```
LENGTH OF  PRG        01503
                               IDENT     MOVEBUFF

                       **********************************************************
                       *                                                        *
                       *       THIS PROGRAM IS THE BLOCKER/DEBLOCKER FOR ALL THE *
                       *       UNIT RECORD EQUIPMENT.  IT CAN BE THOUGHT OF AS  *
                       *       BEING TWO DIFFERENT ROUTINES URBLOK  (READ AND DEBLOCK), *
                       *       AND UWBLOK  (WRITE AND BLOCK).                   *
                       *                                                        *
                       *       COMMENTS DESCRIBING THE FUNCTION OF EACH HALF ARE *
                       *       AT THE BEGINNING OF THAT HALF.                   *
                       *                                                        *
                       **********************************************************

                               INCLUDE   ↑SYSMAC
                        SYSMAC COSY/     03         V4.1      08/17/74  0453

01375 P                        ENTRY     HSINP
01456 P                        ENTRY     IMPURE04
00600 P                        ENTRY     KILL
00000 P                        ENTRY     PURE04
00023                          ENTRY     QPNT
01242 P                        ENTRY     SENDTABP
01240 P                        ENTRY     SENDTLP
00624 P                        ENTRY     STRT
00047 P                        ENTRY     URBLOK
00007 P                        ENTRY     URBLOKI
00035 P                        ENTRY     URBLOKIZ
00465 P                        ENTRY     URBLOKQ
00557 P                        ENTRY     URBLOKNX
00470 P                        ENTRY     URBLOKQX
00673 P                        ENTRY     UWBLOCK
01067 P                        ENTRY     UWBLOCKB

                               EXT       ACCNUM
                               EXT       BIT17
                               EXT       BLANKS
                               EXT       BIT18
                               EXT       BIT19
                               EXT       BIT20
                               EXT       BIT21
                               EXT       BIT22
                               EXT       BIT23
                               EXT       BIT2322
                               EXT       BLOCKS
                               EXT       BLOCKSL
                               EXT       BLOCKSP1
                               EXT       D10
                               EXT       DIEPSUS
                               EXT       CRFCBLK
                               EXT       FINK
                               EXT       FINKP1
                               EXT       FIRE
                               EXT       FIREP1
                               EXT       FORMFLAG            WORD THAT SEZZ FORMS
                               EXT       FREEBLK             ROUTINE TC FREE FILE BLOCK
                               EXT       FREEFILE            ROUTINE TO FREE FILE
                               EXT       FREEMEM             ROUTINE TC GIVE BACK FREE STORAGE
                               EXT       GETBLK              ROUTINE TO GET DISK BLOCK
                               EXT       GETBUFF             ROUTINE TC GET CORE BUFFER
                               EXT       GETMEM              ROUTINE TC GET FREE STCRAGE
                               EXT       GIVBUFF             ROUTINE TC GIVE BACK CORE BUFFER
                               EXT       GIVBUFFA
                               EXT       IFEND
                               EXT       IFEXIT
                               EXT       INHIBIT
                               EXT       IOBUSY              COUNT OF CUTPUT FILES LEFT TO DO
                               EXT       IOCLEAR
                               EXT       KZERO
                               EXT       NBIT23
                               EXT       NCRWAIT
                               EXT       OPMSG               ROUTINE TC TYPE MESSAGE TO OPERAT
                               EXT       PDP8BLK
                               EXT       PDP8CTLX
                               EXT       READ
                               EXT       RPSAPTR
                               EXT       SCREAM
                               EXT       SENDTAB
```

```
                     73+002        EXT       SENDTAB1
                     73+003        EXT       SENDTABL
                         74        EXT       WRITE
                         75
                     75+001        HTDEF                         DEFINE HARDWARE TYPES
                        203     .***********************************************************************
                        204     .*                                                                     *
00001                   205     HTFILE   EQU       01B                 FILE                            *
00002                   206     HTLP     EQU       02B                 LINE PRINTER                    *
00003                   207     HTPUN    EQU       03B                 CARD PUNCH                      *
00004                   208     HTCR     EQU       04B                 CARD READER                     *
00005                   209     HTMT     EQU       05B                 MAGNETIC TAPE                   *
00006                   210     HTTTY    EQU       06B                 TELETYPE                        *
00007                   211     HTPLOT   EQU       07B                 X/Y PLOTTER                     *
00010                   212     HTNULL   EQU       10B                 ONLINE INCINERATOR              *
00011                   213     HTTV     EQU       11B                 CRT DISPLAY                     *
00012                   214     HTRAF    EQU       12B                 RANDOM ACCESS FILE              *
00013                   215     HTTASK   EQU       13B                 FUTURE INPUT FOR REMOTE BATCH   *
00014                   216     HTMSF    EQU       14B                 USER DISKPACK                   *
00015                   217     HTPTP    EQU       15B                 PAPER TAPE PUNCH                *
00016                   218     HTMAX    EQU       16B                 (NUMBR OF HARDWARE TYPES) + 1   *
00017                   219     HTMASK   EQU       17B                 MASK FOR THE HARDWARE TYPE      *
                        220     .*                                                                     *
                        221     .***********************************************************************
00000                    77     IMPURE   EQU       0
00001                    78     PFLOC    EQU       1
00000                    79     PFR      EQU       0
00000                    80     PFW      EQU       0
                         81
04000                    82     CORE     EQU       PFLOC*2↑11          FIRST ADDRESS CONTROLLED BY
                         83     *                                      FILE LOCATION ONE.
00002                    84     HLNT     EQU       2                   WORD LENGTH OF FILE BLOCK HEADERS
01000                    85     WPFB     EQU       512                 LENGTH OF FILE BLOCKS
00001                    86     X1       EQU       1
00002                    87     X2       EQU       2
00003                    88     X3       EQU       3
00001                    89     CBI      EQU       X1
00000                    90     CNBLK    EQU       0
00000                    91     PSA      EQU       0
                         92
07773                    93     UINT     EQU       7773B
                         94
00012                    95     FORMREC  EQU       10                  MAX LENGTH FOR A FORMS RECORD
                         96
                         97
00017                    98     CMODE    EQU       00017B              SEZZ CONTROL CARD
01717                    99     FMARK    EQU       01717B              SEZZ FILE MARK
                        100
      X                 101     BINARY   EQU       BIT18
```

```
**************************************************************************
*                                                                        *
*         URBLOK                                                         *
*                                                                        *
*         THIS IS THE UNIT RECORD DEBLOCKER.  IN ADDITION TO             *
*         DEBLOCKING OUTPUT FILES THIS CODE HANDLES                      *
*                   KILLING OUTPUT FILES                                 *
*                   ALL OPERATOR MESSAGES AND RESPONSES                  *
*                       RESULTING FROM SPECIAL FORMS                     *
*                   ALL OPERATOR MESSAGES AND RESPONSES                  *
*                       RESULTING FROM THE REQUESTING OF                 *
*                       DEVICES THAT NEED TO BE READIED                  *
*                       BY THE OPERATOR BEFORE OUTPUT                    *
*                       CAN BEGIN.                                       *
*                                                                        *
*         TO INITIALIZE PROCESSING OF A FILE                             *
*         ENI       BLOCK,X1            ENTER ADDRESS OF CONTROL BLOCK   *
*         ENI       RETURN,X3           ENTER RETURN ADDRESS             *
*         UJP       URBLOKI                                              *
*                                                                        *
*         URBLOKI WILL MAKE THE IMMEDIATE RETURN TO THE                  *
*         ADDRESS IN X3 AND RETURN TO THE CALL BACK ADDRESS              *
*         (AS DEFINED BY THE CONTROL BLOCK MACRO) WHEN DATA              *
*         IS AVAILABLE.  URBLOKI WILL CHECK TO SEE IF THE                *
*         OUTPUT DEVICE NEEDS TO HAVE FORMS REMOVED FROM THE             *
*         PREVIOUS OUTPUT FILE AND IF SO WILL SET A BIT IN               *
*         THE FORMS WORD TO SAY THAT THE NEXT FILE SHOULD                *
*         BE SENT TO THE DRIVER WHEN THE OPERATOR STARTS                 *
*         THE DEVICE AND THEN EXIT.  IT ALSO WILL CHECK TO               *
*         SEE IF THE DEVICE IS ONE THAT THE OPERATOR MUST                *
*         READY BEFORE IT CAN BE USED (SUCH AS THE PLOTTER)              *
*         AND IF IT IS IT WILL PRINT OUT A MESSAGE OF THE                *
*         FORM                                                           *
*                                                                        *
*         READY  ABCD       WHERE ABCD IS THE DEVICE NAME                *
*                                                                        *
*         THEN SET A BIT IN THE FORMS CONTROL WORD AND EXIT              *
*         WAITING FOR THE OPERATOR TO OK THE DEVICE.                     *
*         AFTER THE DEVICE HAS BEEN OK≠ED BY THE OPERATOR                *
*         OR IMMEDIATELY IF NO SPECIAL HANDLING IS REQUIRED              *
*         URBLOKI WILL CALL GETBUFF TO OBTAIN A FILE CORE                *
*         BLOCK AND THEN CALL THE DISK DRIVER TO READ IN                 *
*         THE FIRST BLOCK.                                               *
*                                                                        *
*         TO CONTINUE PROCESSING ON A FILE                               *
*         ENI       BLOCK,X1            ENTER CONTROL BLOCK ADDRESS      *
*         ENI       RETURN,X3           ENTER THE RETURN ADDRESS         *
*         UJP       URBLOK                                               *
*         RETURN WILL BE MADE TO THE ADDRESS IN X3 IF THE                *
*         CALL WAS QUEUED OR TO THE ADDRESS IN X3 PLUS ONE               *
*         IF THE CALL WAS COMPLETED.  ON THE CALL BACK RETURN            *
*         X3 WILL HAVE THE NEW RETURN ADDRESS IN IT.  ON EITHER          *
*         RETURN THE A REGISTER WILL HAVE ONE OF THE FOLLOWING           *
*         00000000  NORMAL RECORD                                        *
*         40000000  FILE MARK                                            *
*         77777777  END OF FILE                                          *
*         ANY SPECIAL PROCESSING OF THE DIFFERENT TYPES OF               *
*         RECORDS IS LEFT UP TO THE VARIOUS DRIVERS                      *
*         IF A SPECIAL FORMS RECORD IS FOUND URBLCK WILL                 *
*         GENERATE A MESSAGE                                             *
*                                                                        *
*         FORMS FOR ABCD                WHERE ABCD IS THE DEVICE NAME    *
*                                                                        *
*         IN THE RECORD BUFFER OF THE DEVICE AND THEN COPY               *
*         THE REST OF THE RECORD INTO THE BUFFER AS NORMAL               *
*         TO USE AS AN OPERATOR COMMENT.  WHEN THE RECORD                *
*         HAS BEEN MOVED TO THE BUFFER OPMSG IS CALLED TO                *
*         PRINT THE MESSAGE ON THE CONSOLE, A BIT IS SET IN              *
*         THE FORMS WORD TO SAY THAT THE DEVICE IS WAITING               *
*         ON FORMS AND EXIT IS MADE TO THE NOT COMPLETED                 *
*         RETURN.  AFTER THE OPERATOR HAS OK≠ED THE DEVICE               *
*         THE NEXT RECORD IS MOVED INTO THE BUFFER AS NORMAL             *
*         AND THE CALBAK RETURN IS TAKEN ON EXIT.                        *
*         IN AN EFFORT TO SIMPLIFY THE DRIVERS THEY SHOULD               *
*         USE THE QUEUEING ROUTINES IN THIS PROGRAM.  THESE              *
*         ROUTINES WILL DO ALL THE NECESSARY CHECKING FOR                *
*         THE DRIVER.  SEVERAL ENTRY POINTS ARE PROVIDED                 *
*         AND ARE EXPLAINED BELOW.  THEY USE THE FOLLOWING CALLING       *
*         SEQUENCE:                                                      *
*                                                                         *
*                                                                         *
*         ENI       BLOCK,X1            ENTER CONTROL BLOCK ADDRESS       *
*         ENI       RETURN,X2           ENTER RETURN ADDRESS              *
*         ENI       FCB,X3              ENTER FILE CONTROL BLCCK ADDRESS  *
*                                       IF CALL TC URBLCKQ OR URBLOKQX    *
*         UJP       PROPER ENTRY                                          *
*                                                                         *
*         URBLOKQ                                                         *
*                                                                         *
*         THIS ENTRY WILL CHECK TO SEE IF THE DEVICE IS BUSY              *
*         AND IF NOT WILL MOVE THE NEEDED INFORMATION FROM                *
*         THE FILE CONTROL BLOCK TC THE DEVICE CONTROL MACRO              *
*         AND ENTER THE DRIVER THRU THE STRTLOC ADDRESS IN                *
*         THE DEVICE CONTROL MACRO.  IF THE DEVICE IS BUSY                *
*         A CALL WILL BE MADE TO URBLOKQX.                                *
*                                                                         *
*         URBLOKQX                                                        *
*                                                                         *
*         THIS ENTRY WILL CALL GETMEM TO REQUEST A FOUR WORD              *
*         BLOCK OF MEMORY TO SAVE THE NEEDED INFORMATICN ABOUT            *
*         THE OUTPUT FILE AND LINK INTO A QUEUE DEFINED BY                *
*         THE QPNT WORD IN THE DEVICE CONTROL MACRO.                      *
*                                                                         *
*         URBLOKNX                                                        *
*                                                                         *
*         THIS ENTRY WILL CHECK IF THERE ARE FILES WAITING                *
*         TO BE OUTPUT TO THE DEVICE.  IF THERE ARE NCT EXIT              *
*         WILL BE MADE TO THE QEMPTY LOCATION DEFINED BY THE              *
*         DEVICE CONTROL MACRO.  IF THERE ARE THE NEEDED                  *
*         INFORMATION ABOUT THE FILE ON THE FRONT OF THE                  *
*         QUEUE WILL BE COPIED INTC THE DEVICE CONTROL MACRO              *
*         AND THE DRIVER WILL BE ENTERED THRU THE ADDRESS                 *
*         DEFINED BY THE STRTLOC WORD IN THE DEVICE CONTROL               *
*         MACRO                                                           *
*                                                                         *
***************************************************************************
```

```
                  URBDEF
         .*                                                                  *
         .***********************************************************************
         .*                                                                  *
         .*       URBLOCK BLOCK DEFINITIONS                                  *
         .*                                                                  *
         .*                                                                  *
00000    FB        EQU     0                   POINTER TC NEXT FILE BLOCK    *
00001    BLF       EQU     FB+1                COUNT CF BLOCKS IN THIS FILE  *
00002    BFBGN     EQU     BLF+1               QUARTER PAGE NUMBER OF CURRENT *
         .*                                    512 WORD BLOCK                *
00003    BFCPP     EQU     BFBGN+1             POINTER TC NEXT WORD TO BE    *
         .*                                    LOADED FRCM THIS BLOCK.  THIS *
         .*                                    POINTER IS RELATIVE TO THE    *
         .*                                    BEGINNING OF THE CURRENT BLOCK *
00004    CALBAK    EQU     BFCPP+1             GO TO THIS ADDRESS WHEN BUFFER *
         .*                                    IS DONE AFTER AN INTERRUPT    *
         .*                                    BIT23 SEZZ CALBAK             *
00005    IMAD      EQU     CALBAK+1            LOCATICN WHERE RECORD IS TO BE *
         .*                                    PLACED OR MOVED FROM.         *
00006    LNIM      EQU     IMAD+1              MAXIMUM ALLOWABLE RECORD SIZE *
00007    KILLFLAG  EQU     LNIM+1              STI   *,0                     *
00010    ENAD      EQU     KILLFLAG+1          ENI   BLOCK,X1                *
