AND IMAGE *
 00004                       113      CALLBAD  EQU      IMADR+1         CALL BACK ADDRESS               *
                             114      . *                              RTJ MACHERR                     *
 00006                       115      RDIST    EQU      CALLBAD+2       ENI BLOCK,CBI                   *
                             116      . *                              UJP IMPURE                      *
 00010                       117      WCNT     EQU      RDIST+2         TEMPORARY WORD COUNT            *
 00011                       118      CBLOCK   EQU      WCNT+1          ADDRESS OF CURRENT BLOCK        *
 00012                       119      TIMAD    EQU      CBLOCK+1        TEMPORARY FOR CURRENT POSITION  *
 00013                       120      PSALOC   EQU      TIMAD+1         ADDRESS OF ASSOCIATED PSA       *
 00013                       121      DISKBUSY EQU      PSALOC          BUFFER UNSAFE FLAG              *
                             122      . *                              ENI BLOCK,CBI                    *
 00015                       123      EXITADD  EQU      PSALOC+2        UJP IMPURE   RETURN ADDRESS     *
 00016                       124      PFSAVE   EQU      EXITADD+1       TEMP TO SAVE THE CONTENTS OF PF1*
 00017                       125      UWBWC    EQU      PFSAVE+1        TEMP TO SAVE WC AND CALL BACK   *
 00020                       126      UWBRET   EQU      UWBWC+1         ADDRESS IF CALL TO UWBLOCKB     *
 00021                       127      UWBX3    EQU      UWBWC+2         TEMP TO SAVE RETURN ADDRESS IF  *
                             128      . *                              CALL TO UWBLOCKB                *
                             129      . *                              BIT23 IF LAST RECORD WAS ILOGOFF*
 00022                       130      BATCHPNT EQU      UWBX3+1         POINTER TO THE PROPER BATCH Q   *
 00023                       131      DESTLP   EQU      BATCHPNT+1      DESTINATION LINE PRINTER        *
 00024                       132      UWMAX    EQU      DESTLP+1        NUMBER OF WORDS IN SHORT BLOCK  *
                             133      . *                                                              *
                             134      . *                              THE FOLLOWING ARE USED ONLY FOR *
                             135      . *                              DEVICES THAT COME FROM THE PDP8 *
 00024                       136      EXPDATA  EQU      UWMAX           BIT23 SEZZ EXPECTING DATA       *
                             137      . *                              BITS 14--0 HAVE 64 WORD BLOCK   *
                             138      . *                              ADDRESS                         *
 00025                       139      COMWORD  EQU      EXPDATA+1       12 BIT BYTES WITH THE CONTROL   *
                             140      . *                              BLOCK INFORMATION               *
 00026                       141      DEVTYPE  EQU      COMWORD+1       BITS 14--0 HAVE UWBLOCK ROUTINE *
                             142      . *                              POINTER                         *
 00027                       143      UWMAXA   EQU      DEVTYPE+1       NUMBER OF WORDS IN LONGER BLOCKS*
                             144      . *                                                              *
                             145      . ******************************************************************
```

```
       3
       4    ************************************************************************
       5    *                                                                      *
       6    *          THIS ROUTINE IS THE PDP8 CDC 3300 INTERFACE DRIVER.         *
       7    *                                                                      *
       8    *          THIS ROUTINE HANDLES ALL I/O TRANSFERS BETWEEN THE TWO      *
       9    *          MACHINES.  ALL TABLES USED IN THE TRANSFER OF INFORMATION ARE *
      10    *          BUILT BY IFSTART DURING INITIALIZATION.  IF FOR SOME REASON  *
      11    *          A NEW TYPE OF DATA TRANSFER WERE TO BE ADDED, IT IS LIKLY    *
      12    *          THAT ALL CHANGES WOULD BE TO IFSTART.                        *
      13    *                                                                      *
      14    *          ALL INFORMATION BETWEEN THE TWO MACHINES IS IN THE FOLLOWING *
      15    *          FORMAT:                                                      *
      16    *                                                                      *
      17    *          LABEL        COUNT                                          *
      18    *          BYTE         BYTE                                           *
      19    *          BYTE         BYTE                                           *
      20    *                                                                      *
      21    *            .            .                                            *
      22    *            .            .                                            *
      23    *            .            .                                            *
      24    *          BYTE         BYTE                                           *
      25    *          BYTE         BYTE                                           *
      26    *                                                                      *
      27    *          ALL DATA BYTES ARE ASSUMED TO BE 12 BITS LONG.  THE EXACT   *
      28    *          MEANING OF COUNT MAY VARY BETWEEN DIFFERENT TYPES OF DATA SO *
      29    *          TO OBTAIN THE CORRECT MEANING FOR COUNT ABOUT ANY PARTICULAR *
      30    *          TYPE OF DATA, SEE THE COMMENTS ON THAT SECTION.              *
      31    *                                                                      *
      32    *          IF SOME REASON THE PDP8 INTERFARCE WERE TO BE REPLACED BY    *
      33    *          SOME OTHER PIECE OF EQUIPMENT (CDC 1700, 3316, 3266, ETC)    *
      34    *          MOST OF THIS ROUTINE WOULD HAVE TO BE SCRAPPED.  HOWEVER,    *
      35    *          SOME SECTION (PCHARS, TTINP, CHAINL, AND OTHERS) COULD       *
      36    *          BE USED WITH LITTLE OR NO CHANGES.                          *
      37    *                                                                      *
      38    ************************************************************************
      39
      40              MACRO        LAB,,FUNCTION
      41              NAME         ISSUE
      42    $LAB      ENA          $FUNCTION           ENTER FUNCTION CODE TO ISSUE
      43              RTJ          SEL                 ISSUE FUNCTION
      44              END
      45
      46    ************************************************************************
      47    *                                                                      *
      48    *          IF TEST NE 0 THIS CAUSES A GOOD NUMBER OF COPY INSTRUCTIONS  *
      49    *          TO BE GENERATED.  THE PDP-8 STATUS ON EQUIPMENT INTERUPT     *
      50    *          IS PUT IN RF 30B AND THE STATUS AFTER A CALL TO CONNECT IS   *
      51    *          PUT IN RF 31B. RF27B IS INCRIMENTED AFTER A NO RESPONSE STATUS *
      52    *          IS SENSED ON EQUIPMENT INTERUPT.                            *
      53    *          ALSO, A BUNCH OF SLS≠S ARE ASSEMBLED IN OPERTUNE PLACES.     *
      54    *                                                                      *
      55    *          IF TEST, EQ 0, ALL THE ABOVE IS NOT DONE, AND THE REGULAR    *
      56    *          PDP-8 DRIVER WILL EXIST                                      *
      57    *                                                                      *
      58    ************************************************************************
      59
00000  60    TEST      EQU          0                   NO HALTS OR CHECKS
       61
00743 P  61+001        ENTRY        CHAR
00647 P  61+002        ENTRY        CHAROUT
00771 P  62            ENTRY        CHAINL
00747 P  63            ENTRY        CHARINP
00641 P  64            ENTRY        CHAROUTP
00003 P  64+001        ENTRY        DUMPLAB             POINTER TO DUMP LABEL
00011 P  64+002        ENTRY        DUMP8
00200 P  65            ENTRY        IFCON
00414 P  66            ENTRY        IFEXIT
00410 P  67            ENTRY        IFEND
00005 P  68            ENTRY        IFINIT
00020 P  69            ENTRY        IFINT
00001 P  70            ENTRY        PDP8BLK
00521 P  71            ENTRY        PDP8CTLX
01060 P  72            ENTRY        PCHARS
       73
       74            EXT          A
       75            EXT          BIT17
       76            EXT          BIT19
      76+001          EXT          BIT22
```

```
              77              EXT      BIT2321
              78              EXT      BIT23
              78+001          EXT      BIT2322
              79              EXT      CONNECT
              80              EXT      CONTROLA
              81              EXT      CMQSET
              82              EXT      CMCODE
              83              EXT      CR
              84              EXT      CREATE
              84+001          EXT      DUMPLABL          LABEL TO USE FOR ≠DUMP≠ OPERATION
              85              EXT      FREECHN
              86              EXT      FREEMEM           FREE STORAGE ROUTINES
              87              EXT      GETMEM
              88              EXT      HSINP
              89              EXT      INBOUND
              90              EXT      INHIBIT
              91              EXT      IOCLEAR
              92              EXT      IOSET
              92+001          EXT      MAX8FLD
              93              EXT      NBIT19
              94              EXT      NBIT23
              95              EXT      NITWAIT
              96              EXT      NOUTBND
              97              EXT      OUTBOUND
              98              EXT      PDP8CQ
              99              EXT      PDP8CQL
             100              EXT      PDP8IQ
             101              EXT      PDP8IQL
             102              EXT      PDP8OQ
             103              EXT      PDP8OQL
             104              EXT      PSABLK
             105              EXT      TERMINAL
             106              EXT      TIMLIM
             107              EXT      TTCNT
             108              EXT      TTINMAX
             109              EXT      TTFCHR
             110              EXT      TTLCHR
             111              EXT      TTNUM
             112              EXT      SYSCM
             113              EXT      UNCON             UNCONNECT ROUTINE
             114              EXT      WCTIME
             115
07773        116     DINT     EQU      7773B
00000        117     IMPURE   EQU      0
00000        118     IO       EQU      0
00000        119     SELECT   EQU      0
00000        120     SENSE    EQU      0
00001        121     X1       EQU      1
00002        122     X2       EQU      2
00003        123     X3       EQU      3
00001        124     BLK      EQU      X1
00003        125     PSA      EQU      X3
             126
*****************************************************************************************
             128     *
             129     *                 PREDEFINED BLOCK LABELS                           *
             130     *                                                                   *
*****************************************************************************************
             132
00000        133     MAINT    EQU      0
00001        134     CONTROL  EQU      1
00002        135     TTYDATA  EQU      2
```

```
                          137  *                    STATUS CODES FOR INTERFARCE
                          138  *
        00001             139  READY    EQU     00018          READY AND PDP-8 RUNNING
        00002             140  BUSY     EQU     0002B          BUSY
                          141                    0004B          IF WORD COUNT REG. NOT LOADED
                          142  *                 00108          IF BANK BITS NOT LOADED
                          143  *                 0020B          IF ADDRESS NOT LOADED
                          144  *                 0040B          WRITE REQUEST (3300 TO IF)
        00100             145  STRDREQ  EQU     0100B          READ REQUEST (IF TO 3300)
        00200             146  STCMBIT  EQU     0200B          COMMUNICATION BIT
        00400             147  STRSERR  EQU     0400B          RESPONSE ERROR
        01000             148  STRBINT  EQU     1000B          READY AND NOT BUSY INTERRUPT
        02000             149  STEOINT  EQU     2000B          END CF OPERATION INTERRUPT
        04000             150  STABINT  EQU     4000B          ABNORMAL END CF OPERATION INT.
                          151
                          152  *
                          153  *                    FUNCTION CODES FOR INTERFARCE
                          154  *
                          155  *
        00001             156  FNWREQ   EQU     00018          SET CDC WRITE REQUEST (3300 TO IF
                          157                                   SETS:
                          158  *                                 CDC CONTROL
                          159  *                                 CDC ENABLE
                          160  *                                 ADDRESS, XADDRESS, AND WORD
                          161  *                                 COUNT NOT LOADED
                          162  *                                 CDC READ REQUEST INDICATOR
                          163  *                                 PRLIMINARY READ / WRITE
                          164  *                                RESETS:
                          165  *                                 PDP ENABLE
                          166  *                                 ADDRESS AND WORD COUNT REGISTERS
                          167  *                                 WORD COUNT OVERFLOW
                          168  *                                REJECTED IF PDP-8 CONTROL OR
                          169  *                                 ENABLE SET.
                          170
                          171  *
        00002           171+001 FNRREQ  EQU     0002B          SET READ REQUEST (IF TO 3300)
                          173  *                                OTHERS SAME AS FNFWREQ
                          174
                          175  *
        00003             176  FNCOMM   EQU     0003B          SET COMMUNICATION BIT
                          177                                   SHOULD NOT BE REJECTED
                          178  *
                          179  *
        00004           179+001 FNLDWC  EQU     0004B          SET LOAD WORD COUNT INDICATOR
                          181  *                                REJECTED IF CDC ENABLE OFF
                          182
                          183  *
        00010           183+001 FNLDAD  EQU     0010B          SET LOAD ADDRESS INDICATOR
                          185  *                                REJECTED IF CDC ENABLE OFF
                          186
                          187  *
        00020             188  FNALW    EQU     0020B          ALLOW TRANSFER
                          189                                   RESET PDP-8 CONTROL,
                          190  *                                RESET CDC ENABLE.
                          191  *                                REJECTED IF:
                          192  *                                 ADDRESS REGISTER NOT LOADED
                          193  *                                 WORD COUNT REGISTER NOT LOADED
                          194  *                                 CDC ENABLE OFF
                          195  *
        00040             196  FNINT8   EQU     0040B          SET PDP INTERRUPT
                          197                                   IF CDC CONTROL ON, SET PDP ENABLE
                          198                                   RESET CDC ENABLE
                          199                                   SHOULD NOT BE REJECTED
                          200  *
                          201  *
        00100             202  FNRERR   EQU     0100B          SET RESPONSE ERROR
                          203                                   SHOULD NOT BE REJECTED
                          204  *
                          205  *
        00200             206  FNENINT  EQU     0200B          ENABLE INTERRUPT ON READY
                          207                                   AND NOT BUSY TRANSITION
                          208                                   SHOULD NOT BE REJECTED
                          209  *
                          210  *
        00400             212  FNINT    EQU     0400B          ALLOW PDP-8 TO INTERRUPT
                          213                                   SHOULD NOT BE REJECTED
                          214  *
                          215  *
```