00011    NJM       EQU     ENAD+1              UJP   IMPURE                  *
00012    ENIT      EQU     NJM+1               TEMP FOR INDEX 3              *
         .*                                    IF BIT23 DEVICE MUST BE STARTED *
         .*                                    BY OPERATOR                   *
         .*                                    IF BIT22 DO NOT PROCESS FORMS ON*
         .*                                    THIS DEVICE                   *
         .*                                    IF BIT21 THEN STOP MACRO      *
         .*                                    IF BIT20 THEN BUFFER IS UNSAFE *
         .*                                    BIT 19 IS A QUEUEING FLAG     *
00013    DEVBLK    EQU     ENIT+1              PTR TO 4 WORD BLOCK           *
00014    COUNT     EQU     DEVBLK+1            COUNT CF WORDS IN RECORD      *
00015    POSI      EQU     COUNT+1             RELATIVE LOCATION IN BUFFER   *
00016    PFWORD    EQU     POSI+1              CONTENTS CF PF1               *
00016    FORMSWRD  EQU     PFWORD                                            *
         .*                                    BIT19 SEZ WAITING FOR         *
         .*                                    OPERATOR TO READY DEVICE      *
         .*                                    BIT20 SEZ WANTS FORMS         *
         .*                                    BIT21 SEZ HAS FORMS           *
         .*                                    BIT22 SEZ TAKE FORMS OUT      *
         .*                                    BIT23 SEZ SAME AS BIT22 BUT   *
         .*                                    DRIVER IS WAITING TO OUTPUT NEXT*
         .*                                    FILE                          *
00017    IDENT     EQU     PFWORD+1            BCD IDENT OF THE DEVICE       *
00020    URBEXITA  EQU     IDENT+1             ENI   BLOCK,X1                *
00021    URBEXIT   EQU     URBEXITA+1          UJP   IMPURE                  *
00022    QINGLOC   EQU     URBEXIT+1           ADDRESS TO GO TO WHEN FILES   *
         .*                                    ARE UNEQUIPPED                *
00023    QPNT      EQU     QINGLOC+1           POINTER TC NXPTR AND LXPTR    *
00024    QEMPTY    EQU     QPNT+1              ADDRESS TO TELL DRIVER THAT IT *
         .*                                    HAS TO MORE FILES TO OUTPUT   *
00025    STRTLOC   EQU     QEMPTY+1            ADDRESS TO TELL DRIVER TO START *
         .*                                    FILE                          *
         .*                                                                  *
         .***********************************************************************
```

```
           00000 P                     PURE04    EQU       *                   START CF PURE CCDE REGION 04


           00000 P                     IADR      EQU       *
00000   40300002                                 STA       BFBGN,X3            SAVE QUARTER PAGE ADDRESS
00001   53200000                                 TIA       X2
00002   44300021                                 SWA       URBEXIT,X3          SAVE THE RETURN ADDRESS
           00003 P                     IMDR      EQU       *
00003   14600002                                 ENA       HLNT                ENTER WORD COUNT OF HEADER
00004   40300003                                 STA       BFCPP,X3            AND SAVE IN CCNTROL BLOCK
00005   14600052 P                               ENA       URBLOKA             ENTER RETURN ADDRESS
00006   01000420 P                               UJP       CALLFINK

00007   77730000                       URBLOKI   VFD       A12/DINT
00010   20100012                                 LDA       ENIT,X1             SHOULD THE OPERATOR BE WARNED
00011   03200030 P                               AZJ,GE    URBLOKIX            ABOUT THIS DEVICE
00012   20100016                                 LDA       FORMSWRD,X1
00013   35077777 X                               SSA       BIT19               REMEMBER ABOUT ASKING TO BE
00014   40100016                                 STA       FORMSWRD,X1         STARTED
00015   37077777 X                               LPA       BIT22               IF BIT22 IS SET THE NOISE MAKER
00016   03100021 P                               AZJ,NE    *+3                 IS ALL READY CN FOR THIS DEVICE
00017   14600001                                 ENA       1                   SO DON≠T INCREMENT SCREAM
00020   34077777 X                               RAD       SCREAM
00021   53300000                                 TIA       X3                  PUT THE RETURN ADDRESS INTO X2
00022   53600000                                 TAI       X2
00023   20100017                                 LDA       IDENT,X1            LOAD THE DEVICE ID
00024   40001501 P                               STA       RDYMESID
00025   11006375 P    01477 1                    ECHA      RDYMESS             ENTER THE MESSAGE ADDRESS
00026   14700014                                 ENQ       RDYMESL             AND LENGTH
00027   01077777 X                               UJP       OPMSG

           00030 P                     URBLOKIX  EQU       *
00030   21100016                                 LDQ       FORMSWRD,X1         DOES THE UNIT HAVE FORMS IN IT
00031   27000015 X                               LDL       BIT22
00032   03000035 P                               AZJ,EQ    URBLOKIZ
00033   34100016                                 RAD       FORMSWRD,X1         CLEAR BIT 22 AND SET BIT 23
00034   01300000                                 UJP       0,X3                WAIT FCR REMOVAL CF FORMS

           00035 P                     URBLOKIZ  EQU       *
00035   53300000                                 TIA       X3
00036   44100021                                 SWA       URBEXIT,X1          SAVE THE RETURN ADDRESS
00037   53100000                                 TIA       X1                  GET POINTER TC AN INDEX
00040   53700000                                 TAI       X3                  THAT IS SAVED AND RESTORED
00041   14700000 P                               ENQ       IADR                ENTER INTERRUFT ADDRESS
00042   14600044 P                               ENA       *+2                 ENTER RETURN ADDRESS
00043   01077777 X                               UJP       GETBUFF             CALL TC GET BUFFER
00044   40300002                                 STA       BFBGN,X3            SAVE THE QUARTER PAGE ADDRESS
00045   03200003 P                               AZJ,GE    IMDR                JUMP IF WE GOT A BUFFER
00046   01300020                                 UJP       URBEXITA,X3         WAIT FCR A BUFFER
```

```
 00047  77730000                     274         URBLOK    VFD       A12/DINT
 00050  53300000                     275                   TIA       X3
 00051  44100021                     276                   SWA       URBEXIT,X1            SAVE THE RETURN ADDRESS
             00052 P                 276+001     URBLOKA   EQU       *
 00052  20100012                     276+002               LDA       ENIT,X1               SEE IF PHANTOM SEZ STOP
 00053  12000002                     276+003               SHA       23-21                 STOP BIT TO POST
 00054  03300320 P                   276+004               AZJ,LT    STOPIT                JUMP TC STOP MACRO
 00055  77650001                     276+005               PFA       PFLOC+PFR             SAVE PF 1
 00056  44100016                     278                   SWA       PFWORD,X1
 00057  20100002                     279                   LDA       BFBGN,X1              LOAD QUARTER PAGE NUMBER
 00060  77640001                     280                   APF       PFLOC+PFW
 00061  14300063 P                   281                   ENI       *+2,X3
 00062  01000376 P                   282                   UJP       GETWORD               GET A WORD FRCM THE FILE BLOCK
 00063  20077777 X                   283                   LDA       BIT23                 CHECK FOR FILE MARK
 00064  03400227 P                   284                   AQJ,EQ    FILEM                 JUMP IF FILE MARK
 00065  05500001                     285                   QSG,S     1
 00066  01000233 P                   286                   UJP       TERMF                 HOPEFULLY END OF DATA
 00067  27077777 X                   287                   LDL       BIT18                 ONLY WANT BINARY BIT
 00070  40100015                     288                   STA       POSI,X1               SET INITIAL PCSITION TO ZERO
 00071  17777777                     289                   ANQ       77777B                MASK TO WCRD COUNT
 00072  41100014                     290                   STQ       COUNT,X1              SAVE CCUNT
 00073  20100006                     291                   LDA       LNIM,X1               LOAD ALLOWED COUNT FOR DEVICE
 00074  05700013                     292                   QSG       FORMREC+1             SKIP IF IT CAN≠T BE FCRMS
 00075  01000104 P                   293                   UJP       CHECFORM
 00076  03600136 P                   294                   AQJ,GE    PLST                  JUMP IF NO ERROR
                                     295
                                                ************************************************************************
                                     297        *                                                                      *
                                     298        *            IF THE FOLLOWING CODE IS EXECUTED SOMETHING IS BADLY      *
                                     299        *            MALFUNCTIONING.  PROBABLE ITEMS TO CHECK ARE THE DISKS    *
                                     300        *            (HARDWARE OR SOFTWARE) OR SYSTEM TIMING.                  *
                                     301        *                                                                      *
                                     302        *            THIS CODE HAS NOT BEEN EXECUTED SINCE EARLY VERSION 3.0   *
                                     303        *            HOWEVER IT IS LEFT HERE FOR OLD TIMES SAKE.  THE HLT *+1  *
                                     304        *            IS ASSEMBLED IN BECAUSE WE (OSU) HAVE LITTLE DISK TROUBLE *
                                     305        *            HOWEVER IF DISK TROUBLE BECOMES A REAL FROBLEM THE HALT   *
                                     306        *            SHOULD BE DELETED.  IF IT IS THE SYSTEM WILL RECOVER FROM *
                                     307        *            BAD READS AUTOMATICLY.       (01/01/72)                   *
                                     308        *                                                                      *
                                                ************************************************************************
 00077  00000100 P                   309+001               HLT       *+1                   TRAP FOR BAD CUTPUT FILE
                                     310
             00100 P                 311         SYNC      EQU       *                     OUTPUT FILE SYNC ERROR
 00100  11002270 P    00456 0        313                   ECHA      SYNCM                 ENTER ADDRESS OF MESSAGE
 00101  14700027                     314                   ENQ       SYNCL                 ENTER COUNT FOR MESSAGE
 00102  14200244 P                   315                   ENI       TERMFX,X2             ENTER RETURN ADDRESS
 00103  01000027 X                   316                   UJP       OPMSG                 PRINT ≠OUTPUT FILE SYNC ERROR≠
                                     317
                                     318
             00104 P                 318+001     CHECFORM  EQU       *
 00104  20000031 X                   318+002               LDA       BIT22
 00105  37100012                     318+003               LPA       ENIT,X1               GET NON-FCRMSABLE DEVICE BIT
 00106  35100015                     318+004               SSA       POSI,X1               AND BINARY RECORD BIT
 00107  03100136 P                   318+005               AZJ,NE    PLST                  JUMP IF NOT TC DO FORMS
 00110  14300112 P                   318+006               ENI       *+2,X3
 00111  01000376 P                   320                   UJP       GETWORD
 00112  20077777 X                   321                   LDA       FORMFLAG              IS IT THE FLAG WORD
 00113  03500140 P                   322                   AQJ,NE    NOTFR                 JUMP IF NCT
 00114  20100007                     323                   LDA       KILLFLAG,X1           HAS THE DEVICE BEEN KILLED
 00115  05600001                     324                   ASG       1                     SKIP IF NOT
 00116  01000140 P                   325                   UJP       NOTFR
 00117  14600006                     325+001               ENA       6
 00120  44100015                     327                   SWA       POSI,X1
 00121  20100016                     328                   LDA       FORMSWRD,X1           SET THE WAITING ON FORMS BIT
 00122  17677777                     329                   ANA       77777B
 00123  35077777 X                   330                   SSA       BIT20
 00124  40100016                     331                   STA       FORMSWRD,X1
 00125  01000140 P                   332                   UJP       NOTFR
```

```
00126  15477776    334      IXTST     INA,S     -1               COUNT DOWN COUNTER
00127  40100014    335                STA       COUNT,X1         SAVE COUNTER
00130  20100015    336                LDA       POSI,X1          LOAD CURRENT POSITION
00131  15600001    337                INA       1
00132  40100015    338                STA       POSI,X1          SAVE BACK COUNTED UP VERSION
00133  30100005    339                ADA       IMAD,X1          ADD ON THE BUFFER ADDRESS
00134  53600000    340                TAI       X2               PLACE ADDRESS INTO INDEX TWO
00135  41277776    341                STQ       -1,X2            STORE DATA WORD INTO BUFFER
00136  14300140 P  342      PLST      ENI       *+2,X3
00137  01000376 P  343                UJP       GETWORD          GET WORD FROM FILE BLOCK
          00140 P  344      NOTFR     EQU       *
00140  20100014    345                LDA       COUNT,X1         GET COUNT OF WORDS TO MOVE
00141  03100126 P  346                AZJ,NE    IXTST            GO ON IF NOT ZERO
00142  24100015    347                LCA       POSI,X1          ARE THE LEADING AND TRAILING
00143  53040000    348                AQA                        WORD COUNTS THE SAME
00144  13000030    349                SHAQ      24               SAVE DIFFERENCE IN Q
00145  20100016    350                LDA       FORMSWRD,X1      SHOULD WE SCREAM ABOUT FORMS
00146  12000003    351                SHA       23-20
00147  03200223 P  352                AZJ,GE    NOTFORMS
00150  04577771    352+001            QSE,S     -6               SKIP IF WORD COUNTS ARE OK
00151  00000100 P  354                HLT       SYNC             LEADING AND TRAILING WORD COUNTS
00152  20100016    355                LDA       PFWORD,X1        DO NOT MATCH
00153  77640001    356                APF       PFLOC+PFW        RESTORE THE PAGE FILE
00154  14600001    357                ENA       1                MAKE THE CONSOLE CRY
00155  34000020 X  358                RAD       SCREAM
00156  20100005    359                LDA       IMAD,X1          LOAD THE ADDRESS OF THE RECORD
00157  53600000    360                TAI       X2
00160  20100013    360+001            LDA       DEVBLK,X1        GET POINTER TO JOB NUMBER
00161  53700000    360+002            TAI       X3               PUT IN USEFUL PLACE
00162  24077777 X  360+003            LCA       BIT2322          AND OFF ABORT AND FORMS BITS
00163  37300003    360+004            LPA       3,X3             GET JOB NUMBER
00164  14300166 P  360+005            ENI       *+2,X3           RETURN
00165  01000326 P  360+006            UJP       NUMCONV          CONVERT TO DECIMAL
00166  45200003    360+007            STAQ      3,X2             SAVE IN MESSAGE
00167  20100013    360+008            LDA       DEVBLK,X1        POINTER TO NUMBER OF RECORDS
00170  53700000    360+009            TAI       X3
00171  20300000    360+010            LDA       0,X3             GET UPPER 6 BITS OF RECORD COUNT
00172  12000006    360+011            SHA       6
00173  17600077    360+012            ANA       77B              AND OFF
00174  21300002    360+013            LDQ       2,X3             GET NEXT 9 BITS OF RECORD COUNT
00175  13000011    360+014            SHAQ      9
00176  12000011    360+015            SHA       9
00177  14300201 P  360+016            ENI       *+2,X3           RETURN
00200  01000326 P  360+017            UJP       NUMCONV          CONVERT TO DECIMAL
00201  45200005    360+018            STAQ      5,X2             SAVE IN MESSAGE
00202  20001474 P  361                LDA       FORM             MOVE THE STANDARD STUFF INTO THE
00203  40200000    362                STA       0,X2             MESSAGE
00204  20000464 P  363                LDA       BLANKSS          GENERATE THE IDENT INTO THE
00205  21100017    364                LDQ       IDENT,X1         MESSAGE
00206  13000014    365                SHAQ      12
00207  45200001    366                STAQ      1,X2
00210  20100015    367                LDA       POSI,X1          POINT TO THE END OF THE RECORD
00211  53640000    368                IAI       X2
00212  13077747    369                SHAQ      -24              COUNT TO 0
00213  14477777    370                ENA,S     77777B           STORE A RETURN AT THE END OF THE
00214  40200000    371                STA       0,X2             MESSAGE
00215  20100021    372                LDA       URBEXIT,X1       SET THE RETURN ADDRESS
00216  53600000    373                TAI       X2
00217  20100005    374                LDA       IMAD,X1          LOAD THE FIRST WORD ADDRESS
00220  13000002    375                SHAQ      2                CONVERT TO CHARACTERS
00221  15700001    376                INQ       1
00222  01000103 X  377                UJP       OPMSG
                   378
                   379
          00223 P  380      NOTFORMS  EQU       *
00223  20100015    381                LDA       POSI,X1          LOAD CURRENT POSITION
00224  40100014    382                STA       COUNT,X1         SET COUNT BACK INTO WORD
00225  04500000    383                QSE,S     0                SKIP IF WORD COUNTS ARE OK
00226  00000100 P  384                HLT       SYNC
          00227 P  385      FILEM     EQU       *
00227  20100007    386                LDA       KILLFLAG,X1      LOAD KILL REQUEST FLAG
00230  04600000    387                ASE       0                SKIP IF TIME TO QUIT
00231  01000304 P  388                UJP       FILEX            JUMP ON IF NOT
00232  01000237 P  388+001            UJP       KILLIT
                   396
                   397
          00233 P  398      TERMF     EQU       *
00233  20100001    399                LDA       BLF,X1           IS THIS THE LAST BLOCK
00234  04777777    400                QSE       77777B           EOD WORD MUST BE +0
```

```
00235  04400000               401                ASE,S    0               MUST BE THE LAST BLOCK
00236  00000100 P             402                HLT      SYNC
00237  20100013               402+001  KILLIT    LDA      DEVBLK,X1       GET POINTER TC G BLOCK
00240  53700000               402+002            TAI      X3
00241  25300001               402+003            LDAQ     1,X3            A=LP Q=TFL
00242  17777777               402+004            ANQ      77777B          KEEP ONLY TFL
00243  00777777 X             402+005            RTJ      FREEFILE        GET RID OF FILE
          00244 P             403      TERMFX    EQU      *
00244  20100013               403+001            LDA      DEVBLK,X1       PTR TO 4 WORD BLOCK
00245  17677777               403+002            ANA      77777B          JUST IN CASE
00246  14300002               403+003            ENI      2,X3            SAY 4 WORD BLCCK
00247  00777777 X             403+004            RTJ      FREEMEM         FREE MEMORY
00250  14600000               403+005            ENA      0
00251  40100013               403+006            STA      DEVBLK,X1       CLEAR MACRO
00252  14600000               404                ENA      0               SAY THAT THIS DEVICE IS NO
00253  40100000               405                STA      FB,X1           LONGER DOING ANYTHING
00254  14477776               406                ENA,S    -1              ONE LESS OUTPUT FILE
00255  34077777 X             407                RAD      IOBUSY
00256  53100000               408                TIA      X1              CONTROL BLOCK ADDRESS TO X3
00257  53700000               409                TAI      X3
00260  15600007               410                INA      ENAD-1          RESTORE THE KILL REQUEST FLAG
00261  44100007               411                SWA      ENAD-1,X1
00262  15300010               412                INI      ENAD,X3         POINT TO THE RETURN ADDRESS
00263  14600267 P             413                ENA      FILEXA          SET THE ADDRESS INTO THE CONTROL
00264  44100011               414                SWA      NJM,X1          BLOCK
00265  20100002               415                LDA      BFBGN,X1        LOAD FILE CORE BLOCK ADDRESS
00266  01077777 X             416                UJP      GIVBUFFA        GIVE QUARTER PAGE BACK
          00267 P             417      FILEXA    EQU      *
00267  21100016               418                LDQ      FORMSWRD,X1     DOES THE DEVICE HAVE FORMS IN IT
00270  27077777 X             419                LDL      BIT21
00271  03000303 P             420                AZJ,EQ   DONTSTOP        JUMP IF NCT
00272  34100016               421                RAD      FORMSWRD,X1     SET THE ≠TAKE OUT FORMS≠ BIT
00273  20100017               422                LDA      IDENT,X1        SET THE IDENT INTO THE MESSAGE
00274  40001476 P             423                STA      ENDIDENT
00275  14600001               424                ENA      1
00276  34000155 X             425                RAD      SCREAM
00277  14700021               426                ENQ      17              NUMBER OF CHARACTERS
00300  11006354 P   01473 0   427                ECHA     ENDMESS
00301  14200303 P             428                ENI      DONTSTOP,X2
00302  01000222 X             429                UJP      OPMSG
                              430
                              431
          00303 P             432      DCNTSTOP  EQU      *
00303  14577777               433                ENQ,S    -0              SAY END OF DATA
          00304 P             434      FILEX     EQU      *
00304  20100016               435                LDA      PFWORD,X1       RESTORE PAGE FILE WORD
00305  77640001               436                APF      PFLOC+PFW
00306  20100021               437                LDA      URBEXIT,X1      LOAD THE RETURN ADDRESS
00307  53700000               438                TAI      X3
00310  13000030               439                SHAQ     24
00311  21100004               440                LDQ      CALBAK,X1       IS THIS AN INTERRUPT RETURN
00312  05500000               441                QSG,S    0
00313  01000315 P             442                UJP      *+2
00314  01300001               443                UJP      1,X3            IMMEDIATE RETURN
00315  17777777               444                ANQ      77777B          CLEAR THE SIGN BIT
00316  41100004               445                STQ      CALBAK,X1
00317  01500004               446                UJP,I    CALBAK,X1       CALL ROUTINE BACK


          00320 P             446+002  STOPIT    EQU      *               ROUTINE TO STOP MACRO FOR PHANTOM
00320  24000270 X             446+003            LCA      BIT21           GET -STOPBIT
00321  34100012               446+004            RAD      ENIT,X1         REMOVE STOP BIT
00322  20000063 X             446+005            LDA      BIT23           SET THE CALBACK FLAG
00323  35100004               446+006            SSA      CALBAK,X1
00324  40100004               446+007            STA      CALBAK,X1
00325  01100021               446+008            UJP      URBEXIT,X1      RETURN
```

```
             00326 P     446+010  NUMCONV  EQU     *              ROUTINE TO CONVERT BINARY TO DEC
                         446+011  *                               ENTER WITH:
                         446+012  *                               A=NUMBER TO BE CONVERTED
                         446+013  *                               X2=POINTER TO 3 WORDS OF TEMP
                         446+014  *                               X3=RETURN ADDRESS
                         446+015  *                               RETRUNS WITH 7 DIGITS IN AQ
                         446+016  *                               FOLLOWED BY BLANK
                         446+017
                         446+018
00326  14700060          446+019           ENQ     60B
00327  12400022          446+020           SHQ     18             PRESET
00330  45200000          446+021           STAQ    0,X2           THE TEMPS
00331  14700000          446+022           ENQ     0
00332  41200002          446+023           STQ     2,X2
00333  21200000          446+024  NUMCV02  LDQ     0,X2           GET REMAINDER OF NUMBER
00334  14600000          446+025           ENA     0
00335  51077777 X        446+026           DVA     D10
00336  40200000          446+027           STA     0,X2           SAVE QUOTIENT
00337  14600000          446+028           ENA     0
00340  32200001          446+029           ADAQ    1,X2           ADD TO PREVIOUS NUMBER
00341  13000052          446+030           SHAQ    48-6           GOTO NEXT POSITION
00342  45200001          446+031           STAQ    1,X2           SAVE AGAIN
00343  17700077          446+032           ANQ     77B            KEEP LAST CHAR
00344  04700060          446+033           QSE     60B            SKIP IF DONE
00345  01000333 P        446+034           UJP     NUMCV02        CONTINUE
00346  21200002          446+035           LDQ     2,X2
00347  01300000          446+036  UJPX3    UJP     0,X3           RETURN
```

```
              00350 P      448        FLWDA    EQU       *
      00350  24000123 X    448+001             LCA       BIT20                 GET NOT(BUFFER UNSAFE FLAG)
      00351  37100012      448+002             LPA       ENIT,X1               AND OFF IN FLAG WORD
      00352  40100012      448+003             STA       ENIT,X1               STORE BACK
      00353  20100012      449                 LDA       ENIT,X1               INDEX 3
      00354  53700000      450                 TAI       X3
      00355  77650001      451                 PFA       PFLOC+PFR             SAVE PFLOC
      00356  44100016      452                 SWA       PFWORD,X1
      00357  20100002      453                 LDA       BFBGN,X1              POINT TO THE CURRENT FILE CORE
      00360  77640001      454                 APF       PFLOC+PFW             BLOCK
      00361  20100013      454+001             LDA       DEVBLK,X1             GET PHANTOM CHANGE FLAG
      00362  14700000      454+002             ENQ       0
      00363  13077760      454+003             SHAQ      -15                   FLAG TO A--PTR TO Q
      00364  12400017      454+004             SHQ       24-9                  PTR TO LOWER Q
      00365  41100013      454+005             STQ       DEVBLK,X1             RESTORE DEVBLK FLAG
      00366  17600777      454+006             ANA       7778
      00367  05600002      454+007             ASG       HLNT                  SKIP IF PHANTOM HAS BEEN HERE
      00370  14600002      455                 ENA       HLNT                  ENTER COUNT OF HEADER WORDS
                           456
                           457
      00371  15600001      458        FLWD     INA       1                     COUNT UP PICKUP POINTER
      00372  40100003      459                 STA       BFCPP,X1              AND SAVE IT
      00373  53600000      460                 TAI       X2                    ADDRESS TO INDEX TWO
      00374  21203777      461                 LDQ       CORE-1,X2             LOAD WORD FROM BLOCK
      00375  01300000      462                 UJP       0,X3                  RETURN
                           463
      00376  20100003      464        GETWORD  LDA       BFCPP,X1              LOAD COUNTER FOR PICKUP
      00377  05601000      465                 ASG       WPFB                  SKIP IF END OF FILE BLOCK
      00400  01000371 P    466                 UJP       FLWD
                           467
      00401  53300000      468                 TIA       X3                    GET INDEX THREE
      00402  44100012      469                 SWA       ENIT,X1               SAVE INDEX THREE
      00403  53100000      470                 TIA       X1                    PUT BLOCK INDEX INTO X3
      00404  53700000      471                 TAI       X3
      00405  20004000      472                 LDA       CORE                  LOAD THE FORWARD POINTER
      00406  21100013      472+001             LDQ       DEVBLK,X1             SEE IF PHANTOM HAS BEEN HERE
      00407  12477760      472+002             SHQ       -15
      00410  05700002      472+003             QSG       HLNT                  SKIP IF PHANTOM HAS BEEN HERE
      00411  40300000      473                 STA       FB,X3                 SAVE AS THE CURRENT BLOCK
      00412  20100016      474                 LDA       PFWORD,X1             RESTORE THE PAGE FILE
      00413  77640001      475                 APF       PFLOC+PFW
      00414  20000350 X    475+001             LDA       BIT20                 GET BUFFER UNSAFE FLAG
      00415  35100012      475+002             SSA       ENIT,X1               SET INTO WORD
      00416  40100012      475+003             STA       ENIT,X1               STORE BACK
      00417  14600350 P    476                 ENA       FLWDA                 ENTER THE RETURN
                           477
              00420 P      478        CALLFINK EQU       *
      00420  44300016      479                 SWA       PFWORD,X3             SAVE THE RETURN ADDRESS
      00421  14600437 P    480                 ENA       TKZ                   SET THE ADDRESS FOR THE DISK
      00422  44300011      481                 SWA       NJM,X3                COMPLETION
      00423  20300001      482                 LDA       BLF,X3                COUNT DOWN THE NUMBER OF BLOCKS
      00424  05400000      483                 ASG,S     0                     HOWEVER CHECK TO SEE IF NOT PAST
      00425  00000425 P    484                 HLT       *                     THE END OF THE FILE
      00426  20300000      485                 LDA       FB,X3                 LOAD FILE BLOCK NUMBER
      00427  21300002      486                 LDQ       BFBGN,X3              LOAD PAGE FILE ADDRESS
      00430  12400011      487                 SHQ       9
      00431  15300020      488                 INI       URBEXITA,X3           COMPUTE RETURN FROM FINK
      00432  47377777 X    489                 STI       FINK,X3               WE ARE FAKING A RTJ
      00433  15377767      490                 INI       ENAD-URBEXITA,X3      COMPUTE INTERRUPT RETURN
      00434  14101000      491                 ENI       WPFB,X1               WORD COUNT
      00435  14277777 X    492                 ENI       READ,X2               READ OPERATION
      00436  01077777 X    493                 UJP       FINKP1                CALL THE DISK DRIVER
```

```
                           ************************************************************************
                       496 *                                                                      *
                       497 *           RETURN TO HERE AFTER MASS STORAGE TRANSFERS                *
                       498 *                                                                      *
                           ************************************************************************
                       500
                       501
          00437 P      502     TKZ      EQU      *
00437  53300000        503              TIA      X3
00440  44100021        504              SWA      URBEXIT,X1            SAVE THE RETURN ADDRESS
00441  12477766        505              SHQ      -9                    FORM 1/4 PAGE NUMBER
00442  41100002        506              STQ      BFBGN,X1
00443  20000322 X      507              LDA      BIT23                 SET THE CALBAK WORD
00444  35100004        508              SSA      CALBAK,X1
00445  40100004        509              STA      CALBAK,X1
00446  21100007        511              LDQ      KILLFLAG,X1           WAS THERE AN IR DISK ERROR
00447  05700001        512              QSG      1                     SKIP IF NOT
00450  01000237 P      513              UJP      KILLIT                FORGET THE REST OF THIS FILE
00451  14477776        516              ENA,S    -1                    DECREMENT THE FILE LENGTH
00452  34100001        517              RAD      BLF,X1
00453  20100016        518              LDA      PFWORD,X1             LOAD THE CALLING ADDRESS
00454  53600000        519              TAI      X2
00455  01200000        520              UJP      0,X2
                       521
00456  46646347        522     SYNCM    BCD,C    23,OUTPUT FILE SYNC ERROR^
          00027        523     SYNCL    EQU,C    *-SYNCM
00463                  524              BSS      0                     SET THE PC TO A WORD BOUNDARY
00464  60606260        525     BLANKSS  BCD      1,   S
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```
00465  20000013 X    527+001  URBLOKQ  LDA     BIT19                 URBLCKG FLAG
00466  35100012      527+002           SSA     ENIT,X1               SET INTO FLAG WORD
00467  40100012      527+003           STA     ENIT,X1               STORE WORD
          00470 P    527+004  URBLOKQX EQU     *
00470  47201457 P    527+005           STI     UNLINK,X2             SAVE RETURN ADDRESS
00471  53300000      527+006           TIA     X3+CNBLK              MOVE CONTROL BLOCK POINTER TO A
00472  53600000      527+007           TAI     X2+CNBLK              AND THENCE TO X2
00473  14300002      527+008           ENI     2,X3                  GET A 4 WORD BLOCK OF MEMORY
00474  00777777 X    527+009           RTJ     GETMEM
00475  20200000      527+010           LDA     ACCWORD,X2+CNBLK      GET NUMBER OF RECORDS
                     527+011  *      **NOTE**
                     527+012  *        NUMBER OF RECORDS HAS BEEN DIVIDED BY 512 ALREADY BY REQUEST
00476  13077766      527+013           SHAQ    -9
00477  17600077      527+014           ANA     77B                   JUST IN CASE
00500  12000022      527+015           SHA     24-6                  MOVE TO TOP 6 BITS
00501  40300000      527+016           STA     0,X3                  SAVE IN 4 WORD BLOCK
00502  20200007      527+017           LDA     TFL,X2+CNBLK
00503  13000011      527+018           SHAQ    9                     MERGE WITH REST OF RECORD COUNT
00504  12000017      527+019           SHA     24-9                  BACK INTO POSITION
00505  40300002      527+020           STA     2,X3
00506  20200001      527+021           LDA     LP,X2+CNBLK           GET LOAD POINT ADDRESS
00507  40300001      527+022           STA     1,X3
00510  20200006      527+023           LDA     EPP,X2+CNBLK          GET FORMS FLAG
00511  37000465 X    527+024           LPA     BIT19                 KEEP ONLY FORMS FLAG
00512  12000003      527+025           SHA     3                     MOVE A BIT
00513  40300003      527+026           STA     3,X3                  AND SAVE
00514  53020077      527+027           TMA     77B                   GET USERS ABORT BIT
00515  37000443 X    527+028           LPA     BIT23                 KEEP ONLY ABORT BIT
00516  34300003      527+029           RAD     3,X3                  SET INTO BLOCK
00517  53200000      527+030           TIA     X2+CNBLK              CONTROL BLOCK ADDRESS TO A
00520  13077747      527+031           SHAQ    -24                   NOW TO Q
00521  53300000      527+032           TIA     X3                    SAVE 4 WORD BLOCK ADDRESS
00522  53600000      527+033           TAI     X2                    IN X2
C0523  13000030      527+034           SHAQ    24                    CONTROL BLOCK ADDRESS TO A
00524  14300003      527+035           ENI     3,X3                  8 WORD BLOCK
00525  00700247 X    527+036           RTJ     FREEMEM               FREE IT
00526  54377777 X    527+037           LDI     RPSAPTR,X3+PSA        GET POINTER TO USER
00527  24000162 X    527+038           LCA     BIT2322               GET JOB NUMBER MASK
00530  37377777 X    527+039           LPA     ACCNUM,X3+PSA         NOW GET JOB NUMBER
00531  34200003      527+040           RAD     3,X2                  PUT INTO BLOCK
00532  20100012      527+041           LDA     ENIT,X1               GET URBLOCQ/QX FLAG
00533  37000511 X    527+042           LPA     BIT19                 KEEP ONLY THAT BIT