```
01000              216   FNIEOO   EQU      1000B        ENABLE EOO AND AB EOO INTERRUPTS
                   217   *                              SHOULD NOT BE REJECTED
                   218   *
                   219   *
02000              220   FNRIEN   EQU      2000B        RESET INTERRUPT ENABLES
                   221   *                              SHOULD NOT BE REJECTED
                   222   *
                   223   *
04000              224   FNCLINT  EQU      4000B        CLEAR INTERRUPT CONDITION
                   225   *                              CLEARS COMMUNICATION BIT
                   226   *                              CLEARS RESPONSE ERROR
                   227   *                              SHOULD NOT BE REJECTED
```

```
00000  00000000         230  IFBUSY   VFD     A21/IMPURE,03/0       RIGHT 3 BITS ARE I/O RELOCATION
       00010             231  IFREAD   EQU     10B                  BIT SEZ READ IN PROGRESS
       00020             232  IFWRITE  EQU     20B                  BIT SEZ WRITE IN PROGRESS
00001  00000000         233  PDP8BLK  VFD     09/000,A15/IMPURE    ADDRESS OF LAST BLOCK READ INTO
       00701             233+001 PDPWCST EQU   -62 AND 777B         WORD COUNT/ADDRESS INITIAL VALUE
00002  00000000         233+002 PDPWCAD VFD    A24/IMPURE
00003  00000000         233+003 DUMPLAB VFD    A24/IMPURE           SET BY IFSTART ROUTINE
                        234
                        235
                        236
                        ***************************************************************************
                        238  *                                                                    *
                        239  *        SECTION TO START THE PDP8 DRIVER IF IT IS NOT BUSY           *
                        240  *                                                                    *
                        241  *        CALL WITH THE FOLLOWING SEQUENCE:                            *
                        242  *                                                                    *
                        243  *        DINT                                                        *
                        244  *        ENI     RETURN,X2                                           *
                        245  *        UJP     IFINIT                                              *
                        246  *                                                                    *
                        ***************************************************************************
                        248
00004  14200000         249  CNTLEXIT ENI     IMPURE,X2
       00005 P          250  IFINIT   EQU     *
00005  20000000 P       251           LDA     IFBUSY               CHECK FOR CURRENT ACTIVITY
00006  03100236 P       252           AZJ,NE  UJP0X2               RETURN IF ALREADY BUSY
00007  00700177 P       253           RTJ     CONS                 CONNECT TO DEVICE
00010  01000042 P       254           UJP     IFIN                 TRY INPUT BEFORE TRYING OUTPUT
                        255
                        256
       00011 P          256+001 DUMP8  EQU     *
00011  20000000 P       256+002        LDA     IFBUSY               GET THE BUSY FLAG
00012  03200014 P       256+003        AZJ,GE  *+2                  SKIP IF NOT BUSY
00013  01377776         256+004        UJP     -1,X3                RETURN AN ERROR IF BUSY
00014  35077777 X       256+005        SSA     BIT23                SET BUSY BIT
00015  40000000 P       256+006        STA     IFBUSY               AND RETURN TO STORAGE
00016  14600701         256+007        ENA     PDPWCST              STARTING WORD COUNT/ADDRESS
00017  40000002 P       256+008        STA     PDPWCAD              FOR STARTING THIS CRAZY THING
                        256+009 *****  UJP     IFINT                AND FAKE AN ≠INTERRUPT≠
                        257
                        ***************************************************************************
                        259  *                                                                    *
                        260  *        THE FOLLOWING SECTION IS ENTERED WHENEVER THERE IS A PDP8    *
                        261  *        EQUIPMENT INTERRUPT                                          *
                        262  *                                                                    *
                        ***************************************************************************
                        264
       00020 P          265  IFINT    EQU     *                    ENTER HERE ON DEVICE INTERRUPT
00020  53300000         266           TIA     X3
00021  53600000         267           TAI     X2
                        275  .SKP
00022  77730000         276           VFD     A12/DINT,A12/0       SAFTY MEASURES
00023  00700177 P       277           RTJ     CONS                 CONNECT TO IF
00024  20000000 P       278           LDA     IFBUSY
00025  03000042 P       279           AZJ,EQ  IFIN                 CHECK FOR READ DESIRED IF NOT
00026  03300125 P       279+001        AZJ,LT  DUMPMODE             WE IS IN WHAT YOU CALL ≠DUMPMODE≠
                        280  *                                     BUSY
                        281
                        282
00027  04000000         283  CHFLAG   ISE     IMPURE,0             SKIP IF NO CH ERRORS
00030  01000044 P       284           UJP     IFOUT                CHANNEL INTERRUPT ERRORS
00031  04600020         285           ASE     IFWRITE              SKIP IF WRITE OPERATION
00032  01000042 P       286           UJP     IFIN                 LOOK FOR ANOTHER READ
00033  04000000         287  DVFLAG   ISE     IMPURE,0             SKIP IF NO DEVICE ERRORS
00034  01000114 P       288           UJP     IFERR
                        289
                        ***************************************************************************
                        291  *                                                                    *
                        292  *        THE LAST TRANSFER WAS COMPLETE.  LOOK FOR MORE TO DO.        *
                        293  *                                                                    *
                        ***************************************************************************
                        295
00035  20000111 P       296           LDA     FWA                  LOAD THE ADDRESS OF THE BLOCK
00036  47000111 P       297           STI     FWA,0                CLEAR THE ADDRESS
00037  15477776         298           INA,S   -1
00040  14300006         299           ENI     6,X3                 BLOCKS ARE 64 WORDS LONG
00041  00777777 X       300           RTJ     FREEMEM
                        301
       00042 P          302  IFIN     EQU     *
```

```
00042  77200100        303              EXS      STRDREQ,SENSE       CHECK FOR READ REQUEST
00043  01000143 P      304              UJP      READ                JUMP IF SET
                       305
00044  54200111 P      306   IFOUT      LDI      FWA,X2              ATTEMPT TO TRANSFER TO PDP8
00045  02600102 P      307              IJD      IFOUT02,X2
00046  14177777 X      308              ENI      PDP8OQL,X1          ENTER LENGTH CF OUTPUT QUEUE
00047  20077777 X      309   MEQLOOP    LDA      BIT17
00050  21000047 X      310              LDQ      BIT17
00051  06177777 X      311              MEQ      PDP8OQ,1            LOCK FCR OUTPUT TRANSFER
00052  01000224 P      312              UJP      IFRELS
00053  20100051 X      313              LDA      PDP8OQ,X1
00054  53600000        314              TAI      X2                  POINTER TO X2
00055  36000000        315              SCA      0,X2                IS THIS THE ONLY BLOCK IN THIS
00056  05600001        316              ASG      1                   QUEUE   IF IT IS NOT OR IF THIS
00057  03200117 P      317              AZJ,GE   CHECINFO            IS THE SECOND TIME USE THE BLOCK
00060  25200000        318   USEBLK     LDAQ     0,X2                LOAD POINTER AND WORD COUNT
00061  40100053 X      319              STA      PDP8OQ,X1
00062  12000006        320              SHA      6
00063  03300067 P      321              AZJ,LT   IFOUT01
00064  14600061 X      322              ENA      PDP8OQ
00065  53140000        323              AIA      X1
00066  40100064 X      324              STA      PDP8OQ,X1
00067  53100000        325   IFOUT01    TIA      X1                  BLOCK LABEL TO A
00070  12400014        326              SHQ      12                  COUNT TO HIGH END OF Q
00071  13000014        327              SHAQ     12
00072  40200001        328              STA      1,X2                SAVE LABEL AND WORD COUNT
00073  15200001        329              INI      1,X2                GENERATE FIRST WORD ADDRESS
00074  47200111 P      330              STI      FWA,X2              FOR THE TRANSFER
00075  17600177        331              ANA      1773                SAVE JUST THE LENGTH
00076  15600003        332              INA      2+1                 ONE WORD FOR THE LABEL AND ROUND
00077  12077776        333              SHA      -1                  TRUNCATE
00100  53640000        334              IAI      X2                  LWA TO X2
00101  47200110 P      335              STI      LWA,X2              SAVE THE ADDRESS
00102  14200174 P      336   IFOUT02    ENI      IFINCH,X2           ENTER REJECT ADDRESS
00103  14600001        337              ISSUE    FNWREQ
00105  14600040        338              ISSUE    FNINT8
00107  14600020        339              ENA,S    IFWRITE             RELOCATION AND CONTROL BIT
00110  76000000        340   LWA        OUTW,INT IO,IMPURE,IMPURE
00111  00400000
       00111 P         341   FWA        EQU      LWA+1
00112  01000110 P      342              UJP      *-2
00113  01000172 P      343              UJP      IFRETSX
                       344
                       345
       00114 P         346   IFERR      EQU      *
                       347              IF TEST, COPY SENSE
                       348              IF TEST, SLS
00114  77200100        349              EXS      STRDREQ,SENSE
00115  01000143 P      350              UJP      READ
00116  01000224 P      351              UJP      IFRELS              EXIT
00117  20200001        352   CHECINFO   LDA      1,X2                LOAD THE WORD COUNT
00120  14700174        353              ENQ      62+62               IS THE BLOCK FULL
00121  03600060 P      354              AQJ,GE   USEBLK              USE THE BLOCK IF IT IS
00122  20000014 X      355              LDA      BIT23               REMEMBER WE HAVE SCANNED THE
00123  34100066 X      356              RAD      PDP8OQ,X1           BLOCK CNCE
00124  01000047 P      357              UJP      MEQLOOP             LOOK FOR OTHER TRANSFERS
                    357+001
       00125 P      357+002   DUMPMODE   EQU      *
00125  12000001     357+003              SHA      1                  CHECK FCR ECF FLAG
00126  03300340 P   357+004              AZJ,LT   DUMPEOF             SEND OUT EOF IF ON
       00127 P      357+005   DUMPMOD1   EQU      *
00127  14600002     357+006              ISSUE    FNRREQ              SELECT WRITE TO INTERFACE REQ
00131  14600014     357+007              ISSUE    FNLDAD+FNLDWC       SELECT LOADING ACDRESS/WORD COUNT
00133  13077717     357+008              SHAQ     -48                 CLEAR A AND Q
00134  76000003 P   357+009              OUTW     IO,PDPWCAD,PDPWCAD+1
00135  00000002 P
00136  01000134 P   357+010              UJP      *-2                 OUTPUT ADDRESS INDICATORS
00137  77300006     357+011              INS      6,SENSE             CHECK FOR READ/WRITE FINISHED
00140  01000137 P   357+012              UJP      *-1                 INEFFICIENT BUT EFFECTIVE
00141  77300001     357+013              INS      1,SENSE             CHECK FOR CHANNEL PARITY ERRORS
00142  01000127 P   357+014              UJP      DUMPMOD1            JUMP AND RE-TRANSMIT IF ERRORS
                    357+015   *****      UJP      READ                AND READ A BLOCK FROM ≠8
```