00534  03100543 P    527+043           AZJ,NE  URBQ10                JUMP IF URBLOCQ
00535  20100023      527+044  URBQ05   LDA     QPNT,X1               GET POINTER TO QUQUE
00536  53500000      527+045           TAI     X1                    PUT IN X1
00537  53200000      527+046           TIA     X2                    4 WORD BLOCK ADDRESS TO A
00540  44500001      527+047           SWA,I   1,X1                  POINT LAST ELEMENT TO THIS
00541  44100001      527+048           SWA     1,X1                  THIS IS LAST ELEMENT
00542  01001457 P    527+049           UJP     UNLINK                RETURN
                     527+050
00543  16477777      527+051  URBQ10   XOA,S   -0                    COMPLEMENT FLAG
00544  34100012      527+052           RAD     ENIT,X1               GET RID OF IT
00545  20100000      527+053           LDA     FB,X1
00546  35500023      527+054           SSA,I   QPNT,X1
00547  03100535 P    527+055           AZJ,NE  URBQ05                JUMP IF MACRO BUSY
00550  25200001      527+056  URBQ20   LDAQ    1,X2                  GET LP AND TFL
00551  17777777      527+057           ANQ     77777B                AND OFF GARBAGE
00552  45100000      527+058           STAQ    FB,X1                 STORE INTO MACRO
00553  53200000      527+059           TIA     X2                    4 WORD BLOCK ADDRESS TO A
00554  40100013      527+060           STA     DEVBLK,X1             SAVE IN MACRO
00555  54301457 P    527+061           LDI     UNLINK,X3             LOAD RETURN ADDRESS
00556  01100025      527+062           UJP     STRTLOC,X1            START
                     566
                     567
00557  20100023      568      URBLOKNX LDA     QPNT,X1               IS ANYTHING ELSE WAITING
00560  53700000      569               TAI     X3
00561  20300000      570               LDA     0,X3                  LOAD POINTER TO NEXT ELEMENT
00562  21077777 X    571               LDQ     INHIBIT
00563  17777777 X    572               ANQ     DIEPSUS               SEE IF DIE OR SUSPEND SET
00564  05700001      573               QSG     1                     SKIP IF EITHER SET
00565  05600001      574               ASG     1                     SKIP IF POINTER IS PRESENT
00566  01100024      575               UJP     QEMPTY,X1             TELL THE DRIVER THAT IT IS DONE
00567  47201457 P    576               STI     UNLINK,X2             SAVE THE RETURN ADDRESS
00570  53600000      577               TAI     X2                    SAVE ELEMENT ADDRESS IN X2
00571  14677777      577+001           ENA     77777B                ENTER A MASK
00572  37200000      577+002           LPA     0,X2                  GET POINTER TO NEXT BLOCK
00573  44300000      577+003           SWA     0,X3                  STORE IN Q POINTER
00574  03100550 P    577+004           AZJ,NE  URBQ20                NOW START MACRO
00575  53300000      577+005           TIA     X3                    OH-OH, MUST SET LAST POINTER
```

```
      00576  44300001              577+006          SWA      1,X3                    TO GPOINTER
      00577  01000550 P            577+007          UJP      URBQ20                  NOW START MACRO
```

```
                       *****************************************************************
                       *                                                               *
                       *        THIS SECTION PROCESSES KILL AND START REQUESTS         *
                       *                                                               *
                       *        WHEN OPMSG DECODES A KILL OR STRT MESSAGE IT WILL      *
                       *        JUMP TO THE PROPER ROUTINE HERE.                       *
                       *                                                               *
                       *        BOTH ROUTINES SEARCH THE ≠BLOCK≠ TABLE CREATED BY      *
                       *        INITIAL TO DETERMINE IF A LEGAL DEVICE IDENT WAS       *
                       *        USED                                                   *
                       *                                                               *
                       *                                                               *
                       *        ON KILL REQUESTS THE KILLFLAG WORD IS SET TO ZERO      *
                       *        IN THE DEVICE CONTROL MACRO AND URBLOK WILL FAKE       *
                       *        AN END-OF-FILE RETURN ON THE NEXT CALL FROM THE        *
                       *        DRIVER.  WHEN THE OPERATOR KILLS A DEVICE THE          *
                       *        FORMS CONTROL WORD IS CLEARED ON THE ASSUMPTION        *
                       *        THAT THE OPERATOR SHOULD STOP THE DEVICE BEFORE        *
                       *        KILLING IT AND HE SHOULD HAVE THE SMARTS TO REMOVE     *
                       *        ANY FORMS THAT ARE IN IT BEFORE TURNING IT BACK ON     *
                       *                                                               *
                       *        ON STRT REQUESTS THE FORMS WORD IN THE DEVICE CONTROL  *
                       *        MACRO IS CHECKED TO SEE IF THE REQUEST IS LEGAL AND    *
                       *        IF SO THE ROUTINE STARTS THE DRIVER IF IT IS WAITING   *
                       *                                                               *
                       *****************************************************************

          00600 P      KILL     EQU      *
00600  14177777 X               ENI      BLOCKSL,X1
00601  14577777                 ENQ,S    77777B
00602  20200001                 LDA      1,X2               LOAD THE IDENT
00603  06277777 X               MEQ      BLOCKS,2
00604  01377776                 UJP      -1,X3              ILLEGAL IDENT
00605  20177777 X               LDA      BLOCKSP1,X1        LOAD THE CONTROL BLOCK ADDRESS
00606  53500000                 TAI      X1
00607  20100000                 LDA      FB,X1              IS THE DEVICE BUSY
00610  03000630 P               AZJ,EQ   STRTERR            REQUEST IS ILLEGAL IF NOT
00611  21100016                 LDQ      FORMSWRD,X1
00612  27000515 X               LDL      BIT23              ARE WE WAITING TO TAKE FORMS OUT
00613  03300630 P               AZJ,LT   STRTERR            REQUEST IS ILLEGAL IF WE ARE
00614  44100007                 SWA      KILLFLAG,X1        SET THE FLAG
00615  27000533 X               LDL      BIT19              IS THE DEVICE WAITING TO BE
00616  03100661 P               AZJ,NE   STRT06             STARTED  JUMP IF SO
00617  27000414 X               LDL      BIT20              IS THE DEVICE WAITING ON FORMS
00620  03000655 P               AZJ,EQ   STRT04             JUMP IF NOT
00621  13000030                 SHAQ     24
00622  17677777                 ANA      77777B             CLEAR ALL THE BITS
00623  01000641 P               UJP      STRT01             PRINT ONE LAST LINE


          00624 P      STRT     EQU      *
00624  14577777                 ENQ,S    77777B
00625  14100600 X               ENI      BLOCKSL,X1
00626  20200001                 LDA      1,X2               LOAD THE IDENT
00627  06200603 X               MEQ      BLOCKS,2
00630  01377776        STRTERR  UJP      -1,X3              ILLEGAL IDENT
00631  20100605 X               LDA      BLOCKSP1,X1        LOAD THE CONTROL BLOCK ADDRESS
00632  53500000                 TAI      X1
00633  21100016                 LDQ      FORMSWRD,X1
00634  27000615 X               LDL      BIT19              IS THIS AN OPERATOR READIED
00635  03100661 P               AZJ,NE   STRT06             DEVICE     JUMP IF SO
00636  27000617 X               LDL      BIT20              ARE WE WAITING ON FORMS
00637  03000650 P               AZJ,EQ   STRT02             JUMP IF NOT
00640  53040000                 AQA                         CLEAR ≠WAITING≠  SET ≠PRESENT≠
          00641 P      STRT01   EQU      *
00641  40100016                 STA      FORMSWRD,X1
00642  14477776                 ENA,S    -1                 TURN THE NOISE OFF
00643  34000276 X               RAD      SCREAM
00644  20000612 X               LDA      BIT23              SET THE CALBAK WORD
00645  35100004                 SSA      CALBAK,X1
00646  40100004                 STA      CALBAK,X1
00647  01000047 P               UJP      URBLOK

          00650 P      STRT02   EQU      *
00650  27000527 X               LDL      BIT2322            IS THE DRIVER WAITING
00651  03000630 P               AZJ,EQ   STRTERR            THE OPERATOR IS CONFUSED AGAIN
00652  14477776                 ENA,S    -1
00653  34000643 X               RAD      SCREAM
00654  20100016                 LDA      FORMSWRD,X1
```

```
                 00655 P            670      STRT04   EQU       *
       00655  17777777              671               ANQ       77777B              CLEAR ALL THE FCRMS BITS
       00656  41100016              672               STQ       FORMSWRD,X1
       00657  03300007 P            673               AZJ,LT    URBLOKI             JUMP IF THE DRIVER HAS BEEN START
       00660  01300000              674               UJP       0,X3                EXIT
                 00661 P            675      STRT06   EQU       *
       00661  17777777              676               ANQ       77777B              CLEAR ANY FORMS BITS
       00662  41100016              677               STQ       FORMSWRD,X1
       00663  14477776              678               ENA,S     -1                  TURN OFF THE NCISE
       00664  34000653 X            679               RAD       SCREAM
       00665  01000035 P            680               UJP       URBLOKIZ
```

```
**************************************************************************
*                                                                        *
*         UWBLOCK                                                        *
*                                                                        *
*         THIS IS THE UNIT RECORD BLOCKING ROUTINE.  IN                  *
*         ADDITION TO PROCESSING THE OBVIOUS THINGS LIKE                 *
*         CARD READER FILES AND PAPER TAPE READER FILES                  *
*         THIS HANDLES OTHER INPUT DEVICES (LIKE THE RADIATION           *
*         CENTER) BY PRETENDING THEY ARE PAPER TAPE READERS.             *
*         THERE ARE TWO MAIN ENTRY POINTS INTO THIS ROUTINE              *
*         ONE, UWBLOCK, WILL WRITE OUT ANYTHING THAT IS GIVEN            *
*         TO IT.  THE OTHER, UWBLOCKB, IS USED FOR CARD READER           *
*         INPUT.  IT SCANS THE INPUT DATA AND CALLS  UWBLOCK             *
*         TO WRITE OUT ONLY THE INFORMATION THAT IS BETWEEN              *
*         A JOB CARD AND THE CORRESPONDING LOGOFF CARD                   *
*         UWBLOCKB  ALSO DOES THE REQUIRED DIRTY WORK TO                 *
*         FORCE EACH NEW JOB INTO A NEW INPUT FILE SO THAT               *
*         THEY CAN BE MULTI-PROGRAMMED.  THE FOLLOWING                   *
*         ASSUMPTIONS ARE USED IN THIS PROCEDURE:                        *
*         A         A JOB IS STARTED BY A [JOB,  CARD                    *
*         B         IF ASSUMPTION A IS TRUE THEN IT IS CK TO             *
*                        START A NEW CARD READER FILE WHENEVER           *
*                        A [JOB,  CARD IS PROCESSED                      *
*         C         A JOB ENDS WITH A [LOGOFF  CARD                      *
*         D         IF C IS TRUE IT IS OK TO END A FILE                  *
*                        WHENEVER A FILL OUT REQUEST IS                  *
*                        RECEIVED FROM A DRIVER                          *
*                                                                        *
*         IF FOR SOME REASON (JOB SEQUENCING) A USER WANTS               *
*         TWO OR MORE JOBS IN THE SAME INPUT FILE HE CAN                 *
*         FORCE THIS BY                                                  *
*         A         MAKING HIS JOB CARDS NON-STANDARD IE                 *
*                        [JOB.   OR  [JOB    OR                          *
*                        [ JOB,                                          *
*         B         MAKING HIS LOGOFF CARDS NON-STANDARD                 *
*                        [ LOGOFF  OR                                    *
*                        [LOGOFF,                                        *
*                                                                        *
*         SYSTEM EFFICIENCY IS NOT EFFECTED BY THESE                     *
*         NON-STANDARD CONTROL CARDS, EXCEPT THAT JOBS MAY NOT           *
*         BE MULTI-PROGRAMMED WHEN THEY COULD BE.                        *
*         UWBLOCKB ALSO TRIMS TRAILING BLANKS CR ZEROS (DEPENDING        *
*         UPON THE MODE OF THE RECORD.  (MODE IS ASSUMED TO              *
*         BE BINARY IF WORD COUNT IS GREATER THAN 20).                   *
*                                                                        *
*         WHENEVER A DRIVER DETERMINES THAT THERE WILL BE NO             *
*         MORE DATA FOR AWHILE (EMPTY HOPPER ON A 405) IT SHOULD         *
*         GENERATE A FILLOUT BLOCK REQUEST TO FREEUP THE FILE            *
*         CORE BLOCK AND OTHER STORAGE THAT ARE BUSY PROCESSING          *
*         THE INPUT.  A FILLOUT REQUEST IS A NORMAL REQUEST              *
*         EXCEPT THAT THE WORD COUNT IS ZERC.                            *
*                                                                        *
*         TO USE THESE ROUTINES                                          *
*         ENA       PCINTER TO BUFFER   FIRST WORD OF BUFFER IS          *
*                                       RECORD WORD CCUNT                *
*         ENQ       COMPLETION RETURN                                    *
*         ENI       BLOCK,CBI           ENTER CONTROL BLOCK ADDRESS      *
*         ENI       WORD COUNT,X2       ONLY IF CALL TC UWBLOCKB         *
*         ENI       IMMEDIATE RETURN,X3                                  *
*         UJP       PROPER ENTRY PCINT                                   *
*                                                                        *
*         IF THE OPERATION IS QUEUED FOR SOME REASON RETURN              *
*         IS MADE TO THE ADDRESS IN X3                                   *
*                                                                        *
*         IF THE OPERATION IS IMMEDIATLY COMPLETED RETURN IS             *
*         MADE TO THE ADDRESS IN Q   AND X3 WILL BE COPIED               *
*         INTO X2                                                        *
*                                                                        *
*         IF THE CALL IS QUEUED, UPON COMPLETION  RETURN WILL            *
*         BE MADE TO THE ADDRESS IN Q WITH THE NEW RETURN                *
*         ADDRESS IN X2                                                  *
*                                                                        *
**************************************************************************
```

```
                       FCBDEF
             .*                                                                      *
             .************************************************************************
             .*                                                                      *
             .*                            FILE CONTROL BLOCK DEFINITIONS            *
             .*                                                                      *
             .*                                                                      *
00000        ACCWORD   EQU       0                   ACCOUNTING WORD  (MUST BE 0)    *
00001        LP        EQU       1                   LOAD POINT BLOCK                *
00002        COREP     EQU       2                   CORE POINTER IF NON-ZERO        *
             .*                                      IF BIT23 = 1, CORE BLOCK HAS    *
             .*                                      BEEN WRITTEN INTO               *
00003        CBP       EQU       COREP+1             BLOCK NUMBER OF THE CURRENT BLOC*
00004        CPP       EQU       4                   CURRENT POSITION POINTER        *
             .*                                      (REL. POSIT. WITHIN BLOCK CBP)  *
             .*                                      BIT23 SEZ READ-ONLY             *
             .*                                      BIT22 SEZ AT LOAD POINT         *
             .*                                      BIT21 SEZ END OF DATA           *
             .*                                      BIT20 SEZ FILE MARK JUST READ   *
             .*                                                                      *
             .*                                      BIT18 SEZ BINARY RECORD PROCESSE*
             .*                                      BIT17 SEZ ABNORMAL/UNAVAILABLE  *
             .*                                      BIT16 SEZ ADDRESS ERROR         *
             .*                                      BIT15 SEZ SAVED FILE            *
00005        BLKR      EQU       5                   NUMBER OF BLOCKS BEYOND         *
             .*                                      THE CURRENT BLOCK               *
00006        EPP       EQU       6                   END POSITION POINTER            *
             .*                                      BIT22 SEZ THE FILE HAS CHANGED  *
             .*                                      BIT21 SEZ POSITIONER READY      *
             .*                                      BIT20 SEZ DESTRUCTIVE READ      *
             .*                                      FILE DIRECTORY                  *
             .*                                      BITS 15-18 CONTAIN THE HT       *
             .*                                      BITS 00-14 CONTAIN END POSITION *
00007        TFL       EQU       7                   TOTAL LENGTH IN BLOCKS          *
```

```
                  UWBDEF
        .*                                                                  *
        .********************************************************************
        .*                                                                  *
        .*                          UWBLOCK BLOCK DEFINITIONS               *
        .*                                                                  *
        .*                                                                  *
00000   CONBLOCK EQU      0                    POINTER TO 8 WORD CONTROL BLOCK *
00001   BFPTR    EQU      CONBLOCK+1           POINTER TO CURRENT CORE BUFFER  *
        .*                                     -0 IF NO BUFFER PRESENT         *
00002   BLKPOS   EQU      BFPTR+1              CURRENT BLOCK POSITION          *
00003   IMADR    EQU      BLKPOS+1             ADDRESS OF WORD COUNT AND IMAGE *
00004   CALLBAD  EQU      IMADR+1              CALL BACK ADDRESS               *
        .*                                     RTJ MACHERR                     *
00006   RDIST    EQU      CALLBAD+2            ENI BLOCK,CBI                   *
        .*                                     UJP IMPURE                      *
00010   WCNT     EQU      RDIST+2              TEMPORARY WORD COUNT            *
00011   CBLOCK   EQU      WCNT+1               ADDRESS OF CURRENT BLOCK        *
00012   TIMAD    EQU      CBLOCK+1             TEMPORARY FOR CURRENT POSITION  *
00013   PSALOC   EQU      TIMAD+1              ADDRESS OF ASSOCIATED PSA       *
00013   DISKBUSY EQU      PSALOC               BUFFER UNSAFE FLAG              *
        .*                                     ENI BLOCK,CBI                   *
00015   EXITADD  EQU      PSALOC+2             UJP IMPURE  RETURN ADDRESS      *
00016   PFSAVE   EQU      EXITADD+1            TEMP TO SAVE THE CONTENTS OF PF1*
00017   UWBWC    EQU      PFSAVE+1             TEMP TO SAVE WC AND CALL BACK   *
00020   UWBRET   EQU      UWBWC+1              ADDRESS IF CALL TO UWBLOCKB     *
00021   UWBX3    EQU      UWBWC+2              TEMP TO SAVE RETURN ADDRESS IF  *
        .*                                     CALL TO UWBLOCKB                *
        .*                                     BIT23 IF LAST RECORD WAS [LOGOFF*
00022   BATCHPNT EQU      UWBX3+1              POINTER TO THE PROPER BATCH Q   *
00023   DESTLP   EQU      BATCHPNT+1           DESTINATION LINE PRINTER CODE   *
00024   UWMAX    EQU      DESTLP+1             NUMBER OF WORDS IN BLOCK        *
        .*                                                                     *
        .*                                                                     *
        .*                                     THE FOLLOWING ARE USED ONLY FOR *
        .*                                     DEVICES THAT COME FROM THE PDP8 *
00024   EXPDATA  EQU      UWMAX                BIT23 SEZZ EXPECTING DATA       *
        .*                                     BITS 14--0 HAVE 64 WORD BLOCK   *
        .*                                     ADDRESS                         *
00025   COMWORD  EQU      EXPDATA+1            12 BIT BYTES WITH THE CONTROL   *
        .*                                     BLOCK INFORMATION               *
00026   DEVTYPE  EQU      COMWORD+1            BITS 14--0 HAVE UWBLOCK ROUTINE *
        .*                                     POINTER                         *
00027   UWMAXA   EQU      DEVTYPE+1            NUMBER OF WORDS IN LONGER BLOCKS*
        .*                                                                     *
        .***********************************************************************
```

```
          00666 P          762       IWADR    EQU        *                       RETURN FROM GETBUFF
 00666  40300001           763                STA        BFPTR,X3                SAVE NEW BUFFER POINTER
 00667  53300000           764                TIA        X3
 00670  53500000           765                TAI        CBI                     GET BACK CURRENT BLOCK POINTER
 00671  53200000           766                TIA        X2                      RETURN ADDRESS TO A
 00672  01000676 P         767                UJP        RGBNS
                           768
          00673 P          769       UWBLOCK  EQU        *                       ENTRY FOR BUFFER OUTPUT
 00673  45100003           770                STAQ       IMADR,CBI               SAVE THE WORD COUNT ADDRESS
 00674  77730000           771                VFD        A12/DINT
 00675  53300000           772                TIA        X3                      RETURN ADDRESS TO A
          00676 P          773       RGBNS    EQU        *
 00676  44100015           774                SWA        EXITADD,CBI             SAVE THE RETURN ADDRESS IN BLOCK
 00677  20100001           775                LDA        BFPTR,CBI
 00700  03200720 P         776                AZJ,GE     HWBUF                   JUMP IF BUFFER PRESENT
                           777
 00701  20500003           778                LDA,I      IMADR,CBI               LOAD THE WORD COUNT WORD
 00702  03000762 P         779                AZJ,EQ     COMEXIT                 EXIT IF FILL OUT BLOCK
 00703  14477001           780                ENA,S      HLNT-WPFB
 00704  40100002           781                STA        BLKPOS,CBI              SET BLOCK POSITION FOR NEW BLOCK
 00705  53100000           782                TIA        CBI
 00706  53700000           783                TAI        X3                      ONLY INDEX THREE IS RESTORED
 00707  14700666 P         784                ENQ        IWADR                   ENTER LATER RETURN FOR GETBUFF
 00710  14600712 P         785                ENA        *+2                     ENTER RETURN ADDRESS
 00711  01000043 X         786                UJP        GETBUFF                 GET A CORE BUFFER
 00712  03200717 P         787                AZJ,GE     GBNOW                   JUMP IF BUFFER AVAILABLE
 00713  20000644 X         788                LDA        BIT23
 00714  35100013           789                SSA        DISKBUSY,CBI
 00715  40100013           790                STA        DISKBUSY,CBI            OTHERWISE, SET DISK BUSY FLAG
 00716  01500015           791                UJP,I      EXITADD,CBI             AND EXIT
          00717 P          792       GBNOW    EQU        *
 00717  40100001           793                STA        BFPTR,CBI               SAVE NEW BUFFER POINTER
```

```
              00720 P     795   HWBUF     EQU       *
     00720  77650001      796             PFA       PFLOC+PFR           SAVE PFLOC
     00721  40100016      797             STA       PFSAVE,CBI
     00722  20100001      798             LDA       BFPTR,CBI
     00723  77640001      799             APF       PFLOC+PFW           SET PFLOC
     00724  20100003      800             LDA       IMADR,CBI           LOAD ADDRESS OF BUFFER
     00725  53700000      801             TAI       X3                  SET INDEX
     00726  20300000      802             LDA       0,X3                LOAD FIRST WORD (WORD COUNT)
     00727  03001051 P    803             AZJ,EQ    FILLOUT             WRITE OUT THIS BUFFER IF ZERO
     00730  17677777      804             ANA       77777B
     00731  04600000      805             ASE       0                   MOVE ONE WORD IF FILE MARK
     00732  15400001      806             INA,S     1                   MOVE (COUNT+2) WORDS
              00733 P     807   PLCLOP    EQU       *
     00733  40100010      808             STA       WCNT,CBI            SAVE PRESENT WORD COUNT
     00734  20100002      809             LDA       BLKPOS,CBI          LOAD CURRENT BLOCK POSITION
     00735  53600000      810             TAI       X2                  MOVE POSITION TO INDEX
     00736  21300000      811             LDQ       0,X3                LOAD WORD TO BE MOVED
     00737  41205000      812             STQ       CORE+WPFB,X2        PLACE INTO CORE BUFFER
     00740  15400001      813             INA,S     1                   COUNT UP CURRENT POSITION
     00741  03200765 P    814             AZJ,GE    GBIW                JUMP IF BLOCK OVERFLOW
              00742 P     815   PLCR      EQU       *                   RETURN IF INTERRUPTED
     00742  40100002      816             STA       BLKPOS,CBI          SAVE NEW BLOCK POSITION
     00743  15300001      817             INI       1,X3                COUNT UP PRESENT BUFFER POSITION
     00744  20100010      818             LDA       WCNT,CBI            LOAD PRESENT COUNT
     00745  15477776      819             INA,S     -1                  COUNT DOWN COUNT
     00746  03200733 P    820             AZJ,GE    PLCLOP              JUMP IF STILL WORDS TO MOVE
                          821
     00747  20100016      822             LDA       PFSAVE,CBI          RESTORE PAGE FILE
     00750  77640001      823             APF       PFLOC+PFW
     00751  20100013      824   SCRAM     LDA       DISKBUSY,CBI
     00752  03200762 P    825             AZJ,GE    COMEXIT             NORMAL EXIT IF NOT DISKBUSY
                          826
     00753  37077777 X    827             LPA       NBIT23
     00754  40100013      828             STA       DISKBUSY,CBI        CLEAR DISKBUSY FLAG
     00755  20100013      829             LDA       PSALOC,CBI
     00756  53700000      830             TAI       X3+PSA
     00757  14477777 X    831             ENA,S     NCRWAIT
     00760  04300000      832             ISE       0,X3+PSA            SKIP IF PSA DOES NOT EXIST
     00761  00777777 X    833             RTJ       IOCLEAR             OTHERWISE CLEAR CRWAIT
     00762  20100015      834   COMEXIT   LDA       EXITADD,CBI         LOAD RETURN ADDRESS
     00763  53600000      835             TAI       X2
     00764  01500004      836             UJP,I     CALLBAD,CBI         CALL BACK
```

```
             00765 P      838     GBIW      EQU      *
00765  53300000           839               TIA      X3                       SAVE CURRENT BUFFER POSITION
00766  40100012           840               STA      TIMAD,CBI
00767  14477777           841               ENA,S    -0
             00770 P      842     GBLW      EQU      *
00770  40004001           843               STA      CORE+1                    SET BACK POINTER
00771  20000713 X         844               LDA      BIT23
00772  35100013           845               SSA      DISKBUSY,CBI              SET THE DISK BUSY FLAG
00773  40100013           846               STA      DISKBUSY,CBI
00774  53100000           847               TIA      CBI                       MOVE THE CBI INDEX TO AN UNUSED
00775  53700000           848               TAI      X3                        INDEX SO WE CAN CALL GETBLK
00776  14100001           849               ENI      1,X1                      PREFER BLOCK CN DISK ONE
00777  14200001           850               ENI      1,X2                      WANT SINGLE BLOCK
01000  00777777 X         851               RTJ      GETBLK                    GET NEXT DISK BUFFER
01001  40004000           852               STA      CORE                      SET FORWARD PCINTER
01002  21300011           853               LDQ      CBLOCK,X3                 GET THIS BLOCKS DESTINATION
01003  40300011           854               STA      CBLOCK,X3                 SAVE NEXT DISK ADDRESS
01004  14601021 P         855               ENA      UWDISK                    SET UP THE RETURN ADDRESS IN
01005  44300007           856               SWA      RDIST+1,X3                THE MACRO CONTRCL BLOCK
01006  20300016           857               LDA      PFSAVE,X3                 RESTORE PAGE FILE ONE
01007  77640001           858               APF      PFLOC+PFW
01010  13000030           859               SHAQ     24                        DISK ADDRESS TC A
01011  21300001           860               LDQ      BFPTR,X3                  LOAD BUFFER PCINTER
01012  12400011           861               SHQ      9                         AND TURN INTO CCRE ADDRESS
01013  15300014           862               INI      EXITADD-1,X3              KLUDGE A RETURN ADDRESS
01014  47377777 X         863               STI      FIRE,X3
01015  15377771           864               INI      RDIST-EXITADD+1,X3        GENERATE ADDRESS FOR INTERRUPT
01016  14101000           865               ENI      WPFB,X1                   LENGTH OF TRANSFER
01017  14277777 X         866               ENI      WRITE,X2
01020  01077777 X         867               UJP      FIREP1                    INITIATE OUTPUT
                          868
                          869
                          870
             01021 P      871     UWDISK    EQU      *                         DISK TRANSFER DONE
01021  20100000           872               LDA      CONBLOCK,CBI              LOAD THE CONTROL BLOCK ADDRESS
01022  53600000           873               TAI      X2+CNBLK
01023  14400001           874               ENA,S    1
01024  34200007           875               RAD      TFL,X2+CNBLK              COUNT UP TOTAL FILE LENGTH
01025  34200005           876               RAD      BLKR,X2+CNBLK             AND BLOCKS REMAINING
01026  53300000           877               TIA      X3                        SAVE THE RETURN ADDRESS
01027  44100015           878               SWA      EXITADD,CBI
01030  20100010           879               LDA      WCNT,CBI                  WCNT -0 TO DISCARD BUFFER
01031  03201041 P         880               AZJ,GE   RPLCW
             01032 P      881     EMPTYXIT  EQU      *
01032  40100001           882               STA      BFPTR,CBI                 NO BUFFER NOW
01033  14600751 P         883               ENA      SCRAM                     SET UP THE RETURN IN THE
01034  44100007           884               SWA      RDIST+1,CBI               MACRO CONTROL BLOCK
01035  53100000           885               TIA      CBI                       GENERATE RETURN ADDRESS IN X3
01036  53700000           886               TAI      X3
01037  15300005           887               INI      RDIST,X3
01040  01077777 X         888               UJP      GIVBUFF                   GIVE BUFFER BACK
```

```
              01041 P              890      RPLCW    EQU       *
    01041  77650001                891               PFA       PFLOC+PFR
    01042  40100016                892               STA       PFSAVE,CBI
    01043  20100001                893               LDA       BFPTR,CBI           SET PAGE FILE ONE
    01044  77640001                894               APF       PFLOC+PFW
    01045  20100012                895               LDA       TIMAD,CBI           LOAD CURRENT BUFFER POINTER
    01046  53700000                896               TAI       X3
    01047  14477001                897               ENA,S     HLNT-WPFB
    01050  01000742 P              898               UJP       PLCR
                                   899
                                   900
              01051 P              901      FILLOUT  EQU       *                   FOR END OF BUFFER
    01051  20100002                902               LDA       BLKPOS,CBI
    01052  53700000                903               TAI       X3                  SET POSITION
    01053  14400000                904               ENA,S     0
    01054  40305000                905               STA       CORE+WPFB,X3        SET IN ZERO RECORD LENGTH
    01055  14477777                906               ENA,S     -0
    01056  40100010                907               STA       WCNT,CBI            SET END OF FILE FLAG
    01057  04377001                908               ISE       HLNT-WPFB,X3        SKIP IF THE BLOCK IS EMPTY
    01060  01000770 P              909               UJP       GBLW
                                   910
    01061  21100001                911               LDQ       BFPTR,CBI           GET THE 1/4 PAGE NUMBER
    01062  12400011                912               SHQ       9                   FORM THE CORE ADDRESS
    01063  20100016                913               LDA       PFSAVE,CBI          RESTORE PFLOC
    01064  77640001                914               APF       PFLOC+PFW
    01065  14477777                915               ENA,S     77777B
    01066  01001032 P              916               UJP       EMPTYXIT
```

```
          01067 P  918      UWBLOCKB EQU      *
01067  45100017    919               STAQ     UWBWC,CBI        SAVE WC AND INTERRUPT RETURN
01070  53300000    920               TIA      X3               RETURN ADDRESS TO A
01071  44100021    920+001           SWA      UWBX3,CBI        SAVE FOR LATER
01072  02601104 P  921               IJD      UWBNOTF,X2       JUMP IF NOT A FILL OUT BLOCK
01073  20100021    923               LDA      UWBX3,CBI        WAS THE LAST CARD LOGOFF
01074  03201076 P  924               AZJ,GE   *+2              JUMP IF IT WAS NOT
01075  14701100 P  925               ENQ      UWBFILLD         CHANGE THE RETURN IF LOGOFF
          01076 P  926      UWBFILL  EQU      *
01076  14677777 X  927               ENA      KZERO            SAY TO GENERATE FILL OUT BLOCK
01077  01000673 P  928               UJP      UWBLOCK
                   929
          01100 P  930      UWBFILLD EQU      *
01100  00701457 P  931               RTJ      UNLINK           FREE THE CONTROL BLOCK
01101  14600000    932               ENA      0                FORGET THE CONTROL BLOCK
01102  40100000    933               STA      CONBLOCK,CBI
01103  01500020    934      UWBEXIT  UJP,I    UWBRET,CBI       RETURN TO THE CALLER
                   935
          01104 P  936      UWBNOTF  EQU      *
01104  20100017    938               LDA      UWBWC,CBI        LOAD THE WORD COUNT ADDRESS
01105  53240000    939               AIA      X2               POINT TO THE END OF THE RECORD
01106  53700000    940               TAI      X3
01107  14700000    940+001           ENQ      0                BINARY RECORD FILLER
01110  05200024    941               ISG      21-1,X2          SKIP IF A BINARY RECORD
01111  21077777 X  941+001           LDQ      BLANKS           BCD RECORD FILLER
01112  20300001    943               LDA      1,X3             SUPPRESS TRAILING ZEROS
01113  03501117 P  943+001           AQJ,NE   *+4
01114  03701117 P  943+002           AQJ,LT   *+3
01115  15377776    946               INI      -1,X3
01116  02601112 P  947               IJD      *-4,X2
01117  15200001    948               INI      1,X2
01120  20100017    949               LDA      UWBWC,CBI        LOAD THE WORD COUNT ADDRESS
01121  53700000    950               TAI      X3
01122  20000067 X  951               LDA      BINARY           LOAD THE BINARY INDICATOR
01123  53240000    952               AIA      X2               ADD IN THE WORD COUNT
01124  05700001    952+001           QSG      1                SKIP IF BCD RECORD
01125  01001143 P  953               UJP      UWBSTWC          GO STORE THE WORD COUNT
                   954
01126  53200000    965               TIA      X2               WORD COUNT TO A
01127  04177777 X  966               ISE      CRFCBLK,CBI      IS THIS THE STANDARD CARD READER
01130  01001132 P  967               UJP      *+2
01131  00401143 P  968               SJ4      UWBSTWC          IF SJ4 DONT CHECK CONTROL CARDS
01132  21300001    969               LDQ      1,X3             LOOK AT THE FIRST CHARACTER