```
                                ****************************************************************************************
                        361     *                                                                                    *
                        362     *                  SECTION TO PROCESS READ (PDP8 TO 3300)                            *
                        363     *                                                                                    *
                                ****************************************************************************************
                        365
           00143 P      366     READ      EQU       *
00143  14100145 P      366+001            ENI       *+2,X1                     RETURN ADDRESS
00144  01000345 P      366+002            UJP       GETBLOCK                   AND GET A BLOCK TO READ INTO
00145  21000000 P      366+003            LDQ       IFBUSY                     GET BUSY INDICATOR
00146  05500000        366+004            QSG,S     0                          SKIP IF NOT ≠DUMPING≠
00147  15600001        366+005            INA       1                          OFFSET FOR LABEL LATER
00150  15600001        372               INA       1
00151  44000170 P      373               SWA       INFWA                      SET FWA
00152  15600077        374               INA       63                         READ 63 WORDS
00153  05500000        374+001            QSG,S     0                          SKIP IF REGULAR MODE
00154  15477776        374+002            INA,S     -1                         SHORTER BLOCK -- BACKUP WORD CNT
00155  44000167 P      375               SWA       INLWA                      SET END ADDRESS
00156  14200224 P      377               ENI       IFRELS,X2                  REJECT ADDRESS
00157  14604020        377+001            ENA       FNALW+FNCLINT              ALLOW XFER AND CLEAR INTERRUPTS
00160  05500000        377+002            QSG,S     0
00161  14604040        377+003            ENA       FNINT8+FNCLINT             INTERRUPT IF DUMPING
00162  00700231 P      377+004            RTJ       SEL                        GO SELECT IT
00163  14477777        379               ENA,S     777778                     THIS IS A DEBUGGING TRAP
00164  54300170 P      380               LDI       INFWA,3                    FIRST WORD ADDRESS
00165  40300000        381               STA       0,3                        PREVENT NO WORDS TO BE READ
00166  14400010        382               ENA,S     IFREAD                     RELOCATION AND CONTROL
00167  74000000        383     INLWA     INPW,INT   IO,IMPURE,IMPURE
00170  00400000
           00170 P      384     INFWA     EQU       INLWA+1
00171  01000167 P      385               UJP       *-2
00172  44000000 P      385+001   IFRETSX SWA       IFBUSY                     SET THE BUSY FLAG
00173  01000000        387     IFRET     UJP       IMPURE
                        388
                        389
           00174 P      390     IFINCH    EQU       *
                        391               IF TEST,  COPY SENSE
                        392               IF TEST,  SLS
00174  77200100 P      393               EXS       STRDREQ,SENSE              CHECK FOR READ REQUEST
00175  01000143 P      394               UJP       READ
                        395     *                                             WRITE REQUEST FUNCTION WAS REJECT
                        396     *                                             FOR AN UNKNOWN REASON.
00176  01000224 P      397               UJP       IFRELS                     DO NOT CLEAR READ REQ INTERRUPT
```

```
                                    ****************************************************************
                        401    *                                                              *
                        402    **           CONNECT ROUTINE                                   *
                        403    *                                                              *
                        404    *            ENTER WITH THE FOLLOWING SEQUENCE:                *
                        405    *                                                              *
                        406    *            RTJ       CONS                                    *
                        407    *                                                              *
                                    ****************************************************************
                        409
00177  01000000         410    CONS      UJP       IMPURE               ROUTINE TO CONNECT TO IF
00200  14100000         411    IFCON     ENI       IMPURE,X1            CONNECT CODE
00201  14702114         412              ENQ       1100                 CHANNEL TIME LIMIT
00202  14300202 P       413              ENI       *,X3
00203  01077777 X       414              UJP       CONNECT
00204  00700246 P       415              RTJ       CHANINT              CHANNEL COMPLETION COMMAND
00205  01200000         416              UJP       0,X2                 CHANNEL BUSY RETURN
                        417              IF TEST, COPY SENSE
                        418              IF TEST, TAM 318
00206  47200173 P       419              STI       IFRET,X2             SAVE RETURN ADDRESS
00207  14200214 P       420              ENI       BNEWS,X2             REJECT RETURN
00210  14605400         421              ISSUE     (FNINT+FNIEOO+FNCLINT)
00212  77200001         422              EXS       READY,SENSE          CHECK FOR READY
00213  01000177 P       423              UJP       CONS                 RETURN
       00214 P          424    BNEWS     EQU       *                    IF NOT READY
00214  24077777 X       424+001          LCA       BIT2322              MASK FOR CLEARING
00215  37000000 P       424+002          LPA       IFBUSY               CLEAR THE ≠DUMP MODE≠ FLAG
00216  40000000 P       424+003          STA       IFBUSY               AND RETURN TO STORAGE
                        425              IF TEST, COPY SENSE
                        426              IF TEST, SLS
00217  14100764         427              ENI       500,X1               COUNT FOR REJECT
00220  77106000         428              SEL       FNRIEN+FNCLINT,SELECT
00221  02500220 P       429              IJD       *-1,X1
00222  77100600         430              SEL       FNENINT+FNINT,SELECT    INTERRUPT WHEN READY AND
00223  02500222 P       431              IJD       *-1,X1               ENABLE PDP8 INTERRUPT
       00224 P          432    IFRELS    EQU       *
00224  47000000 P       433              STI       IFBUSY,0
00225  54200173 P       434              LDI       IFRET,X2             LOAD RETURN ADDRESS
00226  01077777 X       435              UJP       UNCON                AND RELEASE CHANNEL
                        436
                        437
                                    ****************************************************************
                        439    *                                                              *
                        440    *            SELECT ROUTINE                                    *
                        441    *                                                              *
                        442    *            ENTER WITH THE FOLLOWING SEQUENCE:                *
                        443    *                                                              *
                        444    *            ENI       REJECT ADDRESS,X2                       *
                        445    *            ENA       FUNCTION                                *
                        446    *            RTJ       SEL                                     *
                        447    *                                                              *
                                    ****************************************************************
                        449
00227  77100000         450    ISUF      SEL       IMPURE,SELECT        ISSUE FUNCTION
00230  01000234 P       451              UJP       REJ
00231  01000000         452    SEL       UJP       IMPURE               ROUTINE TO ISSUE FUNCTIONS
00232  44000227 P       453              SWA       ISUF                 SAVE THE FUNCTION
00233  14100005         454              ENI       5,X1                 ALLOW 5 REJECTS
00234  02500227 P       455    REJ       IJD       ISUF,X1
                        456
                        457              IF TEST, COPY SENSE
                        458              IF TEST, SLS
00235  77200001         459              EXS       READY,SENSE          CHECK FOR READY
00236  01200000         460    UJP0X2    UJP       0,X2                 RETURN TO REJECT ADDRESS
00237  01000214 P       461              UJP       BNEWS                THE 8≠S SCREWED UP AGAIN
```

```
                                   *******************************************************************
                         465     *                                                                  *
                         466     *       CHANNEL INTERRUPT PROCESSOR                                 *
                         467     *                                                                  *
                         468     *       THIS ROUTINE CHECKS FOR ERRORS AND DOES ERROR RECOVERY     *
                         469     *       PROCEDURES IF NEEDED.  IF THERE WERE NO ERRORS THIS ROUTINE*
                         470     *       WILL BRANCH TO THE PROPER ROUTINE DEPENDING UPON THE BLOCK *
                         471     *       LABEL.  ON CALLS TO PROCESSING ROUTINES X3 CONTAINS THE    *
                         472     *       BLOCK ADDRESS; Q CONTAINS THE BYTE COUNT IN BITS 23-12;     *
                         473     *       X2 AND IFEXIT CONTAIN THE RETURN ADDRESS; AND ON NON-STANDARD*
                         474     *       BLOCKS THE MACRO CONTROL BLOCK ADDRESS IS IN A.             *
                         475     *                                                                  *
                                   *******************************************************************
                         477
        00240 P          478     CHERRORS EQU       *
                         479              IF TEST, COPY SENSE
                         480              IF TEST, SLS
00240  20000000 P        481              LDA       IFBUSY           CHECK FOR TYPE OF OPERATION
00241  04600010          482              ASE       IFREAD
00242  01000246 P        483              UJP       CHANINT          REDO BAD WRITES
00243  47000000 P        484              STI       IFBUSY,0         FORGET BAD READS
00244  77100140          484+001          SEL       FNINT8+FNRERR,SELECT  INTERRUPT AND SET RESPONSE ERR
00245  01200000          484+002          UJP       0,X2             JUMP AND EXIT IF REJECTED
00246  01000000          486     CHANINT  UJP       IMPURE           ROUTINE ENTERED ON CH COMPLETION
00247  44000027 P        487              SWA       CHFLAG           SAVE CHANNEL ERRORS
00250  54200246 P        488              LDI       CHANINT,X2       REJECT ADDRESS
00251  03100240 P        489              AZJ,NE    CHERRORS         JUMP OFF IF ERRORS
00252  77100200          489+001          SEL       FNENINT,SELECT   ENABLE INTERRUPT ON EOP
00253  01200000          489+002          UJP       0,X2             EXIT IF REJECT
00254  77200000          491              COPY      SENSE            GET STATUS
00255  17604400          492              ANA       STRSERR+STABINT
00256  44000033 P        493              SWA       DVFLAG           SAVE ERRORS FOR LATER
00257  03100246 P        494              AZJ,NE    CHANINT          DON≠T PROCESS IF ABNORMAL
00260  21000000 P        494+001          LDQ       IFBUSY           GET BUSY FLAG
00261  04700010          494+002          QSE       IFREAD           SKIP IF PROCESSING A READ INPUT
00262  01200000          497              UJP       0,X2             EXIT IF A WRITE
00263  54300021 P        498              LDI       PDP8BLK,X3       LOAD THE BLOCK ADDRESS
00264  20300001          499              LDA       1,X3             LOAD THE FIRST WORD TRANSFERED
00265  47200414 P        499+001          STI       IFEXIT,X2        SAVE THE RETURN ADDRESS
00266  05500000          499+002          QSG,S     0                SKIP IF NOT DUMPING
00267  01000305 P        499+003          UJP       DUMPINCR         GO INCREASE ADDRESS AND PASSON
        00270 P          499+004  DUMPFAKX EQU       *
00270  13077763          500              SHAQ      -12              LEAVE LABEL IN A, SAVE WC IN Q
        00271 P          500+001  DUMPFAKE EQU       *
00271  54200414 P        500+002          LDI       IFEXIT,X2        RESTORE POSSIBLY DAMAGED RETURN
00272  53500000          502              TAI       X1               LABEL TO X1
00273  05100003          503              ISG       STANTABL,X1      IS THIS NORMAL RUN OF THE MILL
00274  01100302 P        504              UJP       STANTAB,X1       DATA    DECODE IT IF SO
00275  05177777 X        505              ISG       PDP8IQL,X1       PREVENT NON-EXISTANT MEMORY REF
00276  20177777 X        506              LDA       PDP8IQ,X1        LOAD CONTROL BLOCK ADDRESS FOR
00277  05100275 X        507              ISG       PDP8IQL,X1       NON STANDARD STUFF
00300  03277777 X        508              AZJ,GE    HSINP            UNPACK THE BLOCK
00301  00000414 P        509              HLT       IFEXIT           BAD BLOCK LABEL
                         510
                         511
        00302 P          512     STANTAB  EQU       *
        00302 P          513              ORGR      STANTAB+MAINT
00302  01000475 P        514              UJP       IFECHO           MAINTENANCE
        00303 P          515              ORGR      STANTAB+CONTROL
00303  01000415 P        516              UJP       ITTC             TELETYPE TURN ON/OFF
        00304 P          517              ORGR      STANTAB+TTYDATA
00304  01000364 P        518              UJP       ITTD             TELETYPE DATA
        00003            519     STANTABL EQU       *-STANTAB
```

```
                00305 P    519+003  DUMPINCR EQU     *
00305  14200314 P          519+004           ENI     DUMPINC1,X2         RETURN ADDRESS
                           519+005
                00306 P    519+006  BLOCKCHK EQU     *
00306  14177777 X          519+007           ENI     DUMPLABL,X1         WE MUST SEE IF THE BLOCK
00307  20100276 X          519+008           LDA     PDP8IQ,X1           WILL BE ACCEPTED BEFORE
00310  53500000           519+009           TAI     X1                  INCREMENTING THE ADDRESS.
00311  20100024           519+010           LDA     EXPDATA,X1          JUST READ IT AGAIN IF NOT
00312  03200410 P          519+011           AZJ,GE  IFEND               SAVE HEADACHES IF NOT ACCEPTABLE
00313  01200000           519+012           UJP     0,X2                RETURN TO CALLER
                           519+013
                00314 P    519+014  DUMPINC1 EQU     *
00314  20000002 P          519+015           LDA     PDPWCAD             GET THE WORD
00315  14700000           519+016           ENQ     0                   CLEAR IT
00316  13000014           519+017           SHAQ    12                  ADDRESS TO Q
00317  12000014           519+018           SHA     12                  AC(0-11)=EXT.ADD+WC Q(0-11)=ADDR
00320  15700174           519+019           INQ     124                 INCREASE POINTER
00321  17707777           519+020           ANQ     7777B               MASK TO 4K FIELD LENGTH
00322  05700174           519+021           QSG     124                 SKIP TO TEST FOR END OF FIELD
00323  15601000           519+022           INA     1000B               INCREASE FIELD ADDRESS
00324  05700174           519+023           QSG     124                 CHECK TO SEE IF TO RESET CNTR
00325  14700000           519+024           ENQ     0                   SET TO ZERO IF SO
00326  05677777 X          519+025           ASG     MAX8FLD             SKIP IF OVER THE TOP ADDRESS
00327  01000333 P          519+026           UJP     NOTEOF              JUMP IF NOT AN END OF FILE
00330  20077777 X          519+027           LDA     BIT22               GET THE EOF IN PROCESS FLAG
00331  34000000 P          519+028           RAD     IFBUSY              AND SET FOR NEXT ENTRY
00332  01000336 P          519+029           UJP     EOFOUT              EXIF IF EOF
                00333 P    519+030  NOTEOF   EQU     *
00333  12000014           519+031           SHA     12                  UP TO TOP OF A FOR REPACK
00334  13000014           519+032           SHAQ    12                  AND PACK INTO A
00335  41000002 P          519+033           STQ     PDPWCAD             AND SAVE NEW ADDRESS/WORDCNT
                00336 P    519+034  EOFOUT   EQU     *
00336  20000003 P          519+035           LDA     DUMPLAB             THEN USE THE DUMPING LABEL
00337  01000270 P          519+036           UJP     DUMPFAKX            AND JUMP BACK TO SEND IT
                           519+037
                00340 P    519+038  DUMPEOF  EQU     *
00340  54200173 P          519+039           LDI     IFRET,X2            RESTORE THE RETURN ADDRESS
00341  47200414 P          519+040           STI     IFEXIT,X2           SAVE RETURN ADDRESS
00342  14200344 P          519+041           ENI     *+2,X2              RETURN ADDRESS
00343  01000226 X          519+042           UJP     UNCON               AND RELEASE/UNCONNECT FROM CHAN
00344  14100354 P          519+043           ENI     DUMPEOF1,X1         RETURN ADDRESS
                           519+044
                00345 P    519+045  GETBLOCK EQU     *
00345  20000001 P          519+046           LDA     PDP8BLK             GET POSSIBLE CURRENT BLOCK
00346  14300006           519+047           ENI     6,X3                SAY A 64 WORD BLOCK
00347  05600001           519+048           ASG     1                   SKIP IF BLOCK EXISTS
00350  00777777 X          519+049           RTJ     GETMEM              GET A BLOCK IF ONE DOES NOT EXIST
00351  53700000           519+050           TAI     X3                  BLOCK ADDRESS TO X3
00352  44000001 P          519+051           SWA     PDP8BLK             AND SAVE BLOCK ADDRESS FOR LATER
00353  01100000           519+052           UJP     0,X1                RETURN TO CALLER
                           519+053
                00354 P    519+054  DUMPEOF1 EQU     *
00354  14200356 P          519+055           ENI     *+2,X2              RETURN ADDRESS
00355  01000306 P          519+056           UJP     BLOCKCHK            SEE IF IT WILL BE ACCEPTED
00356  24000214 X          519+057           LCA     BIT2322             CLEARING MASK
00357  37000000 P          519+058           LPA     IFBUSY              CLEAR CONDITIONS
00360  40000000 P          519+059           STA     IFBUSY              AND RESTORE THE WORD
00361  14600306 X          519+060           ENA     DUMPLABL            LABEL FOR DUMP BLOCKS
00362  14700000           519+061           ENQ     0                   ZERO FOR EOF
00363  01000271 P          519+062           UJP     DUMPFAKE            AND SEND THE BLOCK TO MOVEBUFF
```

```
**********************************************************************************
523      *
524      *         THIS SECTION UNPACKS TTY INPUT BLOCKS
525      *
526      *         TTY INPUT DATA IS SENT UP PACKED IN THE FOLLOWING FORMAT
527      *
528      *         LABEL       BYTE COUNT
529      *         TTY NUM     CHAR
530      *         TTY NUM     CHAR
531      *            .           .
532      *            .           .
533      *            .           .
534      *         TTY NUM     CHAR
535      *         TTY NUM     CHAR                   BYTE COUNT / 2 OF THESE
536      *
537      *         THIS SECTION CHECKS THAT THE TTY NUM IS A LEGAL TTY NUMBER
538      *         THEN CALLS TTINP TO DO THE ACTUAL PROCESSING OF THE DATA
539      *
**********************************************************************************

                00364 P       541
00364  54277777 X             542      ITTD     EQU      *
                              543               LDI      PSABLK,X2      LOAD POINTER TO PHANTOM PSA
00365  20277777 X             544               LDA      WCTIME,X2      MAKE SURE THE SYSTEM HAS BEEN
00366  15477753               545               INA,S    -20            RUNNING AT LEAST 20 SECONDS
00367  04200000               546               ISE      0,X2           SKIP IF NO PHANTOM
00370  03300410 P             547               AZJ,LT   IFEND          IGNORE THE DATA
00371  15300001               548               INI      1,X3           IGNORE THE POINTER WORD
00372  47300377 P             549               STI      LOOK,X3        SAVE THE BLOCK ADDRESS
00373  13000013               550               SHAQ     11             WORD COUNT TO A
00374  42002033 P   00406 3   551               SACH     ENDIN+3        SAVE NUMBER OF CHARACTERS
00375  14200000               552               ENI      0,X2
00376  01000406 P             553               UJP      ENDIN
00377  20200000               554      LOOK     LDA      IMPURE,X2      LOAD A WORD FROM THE BLOCK
00400  13077763               555               SHAQ     -12            SHIFT DOWN FOR TTY NUMBER
00401  53500000               556               TAI      BLK
00402  47200405 P             557               STI      *+3,X2
00403  05177777 X             558               ISG      TTNUM,BLK      SKIP IF A PDP8 ERROR
00404  00700534 P             559               RTJ      TTINP
00405  14200000               560               ENI      IMPURE,X2
00406  10200000               561      ENDIN    ISI      IMPURE,X2
00407  01000377 P             562               UJP      LOOK
00410  14300006               563      IFEND    ENI      6,X3
00411  20000001               564               LDA      PDP8BLK
00412  47000001 P             565               STI      PDP8BLK,0
00413  00700041 X             566               RTJ      FREEMEM
00414  01000000               567      IFEXIT   UJP      IMPURE
```

```
                              *********************************************************************
                     571      *                                                                   *
                     572      *       THIS SECTION PROCESSES TTY CONTROL INFORMATION SENT FROM THE *
                     573      *       PDP8 TO THE 3300.                                            *
                     574      *                                                                   *
                     575      *       TTY CONTROL INFORMATION IS PACKED IN THE FOLLOWING FORMAT    *
                     576      *                                                                   *
                     577      *       LABEL      BYTE COUNT                                        *
                     578      *       BYTE       BYTE                                              *
                     579      *       BYTE       BYTE                                              *
                     580      *         .          .                                              *
                     581      *         .          .                                              *
                     582      *         .          .                                              *
                     583      *       BYTE       BYTE                                              *
                     584      *       BYTE       BYTE                         BYTE COUNT / 2 OF THESE  *
                     585      *                                                                   *
                     586      *       IN BITS 10-00 OF EACH BYTE IS A NUMBER.  IF THE TERMINAL     *
                     587      *       ASSOCIATED WITH THAT NUMBER IS A TTY THE SIGN BIT ON THE     *
                     588      *       BYTE IS USED TO SAY                                          *
                     589      *       IF SET    TURN OFF   (SET IFWAIT)                            *
                     590      *       IF CLEAR  TURN ON    (CLEAR IFWAIT)                          *
                     591      *                                                                   *
                     592      *       IF THE TERMINAL NUMBER IS NOT A TTY THE BYTE IS ASSUMED TO   *
                     593      *       BE CONTROL INFORMATION FOR SOME HIGH SPEED DEVICE (PAPER     *
                     594      *       TAPE EQUIPMENT OR 200 UT≠S) AND THE BYTE IS DECODED USING    *
                     595      *       PDP8CQ.  PDP8CQ IS BUILD BY IFSTART DURING INITIALIZATION.   *
                     596      *                                                                   *
                              *********************************************************************
                     598
                00415 P      599      ITTC     EQU     *
00415 20000473 P             600               LDA     BITS            SET UP THE SSH FLAG
00416 40000474 P             601               STA     ITTCFLAG
00417 47300430 P             602               STI     ITTCBLK,X3      SAVE THE BLOCK ADDRESS
00420 14200002               603               ENI     2,X2            POINT TO THE FIRST DATA WORD
00421 13000014               604               SHAQ    12              COUNT TO A
00422 17600177               605               ANA     177B            WE JUST WANT THE COUNT
00423 53500000               606               TAI     X1
00424 01000471 P             607               UJP     CENP            JUMP TO END OF LOOP
00425 14600000               608      ITTC02   ENA     IMPURE          ENTER THE CHARACTER
00426 10000474 P             609               SSH     ITTCFLAG
00427 01000434 P             610               UJP     ITTC04          JUMP IF WE REALLY HAVE THE CHAR
00430 20200000               611      ITTCBLK  LDA     IMPURE,X2       LOAD THE WORD FROM THE BLOCK
00431 15200001               612               INI     1,X2
00432 44000425 P             613               SWA     ITTC02          SAVE THE LOW CHARACTER
00433 12077763               614               SHA     -12
                00434 P      615      ITTC04   EQU     *
00434 53700000               616               TAI     X3
00435 17303777               617               ANI     3777B,X3
00436 13077763               618               SHAQ    -12
00437 05300403 X             619               ISG     TTNUM,X3
00440 01000442 P             620               UJP     *+2
00441 01000471 P             621               UJP     CENP            FORGET IF TOO LARGE
00442 20300364 X             622               LDA     PSABLK,X3
00443 12000004               623               SHA     4               IS THE DEVICE A TTY
00444 03200455 P             624               AZJ,GE  ITTC05          JUMP IF IT IS
00445 47100452 P             625               STI     ITTCX1,X1
00446 47200453 P             626               STI     ITTCX2,X2
00447 14200452 P             627               ENI     ITTCX1,X2       ENTER THE RETURN ADDRESS
00450 05377777 X             628               ISG     PDP8CQL,X3      SKIP IF GARBAGE
00451 01377777 X             629               UJP     PDP8CQ,X3       START THE OUTPUT DEVICE
                             630
00452 14100000               631      ITTCX1   ENI     IMPURE,X1
00453 14200000               632      ITTCX2   ENI     IMPURE,X2
00454 01000471 P             633               UJP     CENP
                             634      *
                00455 P      635      ITTC05   EQU     *
00455 12000024               636               SHA     24-4
00456 04600000               637               ASE     0               SKIP IF NO PSA PRESENT
00457 05400000               638               ASG,S   0               SKIP IF NOT LOGON/LOGOFF STATUS
00460 01000471 P             639               UJP     CENP            IGNORE THE REQUEST
00461 53700000               640               TAI     PSA
00462 05500000               641               QSG,S   0               SKIP IF TURN ON
00463 01000467 P             642               UJP     ITOFF
00464 14477777 X             643               ENA,S   NOUTBND
00465 00777777 X             644               RTJ     IOCLEAR         CLEAR WAIT BIT
00466 01000471 P             645               UJP     CENP
                00467 P      646      ITOFF    EQU     *
00467 14477777 X             647               ENA,S   OUTBOUND
00470 00777777 X             648               RTJ     IOSET           STOP THIS GUY
```