01133  12477755    970               SHQ      -18
01134  04700017    971               QSE      CMODE            IS THIS A CONTROL CARD
01135  01001143 P  972               UJP      UWBSTWC          JUMP IF NOT
01136  21300001    973               LDQ      1,X3             CHECK FOR JUST FILE MARK
01137  12477763    974               SHQ      -12
01140  04701717    975               QSE      FMARK
01141  01001153 P  976               UJP      UWBCCARD         JUMP IF CONTROL CARD
01142  20000771 X  977               LDA      BIT23            LOAD FILE MARK SPECIFIER
          01143 P  978      UWBSTWC  EQU      *
01143  40300000    979               STA      0,X3             SAVE THE WORD COUNT
          01144 P  980      UWBLDRET EQU      *
01144  20100021    981               LDA      UWBX3,CBI        LOAD THE RETURN ADDRESS
01145  53700000    982               TAI      X3               PUT THE RETURN ADDRESS INTO X3
01146  53600000    983               TAI      X2               AND X2 IN CASE WE ARE IGNORING
01147  20100000    984               LDA      CONBLOCK,CBI     DO WE HAVE A CONTROL BLOCK
01150  03001103 P  985               AZJ,EQ   UWBEXIT          EXIT IF NOT
01151  25100017    986               LDAQ     UWBWC,CBI        RESTORE WC AND INTERRUPT ADDRESS
01152  01000673 P  987               UJP      UWBLOCK          PRETEND ORDINARY CALL
                   988
          01153 P  989      UWBCCARD EQU      *
01153  35001142 X  990               SSA      BIT23            SET THE CONTROL MODE BIT
01154  40300000    991               STA      0,X3             SAVE THE WORD COUNT WORD
01155  25300001    992               LDAQ     1,X3             LOAD THE FIRST TWO WORDS
01156  13077755    993               SHAQ     -18
01157  20001453 P  993+001           LDA      JOB              CHECK FOR A JOB CARD
01160  03501165 P  993+002           AQJ,NE   NOTJOB           JUMP IF NOT A JOB CARD
01161  14701175 P  997               ENQ      UWBCALLB         ENTER COMPLETION ADDRESS
01162  20100021    998               LDA      UWBX3,CBI        LOAD THE RETURN
01163  53700000    999               TAI      X3
01164  01001076 P  1000              UJP      UWBFILL          FORCE A FILL OUT BLOCK
                   1001
          01165 P  1002     NOTJOB   EQU      *
01165  25300001    1003              LDAQ     1,X3             IS THIS A LOGOFF
01166  33001451 P  1004              SBAQ     LOGOFF
01167  13400000    1005              SCAQ     0
01170  03101144 P  1006              AZJ,NE   UWBLDRET         NOT LOGOFF EITHER
```

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01171  20100021     1006+001            LDA    UWBX3,CBI
01172  35001153 X   1006+002            SSA    BIT23               SAY WE SAW A LCGOFF CARD
01173  40100021     1006+003            STA    UWBX3,CBI           AND REMEMBER IT
01174  01001144 P   1009                UJP    UWBLDRET
                    1010
          01175 P   1011      UWBCALLB  EQU    *
01175  53200000     1012                TIA    X2                  RETURN ADDRESS TO A
01176  40100021     1012+001            STA    UWBX3,CBI           (ALSO CLEAR LCGCFF LAST CARD BIT)
01177  00701457 P   1014                RTJ    UNLINK              SWIZZEL THE CCNTROL BLCCK
01200  14300003     1015                ENI    3,X3                GET THE CORE FOR A NEW CCNTROL
01201  00700474 X   1016                RTJ    GETMEN              BLOCK
01202  40100000     1017                STA    CONBLOCK,CBI
01203  53100000     1021                TIA    CBI                 MACRO POINTER TC A
01204  35001450 P   1023                SSA    DESRDCR             DESTRUCTIVE READ AND CR STATUS
01205  40300006     1024                STA    EPP,X3+CNBLK
                    1025
01206  20100017     1026                LDA    UWBWC,CBI           POINTER TO WORD COUNT WORD
01207  53600000     1027                TAI    X2                  X2 WILL PCINT AT RECORD START
01210  30200000     1028                ADA    0,X2
01211  17677777     1029                ANA    77777B              REMOVE CONTROL CARD BIT
01212  40300007     1030                STA    TFL,X3+CNBLK        SAVE IN A TEMF
01213  13077717     1031                SHAQ   -48                 THIS SHOULD ZERO A AND Q
01214  45300003     1032                STAQ   CBP,X3+CNBLK        ZERO JOB NO. AND VAL. CODE SPOT
01215  40300005     1033                STA    BLKR,X3+CNBLK       ZERO ANOTHER TEMP
01216  40300000     1033+001            STA    ACCWORD,X3+CNBLK    ZERO OUT DESTINATION QUQUE
01217  15200001     1034                INI    1,X2                DONT LCOK AT WCRD 0 OF CARD
                    1035
01220  14701222 P   1035+001            ENQ    *+2
01221  01001334 P   1035+002            UJP    MPACK               PACK FIRST ITEM.
01222  01001226 P   1035+003            UJP    PROCNUM             NUMBER FOUND
01223  41300000     1035+004            STQ    ACCWORD,X3+CNBLK    BCD SYMBOL/QUEUE DESTINAOION
01224  14701226 P   1035+005            ENQ    *+2
01225  01001334 P   1035+006            UJP    MPACK               PACK NEXT SYMBOL ON LINE
01226  05500000     1035+007  PROCNUM   QSG,S  0                   JOB NUMBERS MUST BE POSITIVE
01227  01001235 P   1035+008            UJP    DCDEXT              BCD SYMBOL/ERRCR
01230  41300003     1035+009            STQ    CBP,X3+CNBLK        SAVE JCB NUMBER
01231  14701233 P   1035+010            ENQ    *+2
01232  01001334 P   1035+011            UJP    MPACK               NOW GET VAL CODE
01233  01001234 P   1035+012            UJP    *+1                 (SLIGHTLY FASTER THAN A NOP)
01234  41300004     1035+013            STQ    CPP,X3+CNBLK        SAVE VALIDITY CODE
                    1086
          01235 P   1087      DCDEXT    EQU    *                   BY GOD, I THINK WE HAVE DONE IT.
01235  14700000     1087+001            ENQ    0                   SAY REGULAR QUEUE AT FIRST
01236  20300000     1087+002            LDA    ACCWORD,X3+CNBLK    GET QUEUE DESTINATION
01237  03001252 P   1087+003            AZJ,EQ REGQ                JUMP IF NOT SPECIFIED
01240  14177777 X   1087+004  SENDTLP   ENI    SENDTABL,X1         LENGTH OF SENDTAB
01241  14577777     1087+005  SENDLOOP  ENQ,S  77777B              MASK FOR SEARCH
01242  06277777 X   1087+006  SENDTABP  MEQ    SENDTAB,2           LOOK FOR THIS QUEUE
01243  01001252 P   1087+007            UJP    REGQ                NOT FOUND -- USE NORMAL QUEUE
01244  21177777 X   1087+008            LDQ    SENDTAB1,X1         SEE IF THIS IS A NAME OF A QUEUE
01245  12400011     1087+009            SHQ    9                   HARDWARE TYPE TC LOWER 9
01246  17700017     1087+010            ANQ    HTMASK              KEEP HARDWARE TYPE ONLY
01247  04700013     1087+011            QSE    HTTASK              SKIP IF A BATCH QUEUE NAME
01250  01001241 P   1087+012            UJP    SENDLOOP            LOOK AGAIN
01251  21101244 X   1087+013            LDQ    SENDTAB1,X1         QUEUE INTO Q
          01252 P   1087+014  REGQ      EQU    *
01252  20300006     1088                LDA    EPP,X3+CNBLK        GET ADJUSTED CBI BACK
01253  53500000     1090                TAI    CBI                 BACK TO X1
01254  14477776     1090+001            ENA,S  -1
01255  40300005     1090+002            STA    BLKR,X3+CNBLK       SET BLOCKS REMAINING TO -1
01256  20100011     1090+003            LDA    CBLOCK,CBI          GET CURRENT BLOCK
01257  40300001     1090+004            STA    LP,X3+CNBLK         AND POINT TO START OF FILE
01260  14600000     1091                ENA    0                   BUILD THE CONTROL BLOCK
01261  40300007     1092                STA    TFL,X3+CNBLK        LENGTH IS ZERC
01262  44100013     1093                SWA    PSALOC,CBI          NO ASSOCIATED PSA
01263  40300002     1094                STA    COREP,X3+CNBLK      BLOCK IS NOT IN CORE
01264  53040000     1094+001            AQA                        SHAQ 24 AND REMOVE -0
01265  05600001     1094+002            ASG    1                   SKIP IF NOT NORMAL QUEUE
01266  20100022     1094+003            LDA    BATCHPNT,CBI        GET POINTER TC NORMAL QUEUE
01267  53600000     1094+004            TAI    X2                  QUEUE PCINTER TC X2
01270  53300000     1094+005            TIA    X3+CNBLK
01271  40300000     1094+006            STA    ACCWORD,X3+CNBLK    POINT CNBLK TC ITSELF
01272  21600000     1094+007            LDQ,I  0,X2                GET LAST ELEMENT OF QUEUE
01273  05500000     1094+008            QSG,S  0                   SKIP IT IT WAS A CARD READER
01274  35001172 X   1094+009            SSA    BIT23               SET TASK BIT
01275  35077777 X   1094+010            SSA    BIT17               SET INDIRECT BIT
01276  40600000     1094+011            STA,I  0,X2                LINK THIS INTC THE QUEUE
01277  01001144 P   1099                UJP    UWBLDRET            PROCESS THE JOB CARD
                    1100
```

```
                                                 ************************************************************************************
                                       1101+003 *                                                                                  *
                                       1101+004 *          MGETCHR                              ROUTINE TO GET A CHARACTER FROM    *
                                       1101+005 *                                               CARD                               *
                                       1101+006 *                                                                                  *
                                       1101+007 *          CALL WITH RETURN ADDRESS IN A, X2 POINTS TO PROPER WORD                 *
                                       1101+008 *          OF CARD, X3 POINTS TO CONTROL BLOCK                                     *
                                       1101+009 *                                                                                  *
                                       1101+010 *          ON RETURN:                                                              *
                                       1101+011 *                    Q IS UNCHANGED                                                *
                                       1101+012 *                    A IS NEGITIVE IF LETTER, DIGIT, *, ↑, OR $                    *
                                       1101+013 *                    X1 IS THE CHARACTER IF A NOT POSITIVE                         *
                                       1101+014 *                                                                                  *
                                                 ************************************************************************************


               01300 P                 1101+017  MGETCHR   EQU      *
      01300  40300002                  1101+018            STA      COREP,X3+CNBLK      SAVE RETURN ADDRESS
      01301  20300005                  1101+019            LDA      BLKR,X3+CNBLK       GET SHIFT POSITION
      01302  15600006                  1101+020            INA      6                   FOR NEXT TIME
      01303  05600031                  1101+021            ASG      24+1                SKIP TO GO TO NEXT WORD
      01304  01001314 P                1101+022            UJP      MGC04
      01305  15200001                  1101+023            INI      1,X2                INCREMENT WORD POINTER
      01306  53200000                  1101+024            TIA      X2                  SEE IF WE ARE THROUGH WITH CARD
      01307  31300007                  1101+025            SBA      TFL,X3+CNBLK        COMPARE WITH LENGTH OF CARD
      01310  03301313 P                1101+026            AZJ,LT   MGC03               JUMP IF STILL MORE CARD
      01311  03101235 P                1101+027            AZJ,NE   DCDEXT              JUMP IF SECOND CALL PAST CARD
      01312  01700002                  1101+028            UJP,I    COREP,X3+CNBLK      RETURN
      01313  14600006                  1101+029  MGC03     ENA      6
      01314  40300005                  1101+030  MGC04     STA      BLKR,X3+CNBLK       SAVE NEW SHIFT
      01315  53500000                  1101+031            TAI      X1                  SHIFT COUNT TO X1
      01316  20200001                  1101+032            LDA      1,X2                GET THE WORD
      01317  12100000                  1101+033            SHA      0,X1                POSITION CHARACTER
      01320  17600077                  1101+034            ANA      77B                 KEEP ONLY PROPER CHARACTER
      01321  53500000                  1101+035            TAI      X1                  CHAR TO X1
      01322  20001454 P                1101+036            LDA      CLASWRD1            GET BITS FOR 30-57
      01323  05100012                  1101+037            ISG      10,X1               SKIP UNLESS DIGIT
      01324  01700002                  1101+038            UJP,I    COREP,X3+CNBLK      DIGIT RETURN
      01325  05100060                  1101+039            ISG      60B,X1
      01326  05100030                  1101+040            ISG      30B,X1
      01327  20001455 P                1101+041            LDA      CLASWRD2            GET BITS FOR 12-27 AND 60-77
      01330  12100000                  1101+042            SHA      0,X1                POSITION ALPHA BIT
      01331  01700002                  1101+043            UJP,I    COREP,X3+CNBLK      RETURN
```

```
                                        ****************************************************************************
                              1101+046 *                                                                           *
                              1101+047 *         MPACK                         ROUTINE TO PACK NUMBERS AND         *
                              1101+048 *                                       SYMBOLS                             *
                              1101+049 *                                                                           *
                              1101+050 *         ENTER WITH Q THE RETURN ADDRESS AND A THE ALPHA BIT FOR LAST      *
                              1101+051 *         CHARACTER FETCHED AND X1 THE LAST CHARACTER FETCHED               *
                              1101+052 *                                                                           *
                              1101+053 *         RETURNS TO RTN WITH NUMBER IN Q OR TO RTN+1 WITH SYMBOL IN Q      *
                              1101+054 *                                                                           *
                                        ****************************************************************************


01332  14601334 P             1101+057            ENA       MPACK
01333  01001300 P             1101+058            UJP       MGETCHR             GET NEXT CHARACTER
01334  03201332 P             1101+059  MPACK     AZJ,GE    *-2                 JUMP IF LAST CHARACTER SPECIAL
01335  41300001               1101+060            STQ       LP,X3+CNBLK         SAVE RETURN ADDRESS
01336  53100000               1101+061            TIA       X1                  IN CASE OF DIGIT
01337  05100012               1101+062            ISG       10,X1               SKIP IF NOT DIGIT
01340  01001373 P             1101+063            UJP       MPACD2              PACK NUMBER
01341  14577700               1101+064            ENQ,S     77700B              INITIALIZE Q
01342  53100000               1101+065  MPACL1    TIA       X1                  CHARACTER TO A
01343  12000022               1101+066            SHA       18                  TOP OF A
01344  13000006               1101+067            SHAQ      6                   INTO LOWER Q
01345  03001361 P             1101+068            AZJ,EQ    MPACL3              JUMP IF FOURTH CHARACTER
01346  14601350 P             1101+069            ENA       *+2
01347  01001300 P             1101+070            UJP       MGETCHR
01350  03301342 P             1101+071            AZJ,LT    MPACL1              JUMP IF ALPHANUMERIC
01351  14600000               1101+072  MPACLX    ENA       0                   FOR THE AZJ BELOW
01352  13000006               1101+073            SHAQ      6                   JUSTIFY
01353  16700060               1101+074            XOQ       00060B              BLANK FILL
01354  03101351 P             1101+075            AZJ,NE    MPACLX              CONTINUE TILL DONE
01355  14600001               1101+076  MPACL2    ENA       1                   INCREMENT RETURN ADDRESS
01356  34300001               1101+077            RAD       LP,X3+CNBLK
01357  01700001               1101+078            UJP,I     LP,X3+CNBLK         RETURN
                              1101+079
01360  03201355 P             1101+080            AZJ,GE    MPACL2              JUMP IF NON-ALPHANUMERIC
01361  14601360 P             1101+081  MPACL3    ENA       *-1
01362  01001300 P             1101+082            UJP       MGETCHR             GET NEXT CHARACTER
                              1101+083
01363  14601365 P             1101+084  MPACD1    ENA       *+2
01364  01001300 P             1101+085            UJP       MGETCHR             GET NEXT DIGIT
01365  05100012               1101+086            ISG       10,X1               SKIP IF NOT A DIGIT
01366  03301370 P             1101+087            AZJ,LT    *+2                 JUMP IF NOT END OF CARD
01367  01700001               1101+088            UJP,I     LP,X3+CNBLK         RETURN
01370  13000030               1101+089            SHAQ      24                  NUMBER TO A
01371  50000335 X             1101+090            MUA       D10
01372  53140000               1101+091            AIA       X1                  ADD IN DIGIT
01373  13000030               1101+092  MPACD2    SHAQ      24                  NUMBER TO Q
01374  01001363 P             1101+093            UJP       MPACD1
```

```
                                            ****************************************************************
                                 1134       *                                                              *
                                 1135       *         HIGH SPEED INPUT                                     *
                                 1136       *                                                              *
                                 1137       *         THIS ROUTINE IS USED TO PROCESS HIGH SPEED BLOCKED   *
                                 1138       *         INPUT DEVICES CONNECTED TO THE PDP8.                 *