```
00471   02500425 P          649     CENF    IJD     ITTC02,X1
00472   01000410 P          650             UJP     IFEND
                            651     *
00473   52525252            652     BITS    OCT     52525252
00474   00000000            653     ITTCFLAG VFD    A24/IMPURE
```

```
                                    ******************************************************************************
                          657    *                                                                           *
                          658    *      THE FOLLOWING SECTION IS USED TO CHECK MAINTENANCE INFORMATION        *
                          659    *      SHIPPED BETWEEN THE PDP8 AND THE 3300.  MAINTENANCE BLOCKS ARE        *
                          660    *      BLOCKS OF DATA THAT CONTAIN THE SAME BIT PATTERN IN EACH 12 BIT       *
                          661    *      BYTE.  THEY ARE INITIATED BY A PDP8 CONSOLE COMMAND AND               *
                          662    *      ARE USED TO CHECK INTERFARCE RELIABILITY WHEN THE SYSTEM              *
                          663    *      IS RUNNING.  ALL THIS CODE DOES IS CHECK THAT ALL 24 BIT WORDS        *
                          664    *      ARE THE SAME AND IF NOT IT HALTS.  MAINTENANCE INFORMATION            *
                          665    *      SHOULD NOT BE SENT ANYTIME USERS ARE ON BECAUSE THE INCREASE          *
                          666    *      IN JOB TIME DUE TO CYCLE STEALING AND INTERRUPT PROCESSING            *
                          667    *      MAY PASS 30%.                                                         *
                          668    *                                                                           *
                                    ******************************************************************************
                          670
            00475 P       671    IFECHO  EQU       *
00475  20100123 X         672            LDA       PDP8OQ,X1          CHECK FOR ONLY 1 BLOCK
00476  12000006           673            SHA       6
00477  03300410 P         674            AZJ,LT    IFEND              IGNORE IF ALREADY A BLOCK
00500  47000001 P         675            STI       PDP8BLK,0
00501  53300000           676            TIA       X3                 BLOCK ADDRESS TO A
00502  14700174           677            ENQ       62+62              RESET THE WORD COUNT
00503  45300000           678            STAQ      0,X3               STORE THE POINTER AND THE COUNT
00504  35000050 X         679            SSA       BIT17
00505  40500475 X         680            STA,I     PDP8OQ,X1
00506  15600002           681            INA       2
00507  44000512 P         682            SWA       IFEC01
00510  44000513 P         683            SWA       IFEC02
00511  14100075           684            ENI       61,X1
00512  20000000           685    IFEC01  LDA       IMPURE
00513  36100000           686    IFEC02  SCA       IMPURE,X1
00514  04677777           687            ASE       77777B
00515  04400000           688            ASE,S     0
00516  00000520 P         689            HLT       *+2
00517  02500512 P         690            IJD       IFEC01,X1
00520  01000005 P         691            UJP       IFINIT
                          692
                          693
                                    ******************************************************************************
                          695    *                                                                           *
                          696    *      THE FOLLOWING SECTION IS USED TO PACK CONTROL INFORMATION             *
                          697    *      THAT WILL BE SENT TO THE PDP8.                                        *
                          698    *                                                                           *
                          699    *      CALL WITH THE FOLLOWING SEQUENCE:                                     *
                          700    *                                                                           *
                          701    *      ENI       RETURN,X2                                                   *
                          702    *      ENI       BYTE,X1            BITS 11--00 ONLY                         *
                          703    *      UJP       PDP8CTLX                                                    *
                          704    *                                                                           *
                                    ******************************************************************************
                          706
            00521 P       707    PDP8CTLX EQU      *
00521  47200004 P         708            STI       CNTLEXIT,X2        SAVE THE RETURN ADDRESS
00522  47100743 P         709            STI       CHAR,X1            SAVE THE CONTROL BYTE
00523  14100001           710            ENI       CONTROL,X1         ENTER QUEUE POINTER
00524  14300004 P         711            ENI       CNTLEXIT,X3        FAKE A RETURN ADDRESS
00525  47300735 P         712            STI       QRTADD,X3
00526  14577777           713            ENQ,S     77777B             SAY MONITOR INITIATED
00527  01000665 P         714            UJP       CHAR03             PRETEND A TTY CHARACTER
```

```
                                   *******************************************************************
                       718    *                                                                     *
                       719    *        THE FOLLOWING SECTION PROCESSES TTY INPUT CHARACTERS.         *
                       720    *      IF THE CHARACTER IS A CNTL A OR IF THE USER HAS EXECEEDED THE   *
                       721    *      MAXIMUM NUMBER OF INPUT CHARACTERS THIS ROUTINE WILL CALL CMPL  *
                       722    *      TO PLACE THE USER INTO CONTROL MODE. IF THE USER IS IN CONTROL  *
                       723    *      MODE AND HE TYPES A RETURN THIS CODE WILL CLEAR CMWAIT AND      *
                       724    *      GENERATE A LINE FEED SO THAT THE USER THINKS ATLEAST THAT HE    *
                       725    *      IS GETTING LIGHTNING FAST RESPONSE.                             *
                       726    *                                                                     *
                                   *******************************************************************
                       728
00530  37077777 X      729    NLOGIN   LPA     NBIT23          REMOVE LOGIN STATUS
00531  40100442 X      730             STA     PSABLK,BLK
00532  14477777 X      731    TTIEXIT  ENA,S   NITWAIT         ALLOW THE USER TO RUN
00533  00700465 X      732             RTJ     IOCLEAR
                       733
00534  01000000        734    TTINP    UJP     IMPURE
00535  13000014        735             SHAQ    12              CHARACTER TO (A)
00536  53600000        736             TAI     X2              SAVE THE CHARACTER
00537  17600177        737             ANA     177B
00540  14700001        738             ENQ     01B             CONTROL SHIFT A
00541  03401034 P      739             AQJ,EQ  CMPL            SET INTO CONTROL MODE IF CSA
00542  20100531 X      740             LDA     PSABLK,BLK      LOAD THE ADDRESS OF THE PSA
00543  05600001        741             ASG     1               SKIP IF THE PSA EXISTS
00544  01000534 P      742             UJP     TTINP           IGNORE IF NO PSA EXISTS
00545  53700000        743             TAI     PSA             LOAD THE PSA INDEX
00546  12000004        744             SHA     23-19           IS THE DEVICE A TTY
00547  03300534 P      745             AZJ,LT  TTINP           JUMP IF NOT
00550  12000024        746             SHA     24-23+19        RESTORE THE WORD
00551  03300554 P      747             AZJ,LT  *+3             JUMP IF LOGIN/LOGOFF STATUS
00552  12000005        748             SHA     23-18           IS THIS A DEVICE THAT IS ALLOWED
00553  03300557 P      749             AZJ,LT  CRIN            ALL THE INPUT CHARACTERS IT WANTS
00554  20377777 X      750             LDA     TTCNT,PSA       LOAD CURRENT COUNT OF CHARACTERS
00555  14777777 X      751             ENQ     TTINMAX         MAXIMUM ALLOWED INPUT BUFFER
00556  03601034 P      752             AQJ,GE  CMPL            SET BREAK IF EXCEEDING
       00557  P        753    CRIN     EQU     *
00557  20377777 X      754             LDA     SYSCM,PSA       ARE WE IN CONTROL MODE
00560  03200612 P      755             AZJ,GE  NOTBKSLH        JUMP IF NOT
00561  53200000        756             TIA     X2              CHARACTER TO A
00562  17600177        757             ANA     00177B          MASK OUT PARITY BIT
00563  04600134        758             ASE     00134B          SKIP IF A BACK SLASH
00564  01000612 P      759             UJP     NOTBKSLH        JUMP IF NOT
00565  20300554 X      760             LDA     TTCNT,PSA       LOAD NUMBER OF TTY CHARACTERS
00566  03000534 P      761             AZJ,EQ  TTINP           IGNORE IF NO CHARACTER STRING
00567  53600000        762             TAI     X2
00570  15277776        763             INI     -1,X2
00571  20377777 X      764             LDA     TTFCHR,PSA      LOAD POINTER TO FIRST CHARACTER
00572  47100604 P      765             STI     CHRPNT,X1       SAVE POINTER TO END OF LIST
00573  53500000        766             TAI     X1              NEXT POINTER TO X1
00574  20100000        767             LDA     0,X1
00575  02600572 P      768             IJD     *-3,X2          LOOP TILL END OF LIST
00576  12077760        769             SHA     -15
00577  17600177        770             ANA     177B            MASK OUT PARITY BIT
00600  14700015        771             ENQ     015B            CARRIAGE RETURN
00601  03400534 P      772             AQJ,EQ  TTINP           EXIT IF RETURN WAS LAST CHARACTER
00602  14477776        773             ENA,S   -1
00603  34300565 X      774             RAD     TTCNT,PSA
00604  14600000        775    CHRPNT   ENA     IMPURE          ENTER NEW POINTER TO END OF LIST
00605  40377777 X      776             STA     TTLCHR,PSA
00606  53100000        777             TIA     X1              FREE THE LAST CHARACTER
00607  14300000        778             ENI     0,X3
00610  00700413 X      779             RTJ     FREEMEM
00611  01000534 P      780             UJP     TTINP
                       781
       00612  P        782    NOTBKSLH EQU     *
00612  53200000        783             TIA     X2
00613  00700771 P      784             RTJ     CHAINL          PUT CHARACTER IN LIST
00614  20377777 X      785             LDA     CR,PSA          CHECK FOR SPECIAL TREATMENT
00615  12000004        786             SHA     23-19           CLEAR IOBCUND AND RETURN
00616  03200532 P      787             AZJ,GE  TTIEXIT         MASK TO 7 BITS
00617  17200177        788             ANI     177B,X2         CHECK FOR LINE FEED
00620  15277765        789             INI     -12B,X2         AND RETURN
00621  04200003        790             ISE     15B-12B,X2      JUMP IF NOT CR OR LF
00622  02600534 P      791             IJD     TTINP,X2
00623  20300614 X      792             LDA     CR,PSA
00624  37077777 X      793             LPA     NBIT19          CLEAR THE SPECIAL PROCESSING BIT
00625  40300623 X      794             STA     CR,PSA
00626  20100542 X      795             LDA     PSABLK,BLK      IS THE USER LOGGED IN
```

```
00627  03300530 P      796                AZJ,LT      NLOGIN        LOG HIM IN IF NCT
00630  20300557 X      797                LDA         SYSCM,PSA     DO NOT GENERATE A RETURN
00631  03200532 P      798                AZJ,GE      TTIEXIT       IF NOT IN CCNTRCL MODE
00632  53200000        799                TIA         X2
00633  14200532 P      800                ENI         TTIEXIT,X2    SET THE RETURN FOR CHAROUT
00634  03001025 P      801                AZJ,EQ      FCR           PRINT A CR
00635  14600012        802     FLF        ENA         0128          ASCII FOR LINE FEED
00636  14577777        803     FCHR       ENQ,S       77777B        SAY MONITOR INITIATED
00637  44000743 P      804                SWA         CHAR          SAVE THE CHARACTER
00640  01000647 P      805                UJP         CHAROUT
```

```
                                    809     *                                                               *
                                    810     *           ROUTINE TO OUTPUT CHARACTER TO TELETYPE.            *
                                    811     *                                                               *
                                    812     *           CALL WITH ONE OF THE FOLLOWING SEQUENCES:           *
                                    813     *                                                               *
                                    814     *           IF USER INITIATED                                   *
                                    815     *           ENI       PSA,X3                                    *
                                    816     *           ENI       RETURN,X2                                 *
                                    817     *           ENA       CHARACTER                                 *
                                    818     *           UJP       CHAROUTP                                  *
                                    819     *                                                               *
                                    820     *           IF MONITOR INITIATED                                *
                                    821     *           DINT                                                *
                                    822     *           ENQ,S     -0                                        *
                                    823     *           ENA       CHARACTER                                 *
                                    824     *           SWA       CHAR                                      *
                                    825     *           ENA       RETURN                                    *
                                    826     *           SWA       QRTADD                                    *
                                    827     *           UJP       CHAROUT                                   *
                                    828     *                                                               *
                                            *************************************************************************
  00641   77730000                  830
  00642   17607777                  831     CHAROUTP  VFD       A12/DINT
  00643   44000743 P                832               ANA       77778               SCRAP ANY EXTRA BITS
  00644   00701060 P                833               SWA       CHAR                SAVE THE CHARACTER
  00645   14700001                  834               RTJ       PCHARS              DESTROY ANY INPUT CHARACTERS
  00646   47200703 P                835               ENQ       1                   SET Q ≠ 0
  00647   47200735 P                836               STI       WAITEXIT,X2         SAVE RETURN IN CASE OF DELAY
  00650   47300734 P                837     CHAROUT   STI       QRTADD,X2           SAVE THE RETURN ADDRESS
  00651   20077777 X                838               STI       CHAREXIT,PSA        SAVE THE PSA POINTER
  00652   17600020                  839               LDA       INHIBIT             IS THE SYSTEM SUPPOSE TO FLOD UP
  00653   03100733 P                840               ANA       20B                 DIE
  00654   20377777 X                841               AZJ,NE    CHARDONE            PRETEND THE CHARACTER WENT OUT
  00655   12077760                  842               LDA       TERMINAL,PSA        LOAD THE TERMINAL NUMBER
  00656   53500000                  843               SHA       -15
  00657   44000730 P                844               TAI       BLK                 TERMINAL NUMBER TO BLK
  00660   20100626 X                845               SWA       TERM                SAVE THE TERMINAL NUMBER
  00661   12000003                  846               LDA       PSABLK,X1           CHECK THE HIGH SPEED BIT
  00662   15100001                  847               SHA       23-20
  00663   03300665 P                848               INI       1,X1                ASSEME HIGH SPEED
  00664   14100002                  849               AZJ,LT    CHAR03              JUMP IF REALLY HIGH SPEED
           00665  P                 850               ENI       TTYDATA,X1
  00665   20100505 X                851     CHAR03    EQU       *
  00666   12000006                  852               LDA       PDP8OQ,BLK          LOAD THE QUEUE POINTER
  00667   03200712 P                853               SHA       6                   INDIRECT BIT TO SIGN POSITION
  00670   20500665 X                854               AZJ,GE    CHAR00              JUMP IF NO BLOCK PRESENT
  00671   53700000                  855               LDA,I     PDP8OQ,BLK          LOAD THE BLOCK ADDRESS
  00672   36100670 X                856               TAI       X3
  00673   04777777                  857               SCA       PDP8OQ,BLK          IS THERE MORE THAN ONE BLOCK
  00674   05600001                  858               QSE       77777B              SKIP IF MONITOR REQUEST
  00675   01000704 P                859               ASG       1                   SKIP IF MORE THAN ONE BLOCK
           00676  P                 860               UJP       CHAR01              JUMP IF WE SHOULD PROCESS
  00676   54100730 P                861     CHAR04    EQU       *
  00677   14200701 P                862               LDI       TERM,BLK            LOAD THE TERMINAL NUMBER
  00700   01000521                  863               ENI       *+2,X2              ENTER THE RETURN
  00701   14600467 X                864               UJP       PDP8CTLX            TURN THE USER OFF
  00702   54300734 P                865     CTISTOP   ENA       OUTBOUND            TELL UIO TO WAIT
  00703   01000000                  866               LDI       CHAREXIT,PSA        LOAD THE PSA INDEX
                                    867     WAITEXIT  UJP       IMPURE              AND EXIT
  00704   20300001                  868
  00705   15600001                  869     CHAR01    EQU       *
  00706   05600175                  870               LDA       1,X3                LOAD THE WORD/CHARACTER COUNT
  00707   01000720 P                871               INA       1
  00710   04777777                  872               ASG       62+62+1             SKIP IF THE BLOCK WILL OVERFLOW
  00711   01000676 P                873               UJP       CHAR07
  00712   14300006                  874               QSE       77777B              SKIP IF IMMEDIATE
  00713   00700350 X                875               UJP       CHAR04              TURN THE USER OFF
  00714   40300000                  876     CHAR00    ENI       6,X3                GET A 64 WORD BLOCK OF MEMORY
  00715   35000504 X                877               RTJ       GETMEM
  00716   40500672 X                878               STA       0,X3                POINT THE BLOCK AT ITSELF
  00717   14600001                  879               SSA       BIT17               LINK THIS BLOCK INTO THE QUEUE
  00720   04100002                  880               STA,I     PDP8OQ,BLK
  00721   01000736 P                881               ENA       1                   THE BLOCK WILL HAVE ONE ITEM
  00722   15600001                  882     CHAR07    ISE       TTYDATA,X1          IS THIS TTY DATA
  00723   40300001                  883               UJP       HSCHAR              JUMP IF NOT
  00724   12077776                  884               INA       1                   KEEP THE COUNTER CORRECT
                                    885               STA       1,X3
                                    886               SHA       -1                  CONVERT TO WORD COUNT
```

```
00725  53740000        887                   IAI      X3              POINT TO THE WORD TO HIT
00726  20000743 P      888                   LDA      CHAR            BLOCK  GET THE CURRENT CHARACTER
00727  13077763        889                   SHAQ     -12             SAVE IT IN (Q)
00730  14600000        890          TERM     ENA      IMPURE          ENTER THE TERMINAL NUMBER
00731  13000014        891          CHAR05   SHAQ     12
00732  40300001        892          CHAR06   STA      1,X3            STORE THE CHARACTER IN THE BLOCK
00733  14600000        893          CHARDONE ENA      0               SAY NORMAL RETURN
00734  14300000        894          CHAREXIT ENI      IMPURE,PSA      RESTORE THE PSA POINTER
00735  01000000        895          QRTADD   UJP      IMPURE          EXIT
                       896
       00736 P         897          HSCHAR   EQU      *
00736  40300001        898                   STA      1,X3            STORE THE NEW COUNT BACK
00737  13077776        899                   SHAQ     -1              WORD CNT IN (A) CHARACTER IN (Q)
00740  53740000        900                   IAI      X3              POINT INTO THE BLOCK
00741  20300001        901                   LDA      1,X3            LOAD THE WORD THAT IS THERE
00742  17470000        902                   ANA,S    700000B         SAVE THE TOP HALF
00743  16600000        903          CHAR     XOA      IMPURE          PUT IN THE CURRENT CHARACTER
00744  05500000        904                   QSG,S    0
00745  02300731 P      905                   IJI      CHAR05,X3       FIRST HALF WORD
00746  01000732 P      906                   UJP      CHAR06          SECOND HALF WORD
```

```
************************************************************************************************
910    *
911    *              ROUTINE TO GET AN INPUT CHARACTER FROM A TTY BUFFER                     *
912    *                                                                                     *
913    *              CALL WITH THE FOLLOWING SEQUENCE:                                      *
914    *                                                                                     *
915    *              ENI       PSA POINTER,X3                                               *
916    *              ENA       RETURN                                                       *
917    *              UJP       CHARINP                                                      *
918    *                                                                                     *
919    *              A = 0  IF CHARACTER STORED INTO USERS A REGISTER                       *
920    *              A = NON-ZERO IF NO CHARACTERS                                          *
921    *                                                                                     *
************************************************************************************************
923
00747  77730000       924    CHARINP   VFD       A12/DINT
00750  47300734 P      925              STI       CHAREXIT,PSA        SAVE THE PSA POINTER
00751  44000735 P      926              SWA       QRTADD              SAVE RETURN ADDRESS
00752  44000703 X      927              SWA       WAITEXIT            SAVE RETURN FOR EMPTY RETURN
00753  20300603 X      928              LDA       TTCNT,PSA           LOAD INPUT CHARACTER COUNT
00754  15477776        929              INA,S     -1
00755  03300701 P      930              AZJ,LT    CTISTOP             RETURN WITH A NON-ZERO
00756  40300753 X      931              STA       TTCNT,PSA           SAVE THE NEW COUNT
00757  20700571 X      932              LDA,I     TTFCHR,PSA          GET THE NEXT CHARACTER
00760  21300757 X      933              LDQ       TTFCHR,PSA          GET THE BLOCK ADDRESS
00761  44300760 X      934              SWA       TTFCHR,PSA          REMOVE THIS BLOCK FROM THE QUEUE
00762  12000011        935              SHA       9                   CHARACTER TO THE LOW END OF (A)
00763  17600777        935+001          ANA       777B                KEEP ONLY CHARACTER
00764  40377777 X      938              STA       A,PSA               SAVE THE CHARACTER IN THE USERS A
00765  13000030        939              SHAQ      24                  BLOCK ADDRESS TO (A)
00766  14300000        940              ENI       0,X3                IT≠S 1 WORD LONG
00767  00700610 X      941              RTJ       FREEMEM
00770  01000733 P      942              UJP       CHARDONE            TAKE NORMAL EXIT
```

```
                        *******************************************************************************
                 945    *                                                                            *
                 946    *        ROUTINE TO PUT A CHARACTER ONTO END OF TTY CHARACTER CHAIN.          *
                 947    *                                                                            *
                 948    *        CALL WITH THE FOLLOWING SEQUENCE:                                    *
                 949    *                                                                            *
                 950    *               ENI       PSA POINTER,X3                                     *
                 951    *               ENA       CHARACTER                                          *
                 952    *               UJP       CHAINL                                             *
                 953    *                                                                            *
                        *******************************************************************************
                 955
  00771 01000000        956    CHAINL   UJP       IMPURE
  00772 47301004 P      957             STI       CHSVI3,X3          SAVE INDEX 3
  00773 44001007 P      958             SWA       CHNCR              SAVE CHARACTER
  00774 20300756 X      959             LDA       TTCNT,X3           LOAD CCUNT
  00775 14300000        960             ENI       0,X3
  00776 03101003 P      961             AZJ,NE    CHNM               GO ON IF NOT ZERO
  00777 00700713 X      962             RTJ       GETMEM
  01000 54301004 P      963             LDI       CHSVI3,X3          RESTORE INDEX
  01001 44300761 X      964             SWA       TTFCHR,X3          GET BEGINNING OF CHAIN ALSO
  01002 01001006 P      965             UJP       CHSPF              THIS CHAR WILL BE FIRST
  01003 00700777 X      966    CHNM     RTJ       GETMEM             GET FREE WORD
  01004 14300000        967    CHSVI3   ENI       IMPURE,X3          RESTORE INDEX THREE
  01005 44700605 X      968             SWA,I     TTLCHR,X3          STORE ITS ADDR AS A PTR IN BOTH
  01006 44301005 X      969    CHSPF    SWA       TTLCHR,X3          THE LAST ITEM OF THE LIST AND THE
                        970    *                                    END POINTER
  01007 14600000        971    CHNCR    ENA       IMPURE             RESTORE THE CHARACTER
  01010 12000017        972             SHA       15                 PUT IT IN THE LEFT HALF
  01011 40701006 X      973             STA,I     TTLCHR,X3          STORE IT IN THE CHAIN
  01012 14400001        974             ENA,S     1
  01013 34300774 X      975             RAD       TTCNT,X3           COUNT UP THE CCUNTER
  01014 01000771 P      976             UJP       CHAINL             RETURN
```