                                 1139       *                                                              *
                                 1140       *         IT RECEIVES CONTROL FROM IFHNDLR, CHECKS THAT IT IS  *
                                 1141       *         REALLY DATA AND THEN CALLS EITHER UWBLOCK OR UWBLOCKB *
                                 1142       *         TO ACTUALLY DO THE WORK                              *
                                 1143       *         IF THE INFORMATION IS NOT REALLY DATA (CHARACTER     *
                                 1144       *         COUNT OF ZERO) IT GENERATES A CALL FOR A FILL OUT    *
                                 1145       *         BLOCK (CARD READER INFORMATION) OR A FILE MARK       *
                                 1146       *         FOLLOWED BY A FILL OUT BLOCK (PAPER TAPE READER)     *
                                 1147       *                                                              *
                                            ****************************************************************
                                 1149
              01375 P            1150       HSINP     EQU       *
 01375  53500000                 1151                 TAI       CBI                   CONTROL BLOCK ADDRESS TO CBI
 01376  20100024                 1152                 LDA       EXPDATA,CBI           ARE WE EXPECTING ANYTHING
 01377  03277777 X               1153                 AZJ,GE    IFEND                JUMP IF NOT
 01400  53300000                 1154                 TIA       X3                   SAVE THE ADDRESS OF THE BLOCK
 01401  40100024                 1155                 STA       EXPDATA,CBI
 01402  47077777 X               1156                 STI       PDP8BLK,0            SAVE THE 64 WORD BLOCK
 01403  13000013                 1157                 SHAQ      12-1                 WORD COUNT TO A
 01404  17603777                 1158                 ANA       3777B                JUST THE COUNT
 01405  53600000                 1159                 TAI       X2                   AND INDEX TWO
 01406  05400077                 1160                 ASG,S     62+1
 01407  05400001                 1161                 ASG,S     1                    SKIP IF A DATA BLOCK
 01410  01001433 P               1162                 UJP       NDATA
 01411  40300001                 1163                 STA       1,X3                 STORE IT INTO THE BLOCK
 01412  53300000                 1164                 TIA       X3
 01413  15600001                 1165                 INA       1                    FORM ADDRESS OF THE IR GAP WORD
              01414 P            1166       UW1       EQU       *
 01414  54377777 X               1167                 LDI       IFEXIT,X3            LOAD THE FINAL RETURN
 01415  14701417 P               1168                 ENQ       CABK                 ENTER THE COMPLETION RETURN
 01416  01500026                 1169                 UJP,I     DEVTYPE,CBI          CALL THE BLOCKING ROUTINE
 01417  47201414 X               1170       CABK      STI       IFEXIT,X2
 01420  20100026                 1171                 LDA       DEVTYPE,CBI          ARE WE FILLING OUT
 01421  03301444 P               1172                 AZJ,LT    HSINPFIL
 01422  20100024                 1173                 LDA       EXPDATA,CBI           SET THE EXPECTING DATA BIT
 01423  35001274 X               1174                 SSA       BIT23
 01424  40100024                 1175                 STA       EXPDATA,CBI
 01425  14300006                 1176                 ENI       6,X3
 01426  00700525 X               1177                 RTJ       FREEMEM              FREE THE 64 WORD BLOCK
 01427  20100025                 1178                 LDA       COMWORD,CBI
 01430  17607777                 1179                 ANA       7777B                SAVE 12 BITS
 01431  53500000                 1180                 TAI       X1
 01432  01077777 X               1181                 UJP       PDP8CTLX
                                 1182
              01433 P            1183       NDATA     EQU       *
 01433  04400000                 1184                 ASE,S     0
 01434  00001434 P               1185                 HLT       *                    BAD WORD COUNT    (GO TO IFEND)
 01435  20100026                 1186                 LDA       DEVTYPE,CBI          IS THIS A CARD READER DEVICE
 01436  04600673 P               1187                 ASE       UWBLOCK              SKIP IF NOT
 01437  01001446 P               1188                 UJP       NDATA02
 01440  35001423 X               1189                 SSA       BIT23
 01441  40100026                 1190                 STA       DEVTYPE,CBI          REMEMBER THE FILL OUT
 01442  14601440 X               1191                 ENA       BIT23                PUT A FILE MARK IN THE FILE
 01443  01001414 P               1192                 UJP       UW1
                                 1193
              01444 P            1194       HSINPFIL  EQU       *
 01444  37000753 X               1195                 LPA       NBIT23               CLEAR THE FILL OUT BIT
 01445  40100026                 1196                 STA       DEVTYPE,CBI
              01446 P            1197       NDATA02   EQU       *
 01446  14601076 X               1198                 ENA       KZERO                SAY TO FREE THE FILE CORE BLOCK
 01447  01001414 P               1199                 UJP       UW1
                                 1200
                                 1201
                                 1202
 01450  04400000                 1203       DESRDCR   VFD       05/2,A4/HTCR,A15/0   DESTRUCTIVE READ AND CARD READER
 01451  17434627                 1204       LOGOFF    BCD       2,[LOGOFF
 01453  41462273                 1204+001   JOB       BCD       1,JOB,
 01454  60077734                 1204+002   CLASWRD1  OCT       60077734
 01455  17740177                 1204+003   CLASWRD2  OCT       17740177
 01456  00000000                 1207       IMPURE04  VFD       A24/IMPURE           END OF PURE REGION 04
                                 1208
                                 1209
                                 1210
```

```
                                  1211
                                  1212
  01457  01000000                 1213      UNLINK   UJP      IMPURE               UNLINK THE CONTROL BLOCK FROM THE
  01460  2010000C                 1214               LDA      CONBLOCK,CBI         MACRO
  01461  03001457 P               1215               AZJ,EQ   UNLINK               EXIT IF NO CONTROL CLOCK
  01462  53700000                 1216               TAI      X3+CNBLK
  01463  20100023                 1216+001           LDA      DESTLP,CBI           GET DESTINATICN LP
  01464  44300006                 1216+002           SWA      EPP,X3+CNBLK         PUT DESTINATICN CODE INTO CNBLK
  01465  20100013                 1219               LDA      PSALOC,CBI           DOES THE FILE BELONG TO A RUNNING
  01466  53700000                 1220               TAI      X3+PSA               USER
  01467  14400757 X               1221               ENA,S    NCRWAIT              CLEAR CR WAIT IF A RUNNING USER
  01470  04300000                 1222               ISE      0,X3+PSA             SKIP IF NC USER PRESENT
  01471  00700761 X               1223               RTJ      IOCLEAR
  01472  01001457 P               1224               UJP      UNLINK
                                  1225
                                  1226
  01473  25452460                 1227      ENDMESS  BCD,C    17,END FORMS    XXXX^
            01474 P               1228      FORM     EQU      ENDMESS+1
            01476 P               1229      ENDIDENT EQU      ENDMESS+3
                                  1230
  01477  77512521                 1231      RDYMESS  BCD,C    12,READY  ABCD^
            06404 P               1232      RDYMESID EQU,C    RDYMESS+7
            00014                 1233      RDYMESL  EQU,C    *-RDYMESS
                                  1234               END

    NO LINES WITH ERRORS
```

```
ACCNUM      X                31    527+39 00530P
ACCWORD         00000        71    527+10 00475P    1033+1 01216P    1035+4 01223P    1087+2 01236F    1094+6 01271P
BATCHPNT        00022       130       131 00666P    1094+3 01266P
BFBGN           00002        13        15 00000P       228 00000P       270 00044P       279 00057F       415 00265P       453 00357P
                                      486 00427P       506 00442P
BFCPP           00003        15        19 00000P       233 00004P       459 00372P       464 00376P
BFPTR           00001       109       111 00666P       763 00666P       775 00677P       793 00717F       798 00722P       860 01011P
                                      882 01032P       893 01043P       911 01061P
BINARY      X               101       951 01122P
BIT17       X                32   1094+10 01275P
BIT18       X                34       101 00000P       287 00067P
BIT19       X                35       241 00013P     527+1 00465P    527+24 00511P    527+42 00533P       632 00615P       650 00634P
BIT20       X                36       330 00123P     448+1 00350P     475+1 00414P       634 00617P       652 00636P
BIT21       X                37       419 00270P     446+3 00320P
BIT22       X                38       243 00015P       257 00031P     318+2 00104P
BIT23       X                39       283 00063P     446+5 00322P       507 00443P    527+28 00515P       629 00612P       659 00644P
                                      788 00713P       844 00771P       977 01142P       990 01153P    1006+2 01172P    1094+9 01274P
                                     1174 01423P      1189 01440P      1191 01442P
BIT2322     X                40     360+3 00162P    527+38 00527P       665 00650P
BLANKS      X                33     941+1 01111P
BLANKSS         00464P      525       363 00204P
BLF             00001        12        13 00000P       399 00233P       482 00423P       517 00452P
BLKPOS          00002       111       112 00666P       781 00704P       809 00734P       816 00742P       902 01051P
BLKR            00005        88       876 01025P      1033 01215P    1090+2 01255P   1101+19 01301P   1101+30 01314P
BLOCKS      X                41       622 00603P       645 00627P
BLOCKSL     X                42       619 00600P       643 00625P
BLOCKSP1    X                43       624 00605P       647 00631P
CABK            01417P     1170      1168 01415P
CALBAK          00004        19        22 00000P       440 00311P       445 00316P       446 00317P     446+6 00323P     446+7 00324P
                                      508 00444P       509 00445P       660 00645P       661 00646P
CALLBAD         00004       113       115 00666P       836 00764P
CALLFINK        00420P      478       235 00006P
CBI             00001        89       765 00670P       770 00673P       774 00676P       775 00677P       778 00701P       781 00704P
                                      782 00705P       789 00714P       790 00715P       791 00716P       793 00717P       797 00721P
                                      798 00722P       800 00724P       808 00733P       809 00734P       816 00742P       818 00744P
                                      822 00747P       824 00751P       828 00754P       829 00755P       834 00762P       836 00764P
                                      840 00766P       845 00772P       846 00773P       847 00774P       872 01021P       878 01027P
                                      879 01030P       882 01032P       884 01034P       885 01035P       892 01042P       893 01043P
                                      895 01045P       902 01051P       907 01056P       911 01061F       913 01063P       919 01067P
                                    920+1 01071P       923 01073P       933 01102P       934 01103P       938 01104P       949 01120P
                                      966 01127P       981 01144P       984 01147P       986 01151F       998 01162P    1006+1 01171P
                                   1006+3 01173P    1012+1 01176P      1017 01202P      1021 01203P      1026 01206P      1090 01253P
                                   1090+3 01256P      1093 01262P    1094+3 01266P      1151 01375P      1152 01376P      1155 01401P
                                     1169 01416P      1171 01420P      1173 01422P      1175 01424P      1178 01427P      1186 01435P
                                     1190 01441P      1196 01445P      1214 01460P    1216+1 01463P      1219 01465P
CBLOCK          00011       118       119 00666P       853 01002P       854 01003P    1090+3 01256P
C3P             00003        76      1032 01214P    1035+9 01230P
CHECFORM        00104P    318+1       293 00075P
CLASWRD1        01454P   1204+2   1101+36 01322P
CLASWRD2        01455P   1204+3   1101+41 01327P
CMODE           00017        98       971 01134P
CNBLK           00000        90     527+6 00471P     527+7 00472P    527+10 00475P    527+17 00502P    527+21 00506P    527+23 00510P
                                   527+30 00517P       873 01022P       875 01024P       876 01025P      1024 01205P      1030 01212P
                                     1032 01214P      1033 01215P    1033+1 01216P    1035+4 01223P    1035+9 01230P   1035+13 01234P
                                   1087+2 01236P      1088 01252P    1090+2 01255P    1090+4 01257P      1092 01261P      1094 01263P
                                   1094+5 01270P    1094+6 01271P   1101+18 01300P   1101+19 01301P   1101+25 01307P   1101+28 01312P
                                  1101+30 01314P   1101+38 01324P   1101+43 01331P   1101+60 01335P   1101+77 01356P   1101+78 01357P
                                  1101+88 01367P      1216 01462P    1216+2 01464P
COMEXIT         00762P      834       779 00702P       825 00752P
COMWORD         00025       140       142 00666P      1178 01427P
CONBLOCK        00000       108       109 00666P       872 01021P       933 01102P       984 01147P      1017 01202P      1214 01460P
CORE            04000        82       461 00374P       472 00405P       812 00737P       843 00770P       852 01001P       905 01054P
COREP           00002        73        76 00666P      1094 01263P   1101+18 01300P   1101+28 01312F   1101+38 01324P   1101+43 01331P
COUNT           00014        37        38 00000P       290 00072P       335 00127P       345 00140P       382 00224P
CPP             00004        77   1035+13 01234P
CRFCBLK     X                46       966 01127P
D10         X                44    446+26 00335P   1101+90 01371P
DCDEXT          01235P     1087    1035+8 01227P   1101+27 01311P
DESRDCR         01450P     1203      1023 01204P
DESTLP          00023       131       132 00666P    1216+1 01463P
DEVBLK          00013        36        37 00000P     360+1 00160P     360+8 00167P     402+1 00237P     403+1 00244P     403+6 00251P
                                    454+1 00361P     454+5 00365P     472+1 00406P    527+60 00554P
DEVTYPE         00026       142       144 00666P      1169 01416P      1171 01420P      1186 01435P      1190 01441P      1196 01445P
DIEPSUS     X                45       572 00563P
DINT            07773        93       237 00007P       274 00047P       771 00674P
DISKBUSY        00013       121       789 00714P       790 00715P       824 00751P       828 00754P       845 00772P       846 00773P
DONTSTOP        00303P      432       420 00271P       428 00301P
EMPTYXIT        01032P      881       916 01066P
ENAD            00010        26        27 00000P       410 00260P       411 00261P       412 00262P       490 00433P
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    ENDIDENT          01476P     1229        423 00274P
    ENDMESS           01473P     1227       1228 01477P       1229 01477P        427 00300P
    ENIT              00012        28         36 00000P        238 00010P      276+2 00052P      318+3 00105P      446+4 00321P      448+2 00351P
                                            448+3 00352P        449 00353P        469 00402P      475+2 00415P      475+3 00416P      527+2 00466P
                                            527+3 00467P     527+41 00532P     527+52 00544P
    EPP               00006        90     527+23 00510P       1024 01205P       1088 01252P     1216+2 01464P
    EXITADD           00015       123        124 00666P        774 00676P        791 00716P        834 00762P        862 01013P        864 01015P
                                              878 01027P
    EXPDATA           00024       137        140 00666P       1152 01376P       1155 01401P       1173 01422P       1175 01424P
    FB                00000        11         12 00000P        405 00253P        473 00411P        485 00426P     527+53 00545P     527+58 00552P
                                              626 00607P
    FILEM             00227P      385        284 00064P
    FILEX             00304P      434        388 00231P
    FILEXA            00267P      417        413 00263P
    FILLOUT           01051P      901        803 00727P
    FINK          X                47        489 00432P
    FINKP1        X                48        493 00436P
    FIRE          X                49        863 01014P
    FIREP1        X                50        867 01020P
    FLWD              00371P      458        466 00400P
    FLWDA             00350P      448        476 00417P
    FMARK             01717        99        975 01140P
    FORM              01474P     1228        361 00202P
    FORMFLAG      X                51        321 00112P
    FORMREC           00012        95        292 00074P
    FORMSWRD          00016        40        240 00012P        242 00014P        256 00030P        259 00033P        328 00121P        331 00124P
                                              350 00145P        418 00267P        421 00272P        628 00611P        649 00633P        656 00641P
                                              669 00654P        672 00656P        677 00662P
  * FREEBLK       X                52
    FREEFILE      X                53      402+5 00243P
    FREEMEM       X                54      403+4 00247P     527+36 00525P       1177 01426P
    GBIW              00765P      838        814 00741P
    GBLW              00770P      842        909 01060P
    GENOW             00717P      792        787 00712P
    GETBLK        X                55        851 01000P
    GETBUFF       X                56        269 00043P        786 00711P