```
                                   979   *******************************************************************
                                   979   *                                                                 *
                                   980   *         ROUTINE TO PUT USER INTO CONTROL MODE.                  *
                                   981   *                                                                 *
                                   982   *         CALL WITH THE FOLLOWING SEQUENCE:                       *
                                   983   *                                                                 *
                                   984   *         ENI     TERMINAL NUMBER,BLK                             *
                                   985   *         UJP     CMPL                                            *
                                   986   *                                                                 *
                                   988         *******************************************************************
          01015 P                  989   NOLOG   EQU     *
01015   14200534 P                 990           ENI     TTINP,X2           ENTER THE REJECT ADDRESS
01016   00777777 X                 991           RTJ     CREATE             CREATE A PSA
01017   20077777 X                 992           LDA     LOGBITS            LOAD THE LOGIN AND PSA BITS
01020   34100660 X                 993           RAD     PSABLK,BLK         AND SET THEM INTO THE PSABLK
01021   20077777 X                 994           LDA     BIT19              SET THE CTI SPECIAL PROCESSING
01022   34300625 X                 995           RAD     CR,PSA             BIT IN THE USERS CR WORD
          01023 P                  996   ONBSP   EQU     *
01023   00701060 P                 997   CMSTMT  RTJ     PCHARS             CLEAR ANY EXISTING CHARACTERS
01024   14201027 P                 998           ENI     *+3,X2             SET RETURN
01025   14600215                   999   FCR     ENA     215B               ASCII FOR CARRIAGE RETURN
01026   01000636 P                1000           UJP     FCHR
01027   14201031 P                1001           ENI     *+2,X2
01030   01000635 P                1002           UJP     FLF                OUTPUT A LINE FEED
01031   14200534 P                1003           ENI     TTINP,X2
01032   14600243                  1004           ENA     243B               ASCII FOR POUND SIGN
01033   01000636 P                1005           UJP     FCHR
          01034 P                 1006   CMPL    EQU     *
01034   20101020 X                1007           LDA     PSABLK,BLK         GET THE POINTER TO THE PSA
01035   53700000                  1008           TAI     PSA
01036   03301023 P                1009           AZJ,LT  ONBSP              JUMP IF IN LOGIN/LOGOFF STATE
01037   05300001                  1010           ISG     1,X3               SKIP IF LOGGED ON
01040   01001015 P                1011           UJP     NOLOG              JUMP IF NOT LOGGED ON
01041   12000023                  1012           SHA     23-4               IS THE DEVICE A TTY
01042   03300534 P                1013           AZJ,LT  TTINP              IGNORE THE CHARACTER IF NOT
01043   20377777 X                1014           LDA     CMCODE,PSA
01044   03101046 P                1015           AZJ,NE  *+2                JUMP IF A REQUEST EXISTS
01045   14677777 X                1016           ENA     CONTROLA           OTHERWISE, INDICATE CONTROL-A
01046   40301043 X                1017           STA     CMCODE,PSA
01047   24301022 X                1018           LCA     CR,PSA             CHECK FOR NOT BIT 19 OF CR .AND.
01050   12000004                  1019           SHA     23-19              IN CONTROL MODE
01051   37300630                  1020           LPA     SYSCM,PSA
01052   03300534 P                1021           AZJ,LT  TTINP              DO NOT RE-ENTER CONTROL MODE
01053   14601045 X                1022           ENA     CONTROLA
01054   00777777 X                1023           RTJ     CMQSET             SET INTO CONTROL MODE
01055   14677777 X                1024           ENA     INBOUND            AND LEAVE HIM
01056   00700470 X                1025           RTJ     IOSET              IN TERMINAL WAIT
01057   01001023 P                1026           UJP     CMSTMT
```

```
                            1028
                            1030   ***************************************************************************
                            1031   *                                                                         *
                            1032   *     ROUTINE TO REMOVE ALL THE CHARACTERS FROM A PROGRAM STATUS           *
                            1033   *     AREA                                                                *
                            1034   *     CALL WITH THE FOLLOWING SEQUENCE:                                    *
                            1035   *                                                                         *
                            1036   *         ENI      PSA POINTER,X3                                          *
                            1037   *         RTJ      PCHARS                                                  *
                            1038   *                                                                         *
                            1040   ***************************************************************************
01060  01000000             1041   PCHARS   UJP      IMPURE            ROUTINE TO REMOVE ALL CHARACTERS
                            1042   *                                   FROM A PROGRAM STATUS AREA
01061  20301013 X           1043            LDA      TTCNT,X3          GET COUNT OF BLOCKS
01062  03001060 P           1044            AZJ,EQ   PCMAR             RETURN IF NONE PRESENT
01063  47101074 P           1045            STI      PCHI1,X1          SAVE INDEX ONE
01064  47201075 P           1046            STI      PCHI2,X2          SAVE INDEX TWO
01065  47301076 P           1047            STI      PCHI3,X3          SAVE INDEX THREE
01066  53500000             1048            TAI      X1                PLACE COUNT IN INDEX ONE
01067  20301011 X           1049            LDA      TTLCHR,X3         GET LAST BLOCK ADDRESS
01070  53600000             1050            TAI      X2                PLACE IN INDEX TWO
01071  20301001 X           1051            LDA      TTFCHR,X3         GET FIRST CHARACTER ADDRESS
01072  14300000             1052            ENI      0,X3              FOR ONE WORD BLOCKS
01073  00777777 X           1053            RTJ      FREECHN
01074  14100000             1054   PCHI1    ENI      IMPURE,X1         RESTORE INDEX ONE
01075  14200000             1055   PCHI2    ENI      IMPURE,X2         RESTORE INDEX TWO
01076  14300000             1056   PCHI3    ENI      IMPURE,X3         RESTORE INDEX THREE
01077  14400000             1057            ENA,S    0
01100  40301061 X           1058            STA      TTCNT,X3          ZERO COUNT WHEN STRING DESTROYED
       01060    P           1059   PCMAR    EQU      PCHARS
01101  01001060 P           1060            UJP      PCHARS            RETURN
             X              1061   LOGBITS  EQU      BIT2321           BITS 23 AND 21
                            1062
                            1063            END
```

NO LINES WITH ERRORS