    GETMEM        X                57      527+9 00474P       1016 01201P
    GETWORD           00376P      464        282 00062P        320 00111P        343 00137P
    GIVBUFF       X                58        888 01040P
    GIVBUFFA      X                59        416 00266P
    HLNT              00002        84        232 00003P      454+7 00367P        455 00370P      472+3 00410P        780 00703P        897 01047P
                                              908 01057P
    HSINP      E      01375P     1150         18 00000P
    HSINPFIL          01444P     1194       1172 01421P
    HTCR              00004       208       1203 01450P
  * HTFILE            00001       205
  * HTLP              00002       206
    HTMASK            00017       219    1087+10 01246P
  * HTMAX             00016       218
  * HTMSF             00014       216
  * HTMT              00005       209
  * HTNULL            00010       212
  * HTPLOT            00007       211
  * HTPTP             00015       217
  * HTPUN             00003       207
  * HTRAF             00012       214
    HTTASK            00013       215    1087+11 01247P
  * HTTTY             00006       210
  * HTTV              00011       213
    HWBUF             00720P      795        776 00700P
    IADR              00000P      227        267 00041P
    IDENT             00017        49         50 00000P        249 00023P        364 00205P        422 00273P
    IFEND         X                60       1153 01377P
    IFEXIT        X                61       1167 01414P       1170 01417P
    IMAD              00005        22         24 00000P        339 00133P        359 00156P        374 00217P
    IMADR             00003       112        113 00666P        770 00673P        778 00701P        800 00724P
    IMDR              00003P      231        271 00045P
    IMPURE            00000        77       1207 01456P       1213 01457P
    IMPURE04   E      01456P     1207         19 00000P
    INHIBIT       X                62        571 00562P
    IOBUSY        X                63        407 00255P
    IOCLEAR       X                64        833 00761P       1223 01471P
    IWADR             00666P      762        784 00707P
    IXTST             00126P      334        346 00141P
    JOB               01453P   1204+1      993+1 01157P
    KILL       E      00600P      618         20 00000P
    KILLFLAG          00007        25         26 00000P        323 00114P        386 00227P        511 00446P        631 00614P
    KILLIT            00237P    402+1      388+1 00232P        513 00450P
    KZERO         X                65        927 01076P       1198 01446P
    LNIM          00006         24        25 00000P       291 00073P
    LOGOFF        01451P      1204      1004 01166P
    LP            00001         72    527+21 00506P    1090+4 01257P   1101+60 01335P   1101+77 01356P   1101+78 01357P   1101+88 01367P
    MGC03         01313P   1101+29   1101+26 01310P
    MGC04         01314P   1101+30   1101+22 01304P
    MGETCHR       01300P   1101+17   1101+58 01333P   1101+70 01347P   1101+82 01362P   1101+85 01364P
    MPACD1        01363P   1101+84   1101+93 01374P
    MPACD2        01373P   1101+92   1101+63 01340P
    MPACK         01334P   1101+59    1035+2 01221P    1035+6 01225P   1035+11 01232P   1101+57 01332P
    MFACL1        01342P   1101+65   1101+71 01350P
    MPACL2        01355P   1101+76   1101+80 01360P
    MPACL3        01361P   1101+81   1101+68 01345P
    MPACLX        01351P   1101+72   1101+75 01354P
    NBIT23     X              66       827 00753P      1195 01444P
    NCRWAIT    X              67       831 00757P      1221 01467P
    NDATA         01433P      1183      1162 01410P
    NDATA02       01446P      1197      1188 01437P
    NJM           00011         27        28 00000P       414 00264P       481 00422P
    NOTFORMS      00223P       380       352 00147P
    NOTFR         00140P       344       322 00113P       325 00116P       332 00125P
    NOTJOB        01165P      1002     993+2 01160P
    NUMCONV       00326P    446+10     360+6 00165P    360+17 00200P
    NUMCV02       00333P    446+24    446+34 00345P
    OPMSG      X              68       253 00027P       316 00103P       377 00222P       429 00302P
    PDP8BLK    X              69      1156 01402P
    PDP8CTLX   X              70      1181 01432P
    PFLOC         00001         78        82 00000P     276+5 00055P       280 00060P       356 00153P       436 00305P       451 00355P
                                         454 00360P       475 00413P       796 00720P       799 00723P       823 00750P       858 01007P
                                         891 01041P       894 01044P       914 01064P
    PFR           00000         79     276+5 00055P       451 00355P       796 00720P       891 01041P
    PFSAVE        00016        124       125 00666P       797 00721P       822 00747P       857 01006P       892 01042P       913 01063P
    PFW           00000         80       280 00060P       356 00153P       436 00305P       454 00360P       475 00413P       799 00723P
                                         823 00750P       858 01007P       894 01044P       914 01064P
    PFWORD        00016         39        40 00000P        49 00000P       278 00056P       355 00152P       435 00304P       452 00356P
                                         474 00412P       479 00420P       518 00453P
    PLCLOP        00733P       807       820 00746P
    PLCR          00742P       815       898 01050P
    PLST          00136P       342       294 00076P     318+5 00107P
    POSI          00015         38        39 00000P       288 00070P     318+4 00106P       327 00120P       336 00130P       338 00132P
                                         347 00142P       367 00210P       381 00223P
    PROCNUM       01226P    1035+7    1035+3 01222P
    PSA           00000         91    527+37 00526P    527+39 00530P       830 00756P       832 00760P      1220 01466P      1222 01470P
    PSALOC        00013        120       121 00666P       123 00666P       829 00755P      1093 01262P      1219 01465P
    PURE04     E  00000P       224        21 00000P
    QEMPTY        00024         55        57 00000P       575 00566P
    QINGLOC       00022         52        54 00000P
    QPNT       E  00023         54        55 00000P      21+1 00000P    527+44 00535P    527+54 00546P       568 00557P
    RDIST         00006        115       117 00666P       856 01005P       864 01015P       884 01034P       887 01037P
    RDYMESID      01501P      1232       250 00024P
    RDYMESL       00014       1233       252 00026P
    RDYMESS       01477P      1231      1232 01502P      1233 01502P       251 00025P
    READ       X              71       492 00435P
    REGQ          01252P   1087+14    1087+3 01237P    1087+7 01243P
    RGBNS         00676P       773       767 00672P
    RPLCW         01041P       890       880 01031P
    RPSAPTR    X              72    527+37 00526P
    SCRAM         00751P       824       883 01033P
    SCREAM     X              73       246 00020P       358 00155P       425 00276P       658 00643P       668 00653P       679 00664P
    SENDLOOP      01241P    1087+5   1087+12 01250P
    SENDTAB    X            73+1    1087+6 01242P
    SENDTAB1   X            73+2    1087+8 01244P   1087+13 01251P
    SENDTABL   X            73+3    1087+4 01240P
    SENDTABP   E  01242P    1087+6      21+2 00000P
    SENDTLP    E  01240P    1087+4      21+3 00000P
    STOPIT        00320P     446+2     276+4 00054P
    STRT       E  00624P       641        22 00000P
    STRT01        00641P       655       638 00623P
    STRT02        00650P       664       653 00637P
    STRT04        00655P       670       635 00620P
    STRT06        00661P       675       633 00616P       651 00635P
    STRTERR       00630P       646       627 00610P       630 00613P       666 00651P
    STRTLOC       00025         57    527+62 00556P
    SYNC          00100P       311       354 00151P       384 00226P       402 00236P
    SYNCL         00027        523       314 00101P
    SYNCM         00456P       522       523 00463P       313 00100P
    TERMF         00233P       398       286 00056P
    TERMFX        00244P       403       315 00102P
    TFL           00007         97    527+17 00502P       875 01024P      1030 01212P      1092 01261P   1101+25 01307P
    TIMAD         00012        119       120 00666P       840 00766P       895 01045P
    TKZ           00437P      502        480 00421P
  * UJPX3         00347P   446+36
    UNLINK        01457P     1213      527+5 00470P     527+49 00542P     527+61 00555P        576 00567P        931 01100P       1014 01177P
                                        1215 01461P       1224 01472P
    URBEXIT       00021        51         52 00000P        230 00002P        264 00036P        276 00051P        372 00215P        437 00306P
                                       446+8 00325P        504 00440P
    URBEXITA      00020        50         51 00000P        272 00046P        488 00431P        490 00433P
    URBLOK    E   00047P      274         23 00000P        662 00647P
    URBLOKA       00052P    276+1        234 00005P
    URBLOKI   E   00007P      237         24 00000P        673 00657P
    URBLOKIX      00030P      255        239 00011P
    URBLOKIZ  E   00035P      262       24+1 00000P        258 00032P        680 00665P
    URBLOKNX  E   00557P      568         26 00000P
    URBLOKQ   E   00465P    527+1         25 00000P
    URBLOKQX  E   00470P    527+4         27 00000P
    URBQ05        00535P   527+44     527+55 00547P
    URBQ10        00543P   527+51     527+43 00534P
    URBQ20        00550P   527+56      577+4 00574P      577+7 00577P
    UW1           01414P     1166       1192 01443P       1199 01447P
    UWBCALLB      01175P     1011        997 01161P
    UWBCCARD      01153P      989        976 01141P
    UWBEXIT       01103P      934        985 01150P
    UWBFILL       01076P      926       1000 01164P
    UWBFILLD      01100P      930        925 01075P
    UWBLDRET      01144P      980       1006 01170P       1009 01174P       1099 01277P
    UWBLOCK   E   00673P      769         28 00000P        928 01077P        987 01152P       1187 01436P
    UWBLOCKB  E   01067P      918         29 00000P
    UWBNOTF       01104P      936        921 01072P
    UWBRET        00020       126        934 01103P
    UWBSTWC       01143P      978        953 01125P        968 01131P        972 01135P
    UWBWC         00017       125        126 00666P        127 00666P        919 01067P        938 01104P        949 01120P        986 01151P
                                        1026 01206P
    UWBX3         00021       127        130 00666P      920+1 01071P        923 01073P        981 01144P        998 01162P     1006+1 01171P
                                      1006+3 01173P     1012+1 01176P
    UWDISK        01021P      871        855 01004P
    UWMAX         00024       132        137 00666P
  * UWMAXA        00027       144
    WCNT          00010       117        118 00666P        808 00733P        818 00744P        879 01030P        907 01056P
    WPFB          01000        85        465 00377P        491 00434P        780 00703P        812 00737P        865 01016P        897 01047P
                                         905 01054P        908 01057P
    WRITE       X              74        866 01017P
    X1            00001        86         89 00000P        238 00010P        240 00012P        242 00014P        249 00023P        256 00030P
                                         259 00033P        264 00036P        265 00037P        276 00051P      276+2 00052P        278 00056P
                                         279 00057P        288 00070P        290 00072P        291 00073P      318+3 00105P      318+4 00106P
                                         323 00114P        327 00120P        328 00121P        331 00124P        335 00127P        336 00130P
                                         338 00132P        339 00133P        345 00140P        347 00142P        350 00145P        355 00152P
                                         359 00156P      360+1 00160P      360+8 00167P        364 00205P        367 00210P        372 00215P
                                         374 00217P        381 00223P        382 00224P        386 00227P        399 00233P      402+1 00237P
                                       403+1 00244P      403+6 00251P        405 00253P        408 00256P        411 00261P        414 00264P
                                         415 00265P        418 00267P        421 00272P        422 00273P        435 00304P        437 00306P
                                         440 00311P        445 00316P        446 00317P      446+4 00321P      446+6 00323P      446+7 00324P
                                       446+8 00325P      448+2 00351P      448+3 00352P        449 00353P        452 00356P        453 00357P
                                       454+1 00361P      454+5 00365P        459 00372P        464 00376P        469 00402P        470 00403P
                                       472+1 00406P        474 00412P      475+2 00415P      475+3 00416P        491 00434P        504 00440P
                                         506 00442P        508 00444P        509 00445P        511 00446P        517 00452P        518 00453P
                                       527+2 00466P      527+3 00467P     527+41 00532P     527+44 00535P     527+45 00536P     527+47 00540P
                                      527+48 00541P     527+52 00544P     527+53 00545P     527+54 00546P     527+58 00552P     527+60 00554P
                                      527+62 00556P        568 00557P        575 00566P        619 00600P        624 00605P        625 00606P
                                         626 00607P        628 00611P        631 00614P        643 00625P        647 00631P        648 00632P
                                         649 00633P        656 00641P        660 00645P        661 00646P        669 00654P        672 00656P
                                         677 00662P        849 00776P        865 01016P     1087+4 01240P     1087+8 01244P    1087+13 01251P
                                     1101+31 01315P    1101+33 01317P    1101+35 01321P    1101+37 01323P    1101+39 01325P    1101+40 01326P
                                     1101+42 01330P    1101+61 01336P    1101+62 01337P    1101+65 01342P    1101+86 01365P    1101+91 01372P
                                        1180 01431P
    X2            00002        87        229 00001P        248 00022P        315 00102P        340 00134P        341 00135P        360 00157P
                                       360+7 00166P     360+18 00201P        362 00203P        366 00207P        368 00211P        371 00214P
                                         373 00216P        428 00301P     446+21 00330P     446+23 00332P     446+24 00333P     446+27 00336P
                                      446+29 00340P     446+31 00342P     446+35 00346P        460 00373P        461 00374P        492 00435P
                                         519 00454P        520 00455P      527+5 00470P      527+7 00472P     527+10 00475P     527+17 00502P
                                      527+21 00506P     527+23 00510P     527+30 00517P     527+33 00522P     527+40 00531P     527+46 00537P
                                      527+56 00550P     527+59 00553P        576 00567P        577 00570P      577+2 00572P        621 00602P
                                         644 00626P        766 00671P        810 00735P        812 00737P        835 00763P        850 00777P
                                         866 01017P        873 01022P        875 01024P        876 01025P        921 01072P        939 01105P
                                         941 01110P        947 01116P        948 01117P        952 01123P        965 01126P        983 01146P
                                        1012 01175P       1027 01207P       1028 01210P       1034 01217P     1094+4 01267P     1094+7 01272P
                                     1094+11 01276P    1101+23 01305P    1101+24 01306P    1101+32 01316P       1159 01405P       1170 01417P
    X3            00003        88        228 00000P        230 00002P        233 00004P        247 00021P        260 00034P        263 00035P
                                         266 00040P        270 00044P        272 00046P        275 00050P        281 00061P      318+6 00110P
                                         342 00136P      360+2 00161P      360+4 00163P      360+5 00164P      360+9 00170P     360+10 00171P
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 360+13 00174P   360+16 00177P    402+2 00240P    402+3 00241P    403+3 00246P      409 00257P
    412 00262P      438 00307P      443 00314P   446+36 00347F      450 00354P      462 00375P
    468 00401P      471 00404P      473 00411P      479 00420P      481 00422P      482 00423P
    485 00426P      486 00427P      488 00431P      489 00432P      490 00433P      503 00437P
  527+6 00471P    527+8 00473P   527+16 00501P   527+20 00505P   527+22 00507P   527+26 00513P
 527+29 00516P   527+32 00521P   527+35 00524P   527+37 00526P   527+39 00530P   527+61 00555P
    569 00560P      570 00561P    577+3 00573P    577+5 00575P    577+6 00576P      623 00604P
    646 00630P      674 00660P      763 00666P      764 00667F      772 00675P      783 00706P
    801 00725P      802 00726P      811 00736F      817 00743P      830 00756P      832 00760P
    839 00765P      848 00775P      853 01002P      854 01003P      856 01005P      857 01006P
    860 01011P      862 01013P      863 01014P      864 01015P      877 01026P      886 01036P
    887 01037P      896 01046P      903 01052P      905 01054P      908 01057P      920 01070P
    940 01106P      943 01112P      946 01115P      950 01121P      969 01132P      973 01136P
    979 01143P      982 01145P      991 01154P      992 01155P      999 01163P     1003 01165P
   1015 01200F     1024 01205P     1030 01212P     1032 01214F     1033 01215P   1033+1 01216P
 1035+4 01223P   1035+9 01230P  1035+13 01234P   1087+2 01236P     1088 01252P   1090+2 01255P
 1090+4 01257P     1092 01261P     1094 01263P   1094+5 01270P   1094+6 01271P  1101+18 01300P
1101+19 01301P  1101+25 01307P  1101+28 01312P  1101+30 01314P  1101+38 01324P  1101+43 01331P
1101+60 01335P  1101+77 01356P  1101+78 01357P  1101+88 01367F     1154 01400P     1163 01411P
   1164 01412P     1167 01414P     1176 01425P     1216 01462P   1216+2 01464P     1220 01466P
   1222 01470P
```