```
 A             X              74      938 00764P
 BATCHPNT             00022   130      131 00000P
 BFPTR               00001    109      111 00000P
 B T17         X              75      309 00047P    310 00050P     679 00504P     879 00715P
 BIT19         X              76      994 01021P
 BIT22         X            76+1      519+27 00330P
 BIT23         X              78      256+5 00014P   355 00122P
 BIT2321       X              77     1061 01102P
 BIT2322       X            78+1      424+1 00214P   519+57 00356P
 BITS                00473P   652      600 00415P
 BLK                 00001    124      556 00401P    558 00403P     730 00531P     740 00542P     795 00626P     844 00656P
                                      852 00665P     855 00670P     857 00672P     862 00676P     880 00716P     993 01020P
                                     1007 01034P
 BLKPOS              00002    111      112 00000P
 BLOCKCHK            00306P   519+6    519+56 00355P
 BNEWS               00214P   424      420 00207P    461 00237P
*BUSY                00002    140
 CALLBAD             00004    113      115 00000P
 CBLOCK              00011    118      119 00000P
 CENP                00471P   649      607 00424P    621 00441P     633 00454P     639 00460P     645 00466P
 CHAINL        E     00771P   956       62 00000P    784 00613P     976 01014P
 CHANINT             00246P   486      415 00204P    483 00242P     488 00250P     494 00257P
 CHAR          E     00743P   903     61+1 00000P    709 00522P     804 00637P     833 00643P     888 00726P
 CHAR00              00712P   876      854 00667P
 CHAR01              00704P   869      860 00675P
 CHAR03              00665P   851      714 00527P    849 00663P
 CHAR04              00676P   861      875 00711P
 CHAR05              00731P   891      905 00745P
 CHAR06              00732P   892      906 00746P
 CHAR07              00720P   882      873 00707P
 CHARDONE            00733P   893      841 00653P    942 00770P
 CHAREXIT            00734P   894      838 00650P    866 00702P     925 00750P
 CHARINP       E     00747P   924       63 00000P
 CHAROUT       E     00647P   837     61+2 00000P    805 00640P
 CHAROUTP      E     00641P   831       64 00000P
 CHECINFO            00117P   352      317 00057P
 CHERRORS            00240P   478      489 00251P
 CHFLAG              00027P   283      487 00247P
 CHNCR               01007P   971      958 00773P
 CHNM                01003P   966      961 00776P
 CHRPNT              00604P   775      765 00572P
 CHSPF               01006P   969      965 01002P
 CHSVI3              01004P   967      957 00772P    963 01000P
 CMCODE        X              82     1014 01043P    1017 01046P
 CMPL                01034P  1006      739 00541P    752 00556P
 CMQSET        X              81     1023 01054P
 CMSTMT              01023P   997     1026 01057P
 CNTLEXIT            00004P   249      708 00521P    711 00524P
 COMWORD             00025    139      141 00000P
 CONBLOCK            00000    108      109 00000P
 CONNECT       X              79      414 00203P
 CONS                00177P   410      253 00007P    277 00023P     423 00213P
 CONTROL             00001    134      515 00303P    710 00523P
 CONTROLA      X              80     1016 01045P    1022 01053P
 CR            X              83      785 00614P    792 00623P     794 00625P     995 01022P    1018 01047P
 CREATE        X              84      991 01016P
 CRIN                00557P   753      749 00553P
 CTISTOP             00701P   865      930 00755P
 DESTLP              00023    131      132 00000P
 DEVTYPE             00026    141      143 00000P
 DINT                07773    116      276 00022P    831 00641P     924 00747P
*DISKBUSY            00013    121
 DUMP8         E     00011P   256+1    64+2 00000P
 DUMPEOF             00340P   519+38   357+4 00126P
 DUMPEOF1            00354P   519+54   519+43 00344P
 DUMPFAKE            00271P   500+1    519+62 00363P
 DUMPFAKX            00270P   499+4    519+36 00337P
 DUMPINC1            00314P   519+14   519+4 00305P
 DUMPINCR            00305P   519+3    499+3 00267P
 DUMPLAB       E     00003P   233+3    64+1 00000P    519+35 00336P
 DUMPLABL      X            84+1      519+7 00306P    519+60 00361P
 DUMPMOD1            00127P   357+5    357+14 00142P
 DUMPMODE            00125P   357+2    279+1 00026P
 DVFLAG              00033P   287      493 00256P
 ENDIN               00406P   561      551 00374P    553 00376P
 EOFOUT              00336P   519+34   519+29 00332P
 EXITADD             00015    123      124 00000P
 EXPDATA             00024    136      139 00000P    519+10 00311P
 FCHR                00636P   803     1000 01026P    1005 01033P
```

Symbol	Flag	Value	Def	Ref 1	Ref 2	Ref 3	Ref 4	Ref 5	Ref 6
FCR		01025P	999	801 00634P					
FLF		00635P	802	1002 01030P					
FNALW		00020	188	377+1 00157P					
FNCLINT		04000	224	377+1 00157P	377+3 00161P	42 00210P	428 00220P		
* FNCOMM		00003	176						
FNENINT		00200	207	430 00222P	489+1 00252P				
FNIEOO		01000	216	42 00210P					
FNINT		00400	212	42 00210P	430 00222P				
FNINT8		00040	197	42 00105P	377+3 00161P	484+1 00244P			
FNLDAD		00010	183+1	42 00131P					
FNLOWC		00004	179+1	42 00131P					
FNRERR		00100	203	484+1 00244P					
FNRIEN		02000	220	428 00220P					
FNRREQ		00002	171+1	42 00127P					
FNWREQ		00001	156	42 00103P					
FREECHN	X		85	1053 01073P					
FREEMEM	X		86	300 00041P	566 00413P	779 00610P	941 00767P		
FWA		00111P	341	296 00035P	297 00036P	306 00044P	330 00074P		
GETBLOCK		00345P	519+45	366+2 00144P					
GETMEM	X		87	519+49 00350P	877 00713P	962 00777P	966 01003P		
HSCHAR		00736P	897	883 00721P					
HSINP	X		88	508 00300P					
IFBUSY		00000P	230	251 00005P	256+2 00011P	256+6 00015P	278 00024P	366+3 00145P	385+1 00172I
				424+2 00215P	424+3 00216P	433 00224P	481 00240P	484 00243P	494+1 00260I
				519+28 00331P	519+58 00357P	519+59 00360P			
IFCON	E	00200P	411	65 00000P					
IFEC01		00512P	685	682 00507P	690 00517P				
IFEC02		00513P	686	683 00510P					
IFECHO		00475P	671	514 00302P					
IFEND	E	00410P	563	67 00000P	519+11 00312P	547 00370P	650 00472P	674 00477P	
IFERR		00114P	346	288 00034P					
IFEXIT	E	00414P	567	66 00000P	499+1 00265P	500+2 00271P	509 00301P	519+40 00341P	
IFIN		00042P	302	254 00010P	279 00025P	285 00032P			
IFINCH		00174P	390	336 00102P					
IFINIT	E	00005P	250	68 00000P	691 00520P				
IFINT	E	00020P	265	69 00000P					
IFOUT		00044P	306	284 00030P					
IFOUT01		00067P	325	321 00063P					
IFOUT02		00102P	336	307 00045P					
IFREAD		00010	231	382 00166P	482 00241P	494+2 00261P			
IFRELS		00224P	432	312 00052P	351 00116P	377 00156P	397 00176P		
IFRET		00173P	387	419 00206P	434 00225P	519+39 00340P			
IFRETSX		00172P	385+1	343 00113P					
IFWRITE		00020	232	285 00031P	339 00107P				
IMADR		00003	112	113 00000P					
IMPURE		00000	117	230 00000P	233 00001P	233+2 00002P	233+3 00003P	249 00004P	283 00027P
				287 00033P	340 00110P	340 00110P	383 00167P	383 00167P	387 00173P
				410 00177P	411 00200P	450 00227P	452 00231P	486 00246P	554 00377P
				560 00405P	561 00406P	567 00414P	608 00425P	611 00430P	631 00452P
				632 00453P	653 00474P	685 00512P	686 00513P	734 00534P	775 00604P
				867 00703P	890 00730P	894 00734P	895 00735P	903 00743P	956 00771P
				967 01004P	971 01007P	1041 01060P	1054 01074P	1055 01075P	1056 01076P
INBOUND	X		89	1024 01055P					
INFWA		00170P	384	373 00151P	380 00164P				
INHIBIT	X		90	839 00651P					
INLWA		00167P	383	384 00171P	375 00155P				
IO		00000	118	340 00110P	357+9 00134P	383 00167P			
IOCLEAR	X		91	644 00465P	732 00533P				
IOSET	X		92	648 00470P	1025 01056P				
ISUF		00227P	450	453 00232P	455 00234P				
ITOFF		00467P	646	642 00463P					
ITTC		00415P	599	516 00303P					
ITTC02		00425P	608	613 00432P	649 00471P				
ITTC04		00434P	615	610 00427P					
ITTC05		00455P	635	624 00444P					
ITTCBLK		00430P	611	602 00417P					
ITTCFLAG		00474P	653	601 00416P	609 00426P				
ITTCX1		00452P	631	625 00445P	627 00447P				
ITTCX2		00453P	632	626 00446P					
ITTD		00364P	542	518 00304P					
LOGBITS	X		1061	992 01017P					
LOOK		00377P	554	549 00372P	562 00407P				
LWA		00110P	340	341 00112P	335 00101P				
MAINT		00000	133	513 00302P					
MAX8FLD	X		92+1	519+25 00326P					
MEQLOOP		00047P	309	357 00124P					
NBIT19	X		93	793 00624P					
NBIT23	X		94	729 00530P					
NITWAIT	X		95	731 00532P					

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NLOGIN      00530P   729    796 00627P
NOLOG       01015P   989   1011 01040P
NOTBKSLH    00612P   782    755 00560P    759 00564P
NOTEOF      00333P   519+30 519+26 00327P
NOUTBND  X         96    643 00464P
ONBSP       01023P   996   1009 01036P
OUTBOUND X         97    647 00467P    865 00701P
PCHARS   E  01060P  1041   1059 01101P     72 00000P     834 00644P     997 01023P    1060 01101P
PCHI1       01074P  1054   1045 01063P
PCHI2       01075P  1055   1046 01064P
PCHI3       01076P  1056   1047 01065P
PCMAR       01060P  1059   1044 01062P
PDP8BLK  E  00001P   233     70 00000P    498 00263P   519+46 00345P   519+51 00352P    564 00411P    565 00412P
                           675 00500P
PDP8CQ   X          98    629 00451P
PDP8CQL  X          99    628 00450P
PDP8CTLX E  00521P   707     71 00000P    864 00700P
PDP8IQ   X         100    506 00276P   519+8 00307P
PDP8IQL  X         101    505 00275P    507 00277P
PDP8OQ   X         102    311 00051P    313 00053P     319 00061P     322 00064P     324 00066P    356 00123P
                           672 00475P    680 00505P     852 00665P     855 00670P     857 00672P    880 00716P
PDP8OQL  X         103    308 00046P
PDPWCAD     00002P   233+2 256+8 00017P  357+9 00134P   357+9 00134P   519+15 00314P   519+33 00335P
PDPWCST     00701    233+1 256+7 00016P
PFSAVE      00016    124    125 00000P
PSA         00003    125    640 00461P    743 00545P     750 00554P     754 00557P     760 00565P    764 00571P
                           774 00603P    776 00605P     785 00614P     792 00623P     794 00625P    797 00630P
                           838 00650P    842 00654P     866 00702P     894 00734P     925 00750P    928 00753P
                           931 00756P    932 00757P     933 00760P     934 00761P     938 00764P    995 01022P
                          1008 01035P   1014 01043P    1017 01046P    1018 01047P    1020 01051P
PSABLK   X         104    543 00364P    622 00442P     730 00531P     740 00542P     795 00626P    846 00660P
                           993 01020P   1007 01034P
PSALOC      00013    120    121 00000P    123 00000P
QRTADD      00735P   895    712 00525P    837 00647P     926 00751P
RDIST       00006    115    117 00000P
READ        00143P   366    304 00043P    350 00115P     394 00175P
READY       00001    139    422 00212P    459 00235P
REJ         00234P   455    451 00230P
SEL         00231P   452     43 00104P     43 00106P      43 00130P      43 00132P    377+4 00162P     43 00211P
SELECT      00000    119    428 00220P    430 00222P     450 00227P    484+1 00244P   489+1 00252P
SENSE       00000    120    303 00042P    349 00114P    357+11 00137P  357+13 00141P    393 00174P    422 00212P
                           459 00235P    491 00254P
STABINT     04000    150    492 00255P
STANTAB     00302P   512    513 00302P    515 00303P     517 00304P     519 00305P     504 00274P
STANTABL    00003    519    503 00273P
* STCMBIT   00200    146
** STEOINT  02000    149
** STRBINT  01000    148
STRDREQ     00100    145    303 00042P    349 00114P     393 00174P
STRSERR     00400    147    492 00255P
SYSCM    X         112    754 00557P    797 00630P    1020 01051P
TERM        00730P   890    845 00657P    862 00676P
TERMINAL X         105    842 00654P
TEST        00000    60     267+1 00022P  347 00114P     348 00114P     391 00174P     392 00174P    417 00206P
                           418 00206P    425 00217P     426 00217P     457 00235P     458 00235P    479 00240P
                           480 00240P
TIMAD       00012    119    120 00000P
* TIMLIM  X         106
TTCNT    X         107    750 00554P    760 00565P     774 00603P     928 00753P     931 00756P    959 00774P
                           975 01013P   1043 01061P    1058 01100P
TTFCHR   X         109    764 00571P    932 00757P     933 00760P     934 00761P     964 01001P   1051 01071P
TTIEXIT     00532P   731    787 00616P    798 00631P     800 00633P
TTINMAX  X         108    751 00555P
TTINP       00534P   734    559 00404P    742 00544P     745 00547P     761 00566P     772 00601P    780 00611P
                           791 00622P    990 01015P    1003 01031P    1013 01042P    1021 01052P
TTLCHR   X         110    776 00605P    968 01005P     969 01006P     973 01011P    1049 01067P
TTNUM    X         111    558 00403P    619 00437P
TTYDATA     00002    135    517 00304P    850 00664P     882 00720P
UJP0X2      00236P   460    252 00006P
UNCON    X         113    435 00226P   519+42 00343P
USEBLK      00060P   318    354 00121P
* UWBRET    00020    126
UWBWC       00017    125    126 00000P    127 00000P
UWBX3       00021    127    130 00000P
UWMAX       00024    132    136 00000P
* UWMAXA    00027    143
WAITEXIT    00703P   867    836 00646P    927 00752P
WCNT        00010    117    118 00000P
WCTIME   X         114    544 00365P
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X1      00001      121     124 00000P    308 00046P    313 00053P    319 00061P    323 00065P    324 00066P
                           325 00067P    356 00123P    366+1 00143P  411 00200P    427 00217P    429 00221P
                           431 00223P    454 00233P    455 00234P    502 00272P    503 00273P    504 00274P
                           505 00275P    506 00276P    507 00277P    519+7 00306P   519+8 00307P  519+9 00310P
                        519+10 00311P  519+43 00344P  519+52 00353P  606 00423P    625 00445P    631 00452P
                           649 00471P    672 00475P    680 00505P    684 00511P    686 00513P    690 00517P
                           709 00522P    710 00523P    765 00572P    766 00573P    767 00574P    777 00606P
                           846 00660P    848 00662P    850 00664P    882 00720P   1045 01063P   1048 01066P
                          1054 01074P

X2      00002      122     249 00004P    267 00021P    306 00044P    307 00045P    314 00054P    315 00055P
                           318 00060P    328 00072P    329 00073P    330 00074P    334 00100P    335 00101P
                           336 00102P    352 00117P    377 00156P    416 00205P    419 00206P    420 00207P
                           434 00225P    460 00236P    484+2 00245P  488 00250P    489+2 00253P  497 00262P
                        499+1 00265P   500+2 00271P   519+4 00305P  519+12 00313P  519+39 00340P 519+40 00341P
                        519+41 00342P  519+55 00354P  543 00364P    544 00365P    546 00367P    552 00375P
                           554 00377P    557 00402P    560 00405P    561 00406P    603 00420P    611 00430P
                           612 00431P    626 00446P    627 00447P    632 00453P    708 00521P    736 00536P
                           756 00561P    762 00567P    763 00570P    768 00575P    783 00612P    788 00617P
                           789 00620P    790 00621P    791 00622P    799 00632P    800 00633P    836 00646P
                           837 00647P    863 00677P    990 01015P    998 01024P   1001 01027P   1003 01031P
                          1046 01064P   1050 01070P   1055 01075P

X3      00003      123     125 00000P    256+4 00013P  266 00020P    299 00040P    413 00202P    498 00263P
                           499 00264P   519+47 00346P  519+50 00351P 548 00371P    549 00372P    563 00410P
                           602 00417P    616 00434P    617 00435P    619 00437P    622 00442P    628 00450P
                           629 00451P    676 00501P    678 00503P    711 00524P    712 00525P    778 00607P
                           856 00671P    870 00704P    876 00712P    878 00714P    885 00723P    887 00725P
                           892 00732P    898 00736P    900 00740P    901 00741P    905 00745P    940 00766P
                           957 00772P    959 00774P    960 00775P    963 01000P    964 01001P    967 01004P
                           968 01005P    969 01006P    973 01011P    975 01013P   1010 01037P   1043 01061P
                          1047 01065P   1049 01067P   1051 01071P   1052 01072P   1056 01076P   1058 01100P
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